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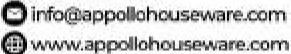




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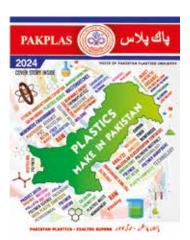
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Pakplas Annual Magazine is A Publication of Pakistan Plastics Manufacturers Association.



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Printed at: Time Press, Karachi.

Price: Rs. 3000 US \$ 15

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GRATITUDE & ACKNOWLEDGEMENT:

PPMA and Pakplas Magazine is gratefully acknowledge to our honorable writers who shared their professional, experiences, knowledge and wisdom to readers and plastics businessmen and members.

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Highly grateful to all Advertisers who participated in Pakplas Magazine.



EDITORIAL

اواربہ

My dear readers of Pakplas magazine:

After greetings. بعدالتحيير

It is with great pride that your Pakplas Magazine 2024 is ready in your hand for reading. I invite you to read this year's issue with enthusiasm and passion.

Well Gentlemen! Whether a novel, a movie, or a television show, there is nothing like a good story or good book. Combine compelling characters with dramatic conflict, and readers and viewers will devour each installment until they know the ending. In terms of storytelling, it would seem that fiction might have an edge over nonfiction. Pakplas magazine is neither a story telling nor a fiction, instead it is, and the every word is a nonfiction – a reality, a truth and an experience.

Success - Try to stop thinking success or failure when you want to do something. Always try to break through, because you can go back if it doesn't work, but if you don't do it, you can never go to the new development. Be passionate and responsible to what you do and stay humble. Dream the impossible. Seek the unknown and achieve greatness.

Success is not always about 'Greatness', it's about consistency. Consistent hard work gains success. Greatness will come by the time, Success is not overnight. It is when every day you get a little better than the day before. It all adds up. Accept the challenges and do it now, because sometime 'later' becomes 'never'.

A year has gone by: We have crossed the half 2024 and faced many challenges, in comparison of last year, there is a ray of hope and optimism prevailed. The Pakplas magazine faced many challenges, the challenge of international plastics print media, the challenge in the domestic plastics corridor and to remain focal voice of the Pakistan Plastics Industry and the plastics business as a whole and above all the awareness of the Circular Economy to remain in full force and Recycling of Plastics as a hot subject. The Pakplas Magazine is a written manifestation of the Plastics Industry's spirit which flows through the

business houses, thoughts of the plastics professionals ambitions of and people and emerging businesses. This is the spirit that continues encourage innovation and spurs a love for intellectual pursuits in our future technology and **Plastics** leaders. This is this passion which ignite by Pakplas to flourish and flourish.



S.M. Anwar Editor in Chief

The Pakplas Magazine 2024 has greater significance as this is challenging the Plastics World that Pakistan Plastics is superb and meeting all norms and standards of the modern plastics products with high quality. With this in mind a theme is developed – Plastics – Make in Pakistan – Exalted Superb. In addition to this theme there are other significant characteristics of Pakplas 2024 which is enumerated below briefly In categories and in Seriatim.

Plastics - Make In Pakistan - Exalted Superb: A unique theme is developed that Pakplas will play a pivotal role in portraying Pakistan's Plastics Image on a national and international level. The Plastics Products - Make in Pakistan - meet all norms and standards to the contemporary Plastics World. In addition to Plastics Products, Even the men and machines are of high quality. The details of the theme is covered in the Cover Story write up in the inside pages of the Pakplas magazine.

Circular Economy And Plastics: Circular Economy and Plastics are correlated. The Circular Economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and Recycling existing materials and products as long as possible. The Recycling of plastics is a necessity to boost the circular economy. A brief write up is in the Pakplas Magazine which is the basis of information.

Recycling Of Plastics: It is a topic which is hot everywhere nearly all types of plastics can be recycled. Although this is the most written and readable subject, even then it needs reading and re-reading and understanding. The brief explanation will be interesting for the Pakplas readers to



grasp and understand as the subject require deep insight.

Pakplas Gone Multilingual: Urdu & English: The articles in Pakplas Magazine is mainly written in English language which remain on the table of the Executives. We tried to extend the readability, visibility, understanding and circulation to the plastics people. Thus majority of the articles have been briefly summarized in Urdu language. We found that the plastics professionals, supervisors, plastics personnel find it interesting and waiting for the magazine. This is appreciated by all corners and the circulation have been increased. Pakplas treat this as a great success.

Advertisements: The current Pakplas Magazine is more than 196 pages which is a combination of 98 ads, and 98 pages write ups. The ads are plenty due to meet the high printing cost and other expenses. The advertisement of the products are of high quality and standard, Quality Write ups, high resolution photos of the products are very attractive. In addition the write ups, products briefing and information is a treasure of knowledge more than the articles. I will urge you to read the Ads and the briefing to attain maximum benefit of usage of products confidently. The Ads are for the benefit and attraction of the entire family as the products are being used by them.

Research and Innovation: Advancement of technology and the dynamism of market products and productivity is rapidly changing the products. Everyday a new technology, new product is emerging. Pakplas has tried to streamline the new innovations as far as possible to convey to the readers. A great number of pages have been devoted for the research and technology and new products.

Awards For Products: In America, Europe and China and other countries, Plastics Associations arrange and present awards to the New and emerging Plastics Products. Pakplas covered the Plastics Recycling Award Europe and some of the awards are streamlined for the Plastics Products Manufacturers and the Viewers. Pakplas covered European Recycling award and well appreciated.

Circulation and readship increased : In 2024, Great efforts have been made to increase the reach

of the message to Plastics Readers, Plastics Products Manufacturers, Men and Machines. We are proud to say that this reaching of the circulation have been increased to manifold. The circulation, print and ads, digital and other medium of Pakplas magazine have been increased which is encouraging.

The magazine will be available in print form. Pakplas planned that after three months the magazine will be available online to the available linkage.

My request to my dear readers, please read it thoroughly and enjoy. Your comment and criticism would be highly beneficial for future improvement. If you find anything to criticize, please do it, write it to me, but not let spoil of your enjoying the rest.

Pakplas team is thankful for the support of Chairman PPMA and all EC members. My gratitude is due to all Team Members, to the Chairman and Deputy Chairman of Editorial Board and their support. Mr. Raja Omer Nawaz, Mr. S. M. Noman, Mr. Ahmed Kunji, Mr. Khalil Ahmed and Irfan Sabir. They and Mr. Imran Ghani, supported me and bear my audacity, my aggression with great patience. My Coordinator, Mr. Shariq did his best and showed all round performance without which the Magazine cannot be published. Mr. Rashid Mahmood, and Mr. Ahsan, they did all the marketing and administrative support and worked hard to make it a success which is highly commendable.

Pakplas is greatly thankful for the contribution of beautiful advertisements contributed by the Advertising companies without which the magazine could not be published. Our friends, the Ph.Ds. the Plastics Professionals for their contribution of authentic writings. Our foreign correspondents who remained helpful and provided a good contribution which exalted the magazine. I myself, my Chairman of Editorial Board, Pakplas Editorial Team are highly thankful.

With all good wishes & ALLAH Bless.

S.M. Anwar

S.M. Anwar Editor In Chief وہ منتش جونظ رے کے بعید باتی رہ حبائے قوسس و مستزح

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Elaborated: cover story - Make in Pakistan, Co-related Circular Economy with plastics, recycling of Plastics, Urdu and English, Awards of Plastics Products, Ads are treasure and circulation increased to manifold and Research and innovation Presented to the Pakplas readers with optimism and Spectrum..... read and comment.

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17 ROLE AND RESPONSIBILITY OF PAKISTAN PLASTICS بلاسٹک انڈسٹر ک۔ کردار اورذمہ داری INDUSTRY.

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Adil Nakhada.
Pakplas regular courteous writer, A Professor of IBA, a writer of Economic Books and Finance having deep eye on Plastics, Finance and Economics have contributed a fine writings and a very important



RESEARCH AND INNOVATION

ريسرچ ايند ڈولپمنٹ۔ تحقيق و ترقی



Mr. Zakaria Usman, Patron-in-Chief of PPMA, compiled an executive writing on the R&D – the Role and Understanding the Importance of Investment in R&D for the Plastics Industry.

A brief analysis to deeply grasp on.....



39 SUSTAINABLE APPROACHES TO THE PLASTICS INDUSTRY IN PAKISTAN.

عرفان صابر کی کورتے۔ انٹر پلاس

Mr. Irfan Sabir, Pakplas UK Correspondent, a foreign qualified professional and a Polymer Engineer and a regular contributor of authentic writings for Pakplas. Extended his writing with the continuation of the last year theme excerpts from the UN Sustainable Development Goal. This is the extension of the



3D TECHNOLOGY - A MORE 47 ADVANCED PERSPECTIVE.

تھری ڈی ٹیکنالوجی۔ ایک مزید جدید نکتہ نظر

In the dynamic realm of technological advancements, Mr. Saleemuddin Ferooze, Chairman PPMA recently visited Frankfurt, Germany, Australia and USA with a mission to convey a transformation message to Pakistani Plastics Manufacturers to revolu-



Hard-to-Recycle Plastics - Facing The Challenge

مشكل رى سائيكل ملاسك - جيلنج كا سامنا

Raja Umar Nawaz, The divercity of Polymers is the main reasons for the complexity of Recycling, A light on the challenges



BRIEF HISTORY AND EVOLUTION OF MASTERBATCHES IN THE POLYMER WORLD

Mr. Atba Farouqi, owner of Atza Dispersion, presents a brief history and evolution of masterbatches in the polymer world. Masterbatches have revolutionized the

REVOLUTIONIZING CONSTRUCTION THE VERSATILITY

VERSATILITY انقلابی تعمیر۔ ری سائیل پلاسٹک کی استعداد

Our Prof. Dr. Saud Hashmi and Raza Muhammad Khan of Department of Polymer and Petrochemical and Engineering, NED University of Engineering and Technology tackles the mounting plastic waste predicament and convert it into economic feasibility. A pioneer advancement to recycle inter blocking blocks by and

PLASTICS IN PAKISTAN'S AUTOMOTIVE INDUSTRY

پاکستان آٹوموٹیو انڈسٹری میں بلاسٹکس





The Chief of Thermosole Industries, Mr. Nabeel Hashmi, gave a very strong brief about the Auto Manufacturing countries and Pakistan Manufacturing Cars and their plastics parts. He said the use of Plastics in Pakistan automobile industry is growing and growing due to the

Why Corporate Social Responsibility (CSR)

کار پوریٹ ساجی ذمہ داری ۔ اہمیت

Chairman Rastgar Group Mr. Imtiaz Rastgar, Foreign Consultant, Coach and Trainer and author of several books, writes on the CSR and asked the Corporates to take Air Compressed Seriously in their entities. By reducing energy saving......



PLASTICS MAKE IN PAKISTAN-A SUCCESS STORY.

یا کستان بلاسٹکس -عمر گی کا جوہر

Mr. Khalil Ahmed, the CEO of Klass Electric embarked a journey on the path of local Manufacturing of electrical components and trained thirty local manufacturers to initiate and help in their molds, technical information and guidance.





75 PLASTICS KNOWLEDGE VS PLASTIC SKILLS.

پلاسٹکس کی معلومات بمقابلہ پلاسٹکس کا ہنر

Mr. S M. Noman, the Qualified Custom Moulder, always interested in the academic field provided very informative writings to Pakplas. He wrote about a very interesting subject about Plastics Knowledge and Plastics Skill. An interesting

7 7 PAKISTAN MASTERBATCHES-COLOUR YOUR WORLD WITH FAVOLENE.

ماسٹر بیچیز کے ذرریعے اپنی دنیا کو رنگین کریں

Beyond catering to the domestic market, FAV Plastico has extended its reach to international frontiers, exporting its premium master batches



PAKPLAS EXCLUSIVE CONVERSATION WITH HABIB ELAHI - DIRECTOR 79 THE MAC CORPORATION.

انٹر ویو۔نوجوان ڈائر یکٹر۔میک پیک کاربوریشن

In the spotlight - the GREEN Ark - TGA is dedicated to transforming the Plastics Recycling and Packaging industries through innovative recycling methods and sustainable practic-



87 RECORD BREAKING ATTENDANCE OF OVER 320,000 VISITORS IN CHINAPLAS

چائنہ پلاس میں ریکارڈ توڑ حاضرین کی شرکت

Pakplas International Media Partner – Adsale HongKong, the China Plas Event Organizer have broken records, total visitors count and overseas visitors count of any previous editions of ChinaPlas. The focus of exhibition on the four main themes of Circular Economy, Innovative materials, Digitilization and High End Technologies. For

COVER STORY - PLASTICS MAKE 91 IN PAKISTAN. میرورق کی کہانی۔ پاک بلاس میگزین

Current theme of Pakplas Magazine – Plastics – Make in Pakistan – is unique. Pakplas developed a campaign and portray that Plastics Products make in Pakistan are of international standard and high quality. Narrated by Editor-in-Chief



97 STAN'S PLASTICS REVOLUTION.

پاکستان میں بلاسٹکس انقلاب کی راہ میں سبقت

SPELL is at the forefront on the country's manufacturing sector. By integrating advanced manufacturing techniques, eco-friendly practices and strict focus on quality continues to lead the way in Pakistan's plastics industry. The innovation, R&D and quality of



PVC, THE SMART CHOICE FOR SUSTAINABLE SOLUTIONS 99

پی وی سی۔ پائیدار حل کیلئے بہترین انتخاب

This article outlines that by leveraging these innovations, the PVC Industry is poised to make significant contribution to the green construction sector. PVC adding elegance to each and every corner and PVC Product – Make in Pakistan – Exalted Superb are of High Quality. Look at it......

103 CLASH BETWEEN PLASTICS AND ME - a DIALOGUE Between Me and Plastics.

پلاسٹکس اور میرے در میان تصادم

Mr. Zaheer Khan, a qualified Polymer Professional having full command on English and Urdu Language, A Writer, A Poet and Columinist and A Humarist, outlined a piercing question with the Plastics. The question answer dialogue is outlined with a tense and cordial atmosphere and replied to cool down the anger of ME. On the request of the Pakplas Reader and Viewer this dialogue is



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PLASTICS FOR BUS

بسول میں پلاسٹکس کا استعال



PLASTICS FOR TRAIN

ٹرین میں بلاسٹکس کا استعال

The young and talented man Mr. Ahmad Kunji, the EC Member of PPMA, leading the Delegation in ChinaPlas frequently visiting abroad and having a deep eye on Plastics, Men and Machines always created very informative for the reader of Pakplas. He compiled a brief on the usage of Plastics in Train. He brie y explained that what Plastics are



PLASTICS OR PLASTIC

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بلاسٹکس یا بلاسٹک

Another writing of Mr. Zaheer Khan, a Qualified Man, having command on the language corrected the usage of word of Plastics or Plastic, a common mistake plastics people doing. Although both is commonly used. A piece of information for the common usage to read.......

117 PLASTICS FOR CIRCULAR و المانومي كيك پلاستكس

S.M.Anwar, the Editor in Chief of Pakplas and a Chief Executive of a Plastics Recycling Unit compiled a comprehensive write up on the most demanding subject of present time: P-lastics for Circular Economy – A Co-relation......



PLASTICS RECYCLIN AWARDS EUROPE 2024 - 129

بلاسٹک ری سائیکلنگ ایوارڈ یورپ 2024

To encourage Recycling of Plastics and to boost Circular Economy the European Plastics Recycling Associations arrange very famous Plastics Recycling Product Award which is arranged in Amsterdam in June 2024. More than 100 Recycled Products were presented. The 8 Winners were announced with their Best Recycled Plastics products.......

145 WE NEED MOLECULAR RECYCLING:

مالیکولر ری سائیکانگ کی ضرورت

This is an excerpt from Plasticsengineering.com which found that more plastics wastes of the recycling rates worldwide have demonstrated that effectively managing plastics wastes need multiple recycling technologies into the Plastics Wastes Recycling System... A recycling point to ponder......

RECYCLED PLASTICS STANDS FOR 2024

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اولمپک گیمز 2024 کیلئے بلاسٹک اسٹینڈز

One Hundred Tonnes of Recyled Plastic were required to produce 11,000 Olympic Seats, meaning the same amount of virgin Plastics were ultimately not extracted and would not go to waste stream. A great brief to read on.....

149 KARACHI GETS ITS FIRST ROAD MADE WITH RECYCLED PLASTIC

کراچی میں ری سائیکلنگ بلاسٹک سے بنا روڈ

After Islamabad, A Petroleum Company with a local collaboration to construct an innovative road using



recycled Plastics waste - Shell Lubricant Bottles were successfully recycled and used for the



151 SMART PLASTICS; INTER-NET OF THING AND ARTIFI-CIAL INTELLIGENCE.

اسارٹ بلاسٹکس۔ مصنوعی ذہانت کا مجموعہ

The fusion of the Internet of Things (IoT) and Atificial Intelligence launching the era of Smart Plastics. These materials aim to revolutionize the functionality of Plastics



153 PLASTICS, THE GAME CHANGER FOR NEW ENERGY TRANSFORMATION.

پلاسٹکس۔ جدید توانائی کی تبدیلی کا عضر

The new energy refers to renewable forces other then fossil fuels, hydrogen. Water etc. It is direly needed for households and businesses in



PLASTICS; SOWING THE SEEDS FOR FARMING'S FUTURE. يلاسكس مستقبل كي زراعت كيك بج بونا

Todays farmers shoulders the responsibility of 8 Billion people. Plastics significantly improve the Agriculture, particularly in irrigation system offers the potential. A



PLASTICS - NEXT GENER-ATION FIBER-REIN-FORCED POLYKETONES ALTERNATIVE TO NYLON 66 AND ACETOL.

Next Generation Plastics - The new complete PKE long glass fiber reinforced formulations can provide alternative to Nylon and Acatal. A new tech.....



PAKISTAN PLASTICS SPORTS INDUSTRY:

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سیالکوٹ۔ بلاسٹک کھیلوں کی عمدہ صنعت

Plastics are instrumental in Sports. Sialkot is one of the Industrial Cities in Pakistan. Sialkot and Plastics have emerged as a transformative force in the realm of sports. A very happy note...........



163 MADE OUT OF PLASTICS BOTTLES

آپ کی اگلی کار بلاسٹک کی بو تلوں سے بنائی جاسکتی ہے۔

Imagination to come reality that a company has been simulations to test the viability of recycled plastics bottles being transformed into automative parts. What



MICROPLASTIC FILTRA-TION DEVICE - PLASTICS 165 NEXT GENERATION.

مائيكرو بلاستكس فلثريش ديوائس

The youngster win first place in their category. They hope that their award wining device is first to use microscopic plastic particles to find



PLASTICS COMPOSITES WITH GLASS FIBER POLYTHENE ETHER KETONE (PEEK)

بلاسٹکس گلاس فائبر۔تر کیبی عمل

Polyether ether Keytone are stronger and when reinforced with Glass Fiber Composite become more and more stronger and more and more versatile. An Excerpt





PLASTICS RECYCLING INSULIN PEN.

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It is an excerpt from Life Science Industrynews.com that the Insulin Pen transform them from plastics waste to resource. Very interesting brief and plan to move forward in other

171 A 3D PRINTED PAVILION MADE FROM RECYLED PLASTICS.

ری سائکل بلاسٹ سے بنا ایک تھری ڈی پرنٹ شدہ بویلین

A 3D printing Studio developed an innovative pavilion entirely made from 3D printed recycled plastics. The innovation has no limit.....

A MATERIAL MADE FROM STONE AND RECYCLED 173 PET.

پتھر اور پی ای ٹی سے تیار کردہ مواد

Amazing excerpt from Sustonable.com. The EU'S Community Research and Development and information Services has added to their explanatory videos titled

"Make the Connection ". Combined crushed stone with recycled PET

175 THE REMOVABLE PLASTIC SEAWALL.

متحرك بلاسك ديوار

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POLYMER SLEEPERS, A SUSTAINABLE ALTERNATIVE SOLUTION. 177

پولیمرسلیپرز-پائیدار ذریعه

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179 SAFE AND AFFORDABLE DRINKING WATER THROUGH A PLASTICS BAG.

پلاسٹک کے تھیلوں کے ذریعے صاف پانی

A Sustainable and cost-effective water purification solution. The Sawabag purification technology is based on PET bottles. A brief.....



PROTECT OUR PLANET FROM PLASTIC POLLUTION.

اپنے سیارے کو پلاسٹک کی آلودگی سے بچائیں

An excerpt from UNO Environment Programme (UNEP) Report.. A brief worth reading.....

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56	AVIENT PAKISTAN	80	PANWELD ENTERPRISES	
84	BANK AL-HABIB LIMITED	82	PAPPO RANGWALA	
140	BIN QASIM PACKAGES (PVT) LTD.	158	PARUS PLASTIC	
3	BRITE TRADING AGENCY	116	PLASTIMAKERS	
22	BRITE TRADING AGENCY	136	PLASTOCHEM CORPORATION	
134	BULK FLEXIBLE	188	PPMA	
150	CBM PLASTICS (PVT) LTD.	184	RAHBER	
40	CHERRY PLASTICS	70	REHAN CAN (PVT) LTD.	
86	CHINAPLAS	50	RON EXTRUSIONS ENGINEERING	
134	CLOUD PACKAGES	28	ROOTECH PAKISTAN	
48	DAWOOD CORPORATION	122	SAFARI WATER BOTTLE	
42	DELTA UPVC PIPE	170	SANAKA PLASTIC & SCIENTIFIC	
100	DG TECH MACHINERY	108	SHARMEEN POLYMERS	
174	DOLLAR INDUSTRIES (PVT) LTD.	182	SHOAIB AMIN	
30	DUA ASSOCIATES	148	SHIELD CORPORATION	
98	ENGRO POLYMERS	168	SULTAN TRADING CORPORATION	
112	ERUM PLASTIC WORKS	1	SUNNY CO	
76	FAV PLASTICO (PVT) LTD.	24	SUNNY CO	
144	FORMOSA CHEMICAL & FIBRE CORPORATION	66	SUNNY CO	
88	FUKUTOMI RECYCLING LIMITED	96	SUNNY CO	
126	GALAXY POLYMER ENGINEERING (PVT) LTD.	192	SUNNY CO	
INSIDE BACK PAGE	GE CORPORATION	178	SUNRISE PLASTIC INDUSTRIES (PVT LTD.	
36	HAPPY ME	102	SUPER INTERNATIONAL (PVT) LTD.	
44	ICPL	94	SYNTHETIC PRODUCTS ENTERPRISE LTD.	
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160	INDUS LUBE OIL COMPANY (PVT) LTD.	106	TARIQ PLASTICO	
168	INTERNATIONAL CAPS CO.	78	THE GREEN ARK	
186	ITTEHAD CONSTRUCTION CO.	64	THERMOSOLE INDUSTRIES (PVT) LTD.	
187	ITTEHAD CONSTRUCTION CO.	162	TROPICAL PLASTIC INDUSTRIES	
62	JAY BEES ENTERPRISES	176	UMAIR PETROCHEMICAL INDUSTRIES (PVT) LTD	
142	JILANI FLEXIBLE PACKAGES (PVT) LTD.	130	UNIVERSAL EXPORTERS	
152	JILANI PLASTIC	68	UNIVERSAL PLASTIC INDUSTRIES	
120	KARAMAT SONS CO.	166	VISION TRADE BUSINESS	
128	K-GROUP OF COMPANIES	92	WAZIR ALI & COMPANY	
18	KING PLASTIC INDUSTRIES	16	ZAHORANSKY	
72	KLASS ELECTRIC	124	ZAKI SONS PLASTICS	
156	KM FOOD INDUSTRIED (PVT) LTD.			



FROM PPMA - PAKPLAS EXECUTIVE'S DESK

Mr. Zakaria Usman Patron - In - Chief - Pakistan Plastics Manufacturers Association **C.E.O Perfect Engineering Works**

PPMA - Pakplas has continued to progress, even in times of adversity, through propelling teamwork driven by passion and ambition. This spirit helps PPMA to excels in all circumstances, under any given contingency or uncertainty, while being aligned with strategically devised objectives by our PPMA members.

Pkplas Magazine has played a commendable role in implementing ground breaking initiatives. I am proud to see how PPMA - Pakplas heading to mature into a world class magazine of the plastics world in Pakistan and to the international plastics world.

It gives me great pleasure to recollect that I have been leading the PPMA-Pakplas undoubtedly a national plastics printing media and I wish them many more successful milestone. The Theme is unique and PLASTICS - MAKE IN PAKISTAN - EXALTED پاکستان بلاسٹکس۔عمر گی کا جوہر SUPERB.



MR. ZAKARIA USMAN PATRON - IN - CHIEF

Mr. Saleem uddin Feroz Chairman Pakistan Plastics Manufacturers Association Director - Brothers Industries

Plastics is a wonderful invention. Pakplas Magazine is doing a wonderful job. This year's magazine is full of excitement as the THEME OF PAKPLAS IS PAKISTAN'S IMAGE OF PLASTICS TO SHINE AS A BLOOMING STAR IN THE FIELD OF PLASTICS. Pakplas CAMPAIGN IS DEVELOPED TO PORTRAY THAT IN PAKISTAN'S PLASTICS SCENE THE FINE QUALITY OF PLASTICS WORK IS BEING DONE. THIS MESSEGE IS TO SPREAD TO ALL THAT PAKISTAN PLASTICS IS SUPERB. WHETHER IT IS PLASTICS COMPOSTING, PLASTICS BLENDING, PLASTICS MANUFACTURING, PLASTICS MACHINES OR PLASTICS SERVICE PROVIDER and fine quality of plastics products - superb in quality. We need to face the challenge of plastics products importing in Pakistan and whereas the quality in Making Pakistan plastics product is superior with all standards in contemporary plastics world.



MR. SALEEM UDDIN FEROZ CHAIRMAN PPMA

Mr. Khalil Ahmed Senior Vice Chairman Pakistan Plastics Manufacturers Association **C.E.O Khalq Trading Company**

Plastics broadly integrated into todays lifestyle and one cannot imagine to live without plastics. Pakplas is creating awareness of plastics and the publications are of high quality. Pakplas Magazine is a wonderful example of 22 years of Excellent Publications. The only Plastics Magazine in Pakistan and the Voice of Pakistan Plastics Industry. There is a great admiration of the Pakplas magazine from every quarter. Pakistan Plastics products are of high quality and growing with the perspective – Claiming that Pakistan Senior VICE CHAIRMAN PPMA Plastics Products are Superb. Explore Plastics Wonders in Pakistan – export orientation.



Mr. Muddasar Rahman Vice Chairman Pakistan Plastics Manufacturers Association **Director - Sunrise Plastic Industries (Pvt) Ltd.**

Plastics is a highly benefited material and created wonders in the plastics product making. The plastics is a versatile material and everyday new products are being made which created lot of avenues to explore to produce more and more products. Plastics is lightweight, clear, tough polymer, excellent protective barrier properties make it ideal for use in the drink bottles. The plastics products make in Pakistan are of high quality and equal to any standard of the contemporary plastics world.



MR. MUDDASAR RAHMAN VICE CHAIRMAN PPMA

Pakplas magazine is doing a great job and portraying that this year Pakplas have developed a unique realistic and challenging theme: PLASTICS - MAKE IN PAKISTAN - EXALTED SUPERB.

Mr. Muhammad Abdullah Vice Chairman Pakistan Plastics Manufacturers Association **Director - Tariq Plastico**

Plastics is a great invention and highly beneficial and nowadays everything is being converted into plastics and creating more and more opportunities and there are lot of opportunities in this field. We are blessed that we do our business in plastics.

Pakplas Magazine is doing great. The material is of high quality, the advertisement placed by the advertisers are very informative and attractive. This years theme of the magazine is wonderful and challenging and conveying that the Plastics products - MAKE IN PAKISTAN - EXALTED SUPERB.



VICE CHAIRMAN PPMA





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ROLE AND RESPONSIBILITY OF PAKISTAN PLASTIC INDUSTRY

پاکستان بلاسٹک انڈسٹر ی کردار اور ذمہ داری

Plastic Industry role is changing worldwide and it is essential for Pakistan Plastic Industry to follow and play its part as well in delivering more sustainable and recyclable products.

Consumption of Plastic in Pakistan is still very low which is just 8 kg per person, while in Europe / USA it is 90 kg and world average is above 30 kg.

Pakistan should use plastic waste in Energy production and Road making. This is to save resources and make clean and green environment for Pakistan and future generation.

The plastics industry is evolving globally, and Pakistani plastic manufacturers need to confront and resolve the environmental impact of their goods.

Due to rapid growth of population, disorganization of city governments, lack of public awareness and limited resources for waste management. Pakistan is highlighted as the most polluted country.

Garbage management is becoming a global problem due to lack of care, attention, resources, expertise, latest technology and machinery. The Garbage stations are mostly overflowing and lying for days and months across the streets throughout Pakistan.

Use of modern technology and smart garbage management systems; using cameras, sensors and other tools will assure the lifting of garbage soon when the garbage level reaches its maximum. This devised system will help monitor fake reports by Garbage collector in system.

In creating stronger secondary / recycled material market, an industry and Government co-regulatory framework can be considered within this framework the private sector would develop its own targets and standards in consultation with recyclers for reuse. The government would provide legislative backing to ensure a level playing field throughout the country.

Pakistan Plastic Industry should adopt a circular economy model so more waste may be used again as raw

material. This will save our foreign exchange as we import these raw materials in foreign currency.

Provincial Government should make waste management law for household, industries, office buildings, malls, market, commercial wholesaler and retailers.



There should be specific laws for collection for proper disposal of all types of waste.

Effective waste management can reduce an economy's overall greenhouse emission by 10-15%. The aim of an effective and efficient waste management system to maximize value of waste and minimize cost of collection, separation and landfill disposal.

Improving the economics fundamentals of waste management is essential in order to achieve the goal of reducing plastic waste in Pakistan.

Every Plastic industry should set goals and targets individually in using recycled material in their existing product portfolio as well as develop new products made with recycle plastic, this will consume more recycled material hence demand for recycled material will increase and scavenges / waste dealer may receive demand which will start circular economy model and new employment and increase income for existing manpower and channels.

The Plastic Industry should focus and facilitate of preventing leakages of plastic waste into sea and environment.

PLASTIC IS NOT ONLY SHOPPING BAGS

پلاسٹک صرف شاپنگ بیگز نہیں ہے۔

NGO's and other people outside Plastic Industry portray that Pakistan ONLY producing plastic shopping bags. The most shocking to Pakistan Plastic stake holder and supplier of raw material who unable to understand how 3.3 m meter ton Plastic waste generation in Pakistan in one year while total demand including local production and import is about 1.8 million metric ton.



Stylish Invention in Household Plastic Products



















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Web Site: www.king-plas.com



Pakistan Plastic Industry among Top revenue generation in national exchequer by paying duties and taxes. Plastic industry makes significant contribution to the economic development and growth of various key sectors in the country. Plastic is mother industry manufactured hundred of Plastic components, products and packaging using plastic as their products parts / accessories / packaging for all the industrial sector for export and domestic products manufacturing in Pakistan.

In Pakistan following major industries manufacturing plastic products.

- 1) BOPP / CPP Films
- 2) Woven bag for Packaging of Sugar, Wheat, Urea Fertilize, Rice, Flour, Cement and several other uses of storage and transportation throughout Pakistan.
- PET PET to produce water & carbonated drinks and other Rigid and ediblie liquid packing.
- 4) Packaging Materials, Rigid Packaging, Household Items, Construction Materials, Industrial Components, Automotive Components, Healthcare and Medical Products, Toys and Leisure Products, Electronics and Appliances, Agricultural uses Products.
- 5) Other Plastic Products manufacturing in Pakistan :
- a) Oil and Ghee big cans and small pouches for single and small packs for low income grap.
- b) Sache packing for shampoo, cream, and so many products available at very low price to use.
- c) Meat and food packing, milk packing by using lamination on tetra pack, shrink and pallet wrap.
- d) Pharmaceutical, Personal Care.
- e) Medical syringes and other disposables, medical infusion set / drips etc.
- f) Building and construction industry product.
- g) Bathroom accessories
- h) Telecommunication / power cable

- i) Plastic chair and household plastic products
- j) Toys & Games
- k) Auto Parts
- I) Motorcycle Parts
- m) Sports Goods
- n) Agriculture
- o) Home Appliance & Electronics
- p) Stationary, writing and school accessories
- q) Gas and Water Pipes
- r) Paint cans and other chemical cans.
- s) Water, Oil, Chemical and other products drum / cans.
- t) Optic Fiber Cable
- u) Glove, Masks and Other Hygiene products
- v) Decorative Items

پائىدارى Sustainability:

In Asian countries Plastic is back bone of their economic growth and have very large manufacturing facilities of raw material as well as finished products Pakistan industry is lacking in production of all required Plastic raw material as well as large scale finished product manufacturing facilities for exports.

There are a lot of measure to be taken to take out full fruits of Plastic Industry in Pakistan.

Every individual, industry, institution private or Government must follow and do sustainable practices and offer practical economical and feasible solutions to consider Pakistan Economic, Educational ruler and urban culture and Civic sense of people of Pakistan to improve the environment, land, sewerage, eco system and cleanliness.

Government, students, academia as whole, industry, institutions, local bodies etc should introduce new and



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From its humble beginnings in 1999, Krystalite Products (Pvt.) Ltd. has become a market leader in Pakistan in PET bottles, 100% food grade APET based thermoformed packaging and PET sheets. The company has expanded its footprint to UAE and North America with their own manufacturing locations thereby adding value to our clients globally.

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NORTH AMERICA

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innovative locally way of collection and segregate of plastic waste to improve environment and combat climate change.

Industry should treat their industrial waste as they release effluent containing toxic chemicals directly into sea.

Reverse Logistics	معکوس نقل و حمل
in Industry :	صنعت میں

This is a relatively new term for the manufacturing industry as it was created after environmental issues were highlighted worldwide.

Environment and sustainable policies encourage manufacturers to produce environmentally friendly products with sustainable properties.

Reverse logistics is continuously getting popular and a significant part of supply chain management in developed countries.

Reverse logistics is the mechanism of direct and indirect recovery, collection of mainly own manufactured products for recycle and reuse.

Local industries should also start working on reverse logistics to resolve and help in waste management and make them Green Industry in Pakistan.

LOCAL RAW MATERIAL MANUFACTURERS AND THEIR PRODUCTION CAPACITY IN PAKISTAN:

The Plastic industry classified in two segments.

- 1) **Up Stream** which is manufacturing raw material in Pakistan for domestic and export market like Engro Chemical produces PVC Resin, Gatron Industries produces PET bottle grade PET Chip and Pak Petro Chemical produce of Polystyrene / GPPS / EPS.
- 2) **Down Stream** which converts Plastic raw material in to plastic products.

The replacement cost of Plastic products for a country like Pakistan is not feasible and advisable. All others industries will also be effected as well on common people especially low income population. The alternate products like Paper & cloth will adversely effect the eco system. Paper consumes trees, cloth bag

will use more cotton and both need more water.

There are three major local producers:

Company	Product	Capacity (Tons)
Engro Polymer & Chemicals Ltd	PVC	295000
Pak Petrochemical Industries (Pvt) Ltd	GPPS, HIPS & EPS	100000
Gatron (Industries) Ltd /	PET Chip	350000
Novatex	Bottle Preform	50000
Dynea Pakistan	Urea, Melamin	50000

SUGGESTIONS: تجاویز

Circular Economy with

Plastic Waste Management

Pakistan Plastic Industry should encourage and promote Clean & Green Pakistan by using following step:

بيلاستكس صنعت : Plastics Industry

- Extended Producer Responsibility (EPR) to be exercised by local industries.
- Plastic standards to be regulated and implemented in Pakistan.
- Material identification codes to be mentioned on locally produced plastic parts.
- Recycled content to be mentioned.
- Product research to improve the value of used Plastic for better recycling.
- Design the products for easy recyclability especially in flexible multilayer packaging.
- Mandatory use of Recycled material.
- Collection points for used Plastics by manufacturers of Plastic products.
- Reverse logistics to be started by a local manufacturer.
- Start exports







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Government Responsibilities

حکومتی ذمه داریاں

- Plastic waste collection and segregation system at source by Municipal Corporation
- Education from school level for waste management College, University Program for Plastic usage / disposal.
- Plastic Roads / Tiles / Other products Laws.
- Renewable Energy
- Seminars and Conferences by involving School, Colleg es, University, General Public and Local Government.
- Use all means of Media and Social Media for education about proper disposal and collection.
- The Garbage management in cities has to be effectively and efficiently implemented.
- Every commercial markets, malls and shops should be responsible for waste management within their vicinity.
- We have to encourage and educate waste bin culture.
- Recycling to be promoted by law and products coding should also be mandatory so recyclers may segregate and recycle easily. Segregation plant by Municipal Government.
- Littering fines to be announced in media and strictly imposed for Plastic waste, Cigarette, Pan and Gutka etc.
- To encourage investment in recycling plants loans to be provided to stakeholders on interest free basis.
- Collection from bins to dedicated for plastic waste scrap in garbage collection areas avoiding other garbage and thereby reducing recycling cost and separation cost.
- Incentives to be given to Cooperative Societies through the Registrar of Societies
- Encouraging Societies to engage in collection of Plastic scarp.

سفارشات

پاکستان بلاسٹک انڈسٹر ی کو کلین اینڈ گرین پاکستان کی حوصلہ افزائی اور فروغ دینا چاہیے۔

پاکستانی پلاسٹک انڈسٹری کو ایکسٹینڈڈ پروڈیوسر ریسپانسیبلٹی (ای پی آر)، پلاسٹک کے معیارات کو ریگولیٹ کرنے اور ری سائیکل شدہ مواد کے استعال کو فروغ دینے جیسے اقدامات پر عمل درآمد کرکے کلین اینڈ گرین پاکستان کو فروغ دینا چاہیے۔

حکومت کو پلاسٹک کا کچرا جمع کرنے اور الگ کرنے کے نظام کو بھی نافذ
کرنا چاہیے، گجرے کے انظام کے بارے میں تعلیم دینا چاہیے، اور
تعلیمی پروگراموں کے ذریعے ری سائیکلنگ کو فروغ دینا چاہیے۔
اسکولوں، کالجول، یونیور سٹیول، اور مقامی حکومتوں کو مناسب طریقے
سے ضائع کرنے اور جمع کرنے کے بارے میں سیمینارز اور کانفرنسول
میں شرکت کرنی چاہیے۔

میڈیا اور سوشل میڈیا کو مناسب طریقے سے ضائع کرنے اور جمع کرنے کی تعلیم کے لیے استعال کیا جانا چاہیے۔ شہروں میں کچرے کے انتظام کو مؤثر طریقے سے نافذ کیا جانا چاہیے، اور تجارتی بازاروں، مالز اور دکانوں کو کچرے کے انتظام کے لیے ذمہ دار ہونا چاہیے۔

ری سائیکلنگ کو قانون کے ذریعہ فروغ دیا جانا چاہئے اور مصنوعات کوڈنگ کو بھی لازمی قرار دینا چاہیے تاکہ ریسائیکلرز آسانی سے انہیں الگ کر سکیں اور دوبارہ استعال کریں۔

میونیل حکومتوں کو چاہیے کہ وہ گجرے کو الگ کریں اور بلاسٹک کے گجرے، سگریٹ، پان اور دیگر مصنوعات کے لیے کوڑا کرکٹ کے جرمانے عائد کریں۔ ری سائیکلنگ بلانٹس میں سرمایہ کاری کے لیے سرمایہ کاروں کو بلاسود قرضے فراہم کیے جائیں۔ مزید برآل، کوآپریٹو سوسائیٹیوں کو بلاسٹک کا کجرا جمع کرنے کے لیے مراعات دی جائیں۔ عاہمیں۔ عاہمیں۔



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INJECTION







پلاسٹک صنعت میں درآمد کرنے والوں کے DEEPENING CHALLENGES FOR THE لیے گہدرے چیلنجز کی وضاحت IMPORTERS IN THE PLASTICS INDUSTRY

Challenges in پیلنجز میں چیلنجز International Trade

The challenges associated with international trade has become increasingly complex in recent years. The COVID-19 pandemic dented international trading activities as several countries reported country-wide lockdowns, which not only deeply impacted production of goods and services but also logistics and shipping. As the threat from the pandemic receded, international trade recovered. However, Pakistan faced a double-edged sword as higher economic growth rates adversely impacted the balance-of-payments. The spiralling trade deficit required measures to curtail imports and reduce the outflow of meagre foreign exchange reserves. Unfortunately, the plastic manufacturers reported significant and deepening challenges as government restrictions imposed on their imports curtailed their production.

مواد کا تحب زیہ - پلاسٹکس Data Analysis - Plastics

World trade increased by more than 13 percent in 2022. However, imports into Pakistan decreased by more than 2 percent as several measures to curtail the growth of imports into Pakistan were imposed in mid year to tame the rising trade deficit. These measures had an impact on the imports of intermediate goods in the industry, the lifeline for producers in the plastic industry. Imports of plastics and articles thereof (HS 39) increased year-on-year by more than 17 percent in India in 2022, while doubling the amount reported in 2020. Although, the imports in Pakistan did increase by 50 percent from the slump in 2020, the trajectory remained relatively flat between 2021 and 2022. Global trade in plastics increased about 4 percent year-on-year in 2022 but by more than 30 percent since 2020. It is likely that improved economic conditions and growth in manufacturing performance will increase the demand for plastic products. The following analysis takes a deeper look at the trend in

imports of plastics products across some major regional counterparts of Pakistan, namely India, Bangladesh and Vietnam. The following analysis is conducted using trade data from International Trade Centre's Trademap.org, tariff data and data on product categories according to the



stages of production from World Bank's WITS and data on government interventions from Global Trade Alert.

پاکستان میں پلاسٹکس کی درآمد Plastics Import in Pakistan

The main source of origin for plastics into Pakistan is Saudi Arabia, which is more than a quarter of the imports into Pakistan. The main source into Bangladesh, Vietnam and India is China, contributing to more than 1/3rd of the imports in the former two countries and approximately 1/4th into India.



Saudi Arabia contributes to less than 10 percent of the imports into Bangladesh, Vietnam and India. Interestingly, Republic of Korea is a major source for Vietnam and India, while Pakistan imports more from United Arab Emirates than from Republic of Korea. The imports from the Middle Eastern countries into



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Vietnam is significantly lower. Regional trade networks are likely dominating the trade flows. The relatively proximity of Pakistan to the Middle East is likely increasing its import dependence on the Middle Eastern region.

The main products imported into Pakistan at HS six digit level in Chapter HS 39 are polypropelene in primary forms and poly ethylene in primary forms. These constitute to approximately 50 percent of the imports into Pakistan in plastics. On the other hand, the three aforementioned products constitute less than 20 percent of imports in India and Vietnam and less than quarter in Bangladesh. The main import of plastics in India is poly "vinyl chloride" (PVC), which constitutes more than 10 percent of it total imports in plastics. The imports into Pakistan of PVC is significantly lower, likely due to the higher tariff rates imposed on its imports. It is likely dependent on local producers to meet its domestic needs.

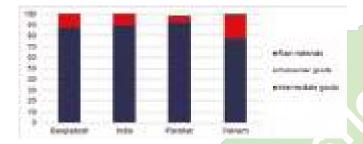


Figure 1: Imports of plastics distributed by product category based on the stage of production. Source: Trade data from ITCs Trademap and product category from World Bank's WITS.

Considering the product categories based on the stage of production, all the mentioned countries mostly import plastics categorised as intermediate goods in Figure 1. More than 90 percent of the plastics imported into Pakistan is at the intermediate stage of production. This drops to 77 percent for Vietnam, as almost quarter of its imports are consumer goods. This clearly suggests that the demand for plastic products into Pakistan is driven by the manufacturers, who are importing inputs to produce plastic products. Hence, import restrictions on imports of intermediate goods in Pakistan are likely to impact the manufacturers.

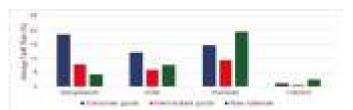


Figure 2 Average tariffs on imports of plastics distributed by product category based on the stage of production. Source: Trade data from ITCs Trademap and product category and tariff data from World Bank's WITS.

Measures to Address Challenges

افت داما ـــــ

Pakistan has one of the highest tariff rates, particularly on the imports of intermediate goods and raw materials, across major regional counterparts as observed in Figure 2. Although, Bangladesh imposes higher tariff rates on the imports of consumer goods, the tariff rates on the imports on intermediate goods and raw materials is lower. Pakistan imposes more than 10 percent tariff rates on the imports of several of the intermediate goods commonly imported into Pakistan, while Bangladesh and India provide tariff concessions. With intermediate goods constituting the bulk of the imports across Pakistan and the regional counterparts, higher tariff rates are likely to increase the cost of production faced by the manufacturers. Vietnam reports significantly lower tariff rates on the imports of all goods in the industry, particularly consumer goods and intermediate goods. It is essential to reduce import tariffs across all categories to boost productivity, particularly if Pakistan is to develop a regionally competitive plastic industry that can export to its regional counterparts at a competitive price.

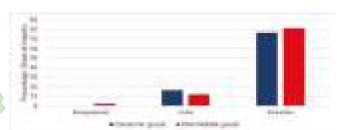


Figure 3: Percentage share of imports of plastic products facing harmful government interventions in 2022 distributed by product category: Source: Trade data from ITCs Trademap.org and data on government interventions from Global Trade Alert.



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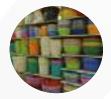
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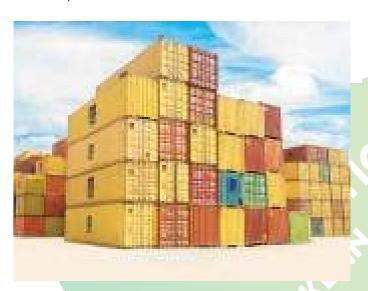
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The government introduced various interventions in 2022 to curtail the rising trade deficit. The interventions that impacted the imports of plastic products included anti-dumping duties, higher import tariffs and internal taxation of imports. Harmful interventions reduce imports and hurt productive capabilities of manufacturers dependent on imported intermediate goods. Other measures such as delayed opening of letters of credit were also reported by the importers. More than 80 percent of the imports of intermediate goods in the plastic industry were affected by rising import tariffs and internal taxation on imports as reported in Figure 3. Comparatively, a significantly lower proportion of imports into Bangladesh and India were affected. The imports of intermediate goods in the plastics industry were more exposed to challenges from government interventions than their regional counterparts.



In essence, the plastics industry faces significant challenges as it finds its ability to import essential inputs curtailed. Higher import tariff rates coupled with government interventions to reduce imports has hurt the manufacturers in the industry. It is imperative that the government introduces measures to encourage the productive capacities. Import tariffs must be reduced, preferably across all products in the plastics industry, and the use of government interventions must be minimized. The plastic manufacturers can contribute significantly to the economic growth of Pakistan, but this requires greater facilitation from the government.

یا کشان میں بلاسک کی صنعت عالمی تجارتی حرکیات کے بدلتے ہوئے بڑھتے ہوئے چیلنجوں سے نبر د آزما ہے۔ COVID-19 وبائی امراض کی وجہ سے پیدا ہونے والی رکاوٹوں کے بعد، بین الا قوامی تجارت نے ابتدائی طور پر بحال کیا، پھر بھی یا کتان کو اپنے تجارتی خسارے پر لگام لگانے کے لیے سخت کوششوں کا سامنا کرنا یرا، جس کے نتیج میں درآمدات پر یابندیاں عائد کی گئیں۔ ان رکاوٹوں نے خاص طور پر یلاسک کے شعبے کو متاثر کیا ہے، جو یولی پروپیلین اور یو سیسھیلین جیسے در میانی اشیا کی درآمدات پر بہت زیادہ انحصار کرتا ہے۔ اس طرح کی درآ مدات پر پاکستان کے زیادہ ٹیرف پیداواری لاگت کو مزید بڑھاتے ہیں، بنگلہ دیش اور بھارت جیسے علاقائی ہم منصبوں میں کم ٹیرف کے برعكس - مزيد برآل، حكومتي مداخلتول جيسے اپنٹي ڈمينگ ڈيوٹي اور اندرونی میکس نے ان چیلنجوں کو مزید بڑھا دیا ہے، جس سے مقامی مینو فیکچررز کے لیے 80 فیصد سے زیادہ درآمدات کو نمایاں طور پر متاثر کیا گیا ہے۔ ایک <mark>مسابقتی پلاسگ کی صنعت کو فروغ دینے کے لیے جو</mark> مکی طلب کو بورا کرنے اور بر آمدی صلاحیت کو بڑھانے کے قابل ہو، یا کشان کو فوری طور پر یا کیسی اصلاحات کی ضرورت ہے جس کا مقصد درآمدی محصولات کو کم کرنا اور تجارتی رکاوٹوں کو کم کرنا ہے۔

اپنے علاقائی ہم عصروں کے برعکس، پاکستان کی پلاسٹک انڈسٹری کو اعلیٰ درآمدی محصولات اور سخت حکومتی مداخلتوں میں جڑی رکاوٹوں کے منفر د سنگم کا سامنا ہے۔ یہ عوامل غیر متناسب طور پر درآمدی در میانی اثیا پر انحصار کرنے والے مینوفیچررز پر اثر انداز ہوتے ہیں، ان کی آپریشنل کارکردگی اور مسابقت کو روکتے ہیں۔ بھارت اور ویتنام جیسے پڑوسی ممالک کم ٹیرف اور کم تجارتی رکاوٹوں سے فائدہ اٹھا رہے ہیں، پڑوسی ممالک کم ٹیرف اور کم تجارتی رکاوٹوں سے فائدہ اٹھا رہے ہیں، پڑھو پاکستان علاقائی تجارتی حرکیات اور اقتصادی ترقی کے مواقع میں پیچھو کرنے جانے کا خطرہ ہے۔ آگے بڑھتے ہوئے، درآمدی ضوابط کو ہموار کرنے اور مقامی پیداوار کو ترغیب دینے کے لیے ٹھوس کو ششیں کرنے اور مقامی پیداوار کو ترغیب دینے کے لیے ٹھوس کو ششیں پلاسٹک کے شعبے کو زندہ کرنے اور عالمی منڈی میں پاکستان کو ایک زیادہ کیکدار کھلاڑی کے طور پر یوزیشن دینے کے لیے اہم ہیں۔



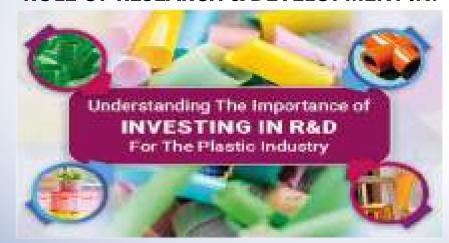


RESEARCH & DEVELOPMENT

تحقیق و ترقی



ROLE OF RESEARCH & DEVELOPMENT IN:





WHAT IS R & D

Research and development (R&D) typically help businesses improve, upgrade and innovate new products or services. Proper R&D strategies help the company achieve higher customer satisfaction, boost sales revenue and increase its competitive edge against industry competitors

Why is the Research and Development important in Plastics Given the rapid advancement of technology and the dynamism of market products, R & D allows to stay one step ahead of the competition. It helps companies to improve productivity, which in turn helps us increase margins, giving competitive advantage.

What is the Impact of R&D on the Business?

Quality- One of the most important contributions of research and development to quality assurance and control is assisting in resolving and troubleshooting quality issues.

تحقیق و ترقی کیا ہے؟

تحقیق اور ترقی عام طور پر کاروباروں کو نئی مصنوعات یا خدمات کو بہتر بنانے، آپ گریڈ کرنے اور اختراع کرنے میں مدد کرتی ہے۔ مناسب تحقیق و ترقی حکمت عملی سمپنی کو صارفین کی اعلیٰ اطبیعنان حاصل کرنے، سیلز ریونیو کو بڑھانے اور صنعتی حریفوں کے خلاف ایکی مسابقتی برتری کو بڑھانے میں مدد کرتی ہے۔

پلاسٹک میں تحقیق اور ترقی کیوں اہم ہے؟

نینالوجی کی تیز رفتار ترقی اور مارکیٹ کی مصنوعات کی حرکیات کو دیکھتے ہوئے، تحقیق و ترقی مقابلہ سے ایک قدم آگے رہنے کی اجازت دیتا ہے۔ یہ کپنیوں کو پیداواری صلاحیت کو بہتر بنانے میں مدد کرتا ہے، جس کے نتیج میں ہمیں مسابقتی فائدہ دیتے ہوئے مارجن بڑھانے میں مدد ملتی ہے۔

کاروبار پر تحقیق و ترقی کا کیا اثر ہے؟

کوالٹی- کوالٹی ایشور نس اور کنٹر ول میں تحقیق اور ترقی کی سب سے اہم شراکت میں سے ایک معیار کے مسائل کو حل کرنے اور ان کو حل کرنے میں مدد کرنا ہے۔





Polyethylene & Polypropylene Products

Film Applications

Borster Enhanced P5 Products for F15, Lamination Shink: Geometrione, Agriculture & PDF Fate

Burginer BY for FES, Larrangeon, Testife with

E BOTE Film

PF Sor CPP metaload & Lamination Films LOFES & MILDIES for Shorth, Agel Rim, Heavy Duty possible, Luminsoon & Cell Sherch Films

Molding Applications

domed PV Products for Houseware, Appliances, Transport Packaging and Battery Cooking

Borntod PP for DAV - Industrial

PP Norse & Names on TWF - Concurrent

i Co Slove felolding Servi High molecular Sorfure HDPC & Sormod PP Products for Cape & Clinury for Benuripos

Fiber & Sheet Applications

PERCENCIA Tape tern

PH Home, Banders for Deempforming 8, Streets

Medical Applications

Serned PP for Supples Sormed PE for Nº Bottles & Viols

Pipe Applications

PPR & PPH tocoror & Cold Water Plans

Bortost PE, PP for Osmi Pym: Coating

Rosson PFR for Sewage Pipes, Fittings & Sewage Borsafe PE300 Block for Pressure Pipes for Water Distribution & Transportation Network

Brucata PESITO Colored Compound for Gas Distribution National

Wire & Cable Applications

Bontar PI Compounds for Jacketing of Balacom & Power Cabias XLPE Compounds for MV Cables (CCV Process)









Production- R & D department contributes to production by developing new designs that the production produces and also helps them to have a smooth run, reduce waste, and increase output. Apart from that, we help them troubleshoot to find solutions to any existing design and product issues.

Customers- While making new designs for our customers, the R & D is involved in foreseeing any design or manufacturing defects. We involve our customers throughout the journey from the development stage to testing and to having the final shelf product. Involving customers results in robust customer loyalty and retention, which generally increases the company's performance.

ADVANTAGES OF R & D

Research and development (R&D or R+D; also known in Europe as research and technological development or RTD)[1] is the set of innovative activities undertaken by corporations in developing new services or products and carrier science computer marketplace e-commerce, copy center and service maintenance troubleshooting software, hardware improving existing ones. [Research and development constitutes the first stage of development of a potential new service or the production process.

R&D activities differ from institution to institution, with two primary model of an R&D department either staffed by engineers developing new products industrial scientists applied research R&D differs from the vast majority of corporate activities in that it is not intended to yield immediate profit, and generally carries greater risk and an uncertain return on investment However, R&D is crucial for acquiring larger shares of the market through the marketization of new products.

Background

New product design and development is often a crucial factor in the survival of a company. In a global industrial landscape that is changing fast, firms must continually revise their design and range of products. This is necessary as well due to the fierce competition and the evolving preferences of consumers. Without an R&D program, a firm must rely on strategic alliances, acquisitions, and networks to tap into the innovations of others.

پروڈ کشن- آر اینڈ ڈی ڈیپار ٹمنٹ نے ڈیزائن تیار کر کے پیداوار میں حصہ ڈالتا ہے جو پروڈ کشن تیار کر تا ہے اور ان کو ہموار چلانے، فضلہ کم کرنے اور پیداوار بڑھانے میں بھی مدد کرتا ہے۔ اس کے علاوہ، ہم کسی بھی موجودہ ڈیزائن اور پروڈ کٹ کے مسائل کا حل تلاش کرنے میں ان کی مدد کرتے ہیں۔

صار فین - اپنے صار فین کے لیے نئے ڈیزائن بناتے ہوئے، تحقیق و ترقی کی بھی ڈیزائن یا مینو فیکچرنگ کے نقائص کا اندازہ لگانے میں شامل ہے۔ ہم ترقی کے مرحلے سے لے کر جانچ اور حتی شیاف پروڈکٹ کے حصول تک کے سفر میں اپنے صار فین کو شامل کرتے ہیں۔ گاہوں کو شامل کرنے میں مضبوط کسٹمر وفاداری اور بر قرار رکھا جاتا ہے، جو عام طور پر ممپنی کی کارکردگی کو بڑھاتا ہے

تحقیق و جنتجو کے لامتناہی فوائد

تحقیق اور ترقی تحقیق و ترقی یا جسے یورپ میں تحقیق اور تکنیکی ترقی یا RTD کے نام سے بھی جانا جاتا ہے سینٹر اور سروس مینٹیننس ٹربل شوٹنگ سافٹ ویئر، ہارڈ ویئر موجودہ کو بہتر کرنے والا۔
پیداواری عمل کی ترقی کا پہلا مرحلہ ہے۔

تحقیق و ترقی کی سرگرمیاں ادارے سے دوسرے ادارے میں مخلف ہوتی ہیں، تحقیق و ترقی ڈیپار ٹمنٹ کے دو بنیادی ماڈل کے ساتھ یا تو انجینئرز کے ذریعے نئی مصنوعات تیار کرنے والے صنعتی سائنسدانوں نے تحقیق کا اطلاق کیا تحقیق و ترقی کارپوریٹ سرگرمیوں کی وسیع اکثریت سے اس لحاظ سے مختلف ہے کہ اس کا مقصد فوری منافع حاصل کرنا نہیں ہے، اور عام طور پر اس کا مقصد ہوتا ہے۔ زیادہ خطرہ اور سرمایہ کاری پر غیر یقینی واپی تاہم، نئی مصنوعات کی مارکیٹائزیشن کے ذریعے مارکیٹ کے بڑے حصص حاصل کرنے مصنوعات کی مارکیٹائزیشن کے ذریعے مارکیٹ کے بڑے حصص حاصل کرنے کے لیے تحقیق و ترقی بہت اہم ہے۔

پس منظر

نئی مصنوعات کا ڈیزائن اور ترقی اکثر کمپنی کی بقاکا ایک اہم عضر ہوتا ہے۔ ایک عالمی صنعتی منظر نامے میں جو تیزی سے بدل رہا ہے، فرمول کو اپنے ڈیزائن اور مصنوعات کی رہنج پر مسلسل نظر ثانی کرنی چاہیے۔ یہ سخت مسابقت اور صارفین کی بدلتی ترجیحات کی وجہ سے بھی ضروری ہے۔ کسی تحقیق و ترقی پروگرام کے بغیر، ایک فرم کو دوسرول کی اختراعات کو حاصل کرنے کے لیے اسٹریٹجک اتحاد، حصول اور نیٹ ورکس پر انحصار کرنا چاہیے۔



nayab2139@hotmail.com , nayabagencies2139@gmail.com



UNDERSTANDING R & D

It's important for businesses in the plastic industry to invest in extensive research and development (R&D). This helps them drive innovation, ensuring they stay ahead of the curve while meeting evolving consumer demands. The biggest advantage offered by R&D is that it fosters product and service enhancements, propelling growth and profitability.

R&D investments will bolster company's long-term sustainability. It cultivates intellectual property and proprietary technologies, building formidable barriers to entry for competitors. This, in turn, safeguards market share and secures your company's position in the industry. Let's look at some of the advantages that you can leverage by investing in R&D:

RISK INVOLVE IN R & D

Business R&D is risky for at least two reasons. The first source of risks comes from R&D nature, where R&D project could fail without residual values. The second source of risks comes from takeover risks, which means R&D is appealing to bidders because they could gain technologies from acquisition targets. Therefore, firms may gain R&D profit that co-moves with takeover waves, causing risks to the company which engages in R&D activity

UNESCO; Sustainable Goals by 2030. Spending on R & D constituted.

In 2015, research and development constituted an average 2.2% of the global GDP according to the UNESCO Institute for Statistics.

By 2018, research and development constituted an average 1.79% of the global GDP according to the UNESCO Institute for Statistics. Countries agreed in 2015 to monitor their progress in raising research intensity (SDG 9.5.1), as well as researcher density (SDG 9.5.2), as part of their commitment to reaching the Sustainable Development Goals by 2030. However, this undertaking has not spurred an increase in reporting of data. On the contrary, a total of 99 countries reported data on domestic investment in research in 2015 but only 69 countries in 2018.

پلاطک کی صنعت میں کاروبار کے لیے یہ ضروری ہے کہ وہ وسیع تحقیق اور ترقی میں سرمایہ کاری کریں۔ اس سے انہیں جدت طرازی کرنے میں مدد ملتی ہے، اس بات کو یقین بناتے ہوئے کہ وہ صارفین کے بدلتے ہوئے مطالبات کو پورا کرتے ہوئے منحیٰ خطوط سے آگے رہیں۔ تحقیق و ترقی کی طرف ہے بیش کردہ سب سے بڑا فائدہ یہ ہے کہ یہ مصنوعات اور خدمات میں اضافہ ، ترقی اور منافع کو آگے بڑھاتا ہے۔

تحقیق و ترقی سرمایه کاری سمپنی کی طویل مدتی پائیداری کو تقویت بخشے گی۔ یہ دانشورانہ الملاک اور ملکیتی ٹکنالوجی کو فروغ دیتا ہے، حریفوں کے داخلے میں زبردست رکاوٹیں کھڑی کرتا ہے۔ یہ، بدلے میں، مارکیٹ شیئر کی حفاظت کرتا ہے اور صنعت میں آپ کی سمپنی کی پوزیشن کو محفوظ بناتا ہے۔ آئے ان فوائد میں سے کچھ کو دیکھتے ہیں جن سے آپ تحقیق و ترقی میں سرمایہ کاری کر سکتے ہیں:

تحقیق و ترقی میں شامل خدشات۔

کاروبار تحقیق و ترتی کم از کم دو وجوبات کی بنا پر خطرناک ہے۔ خطرات کا پہلا ذریعہ تحقیق و ترقی فطرت سے آتا ہے، جہاں تحقیق و ترقی پروجیکٹ بقایا اقدار کے بغیر ناکام ہو سکتا ہے۔ خطرات کا دوسرا ذریعہ ٹیک اوور کے خطرات سے آتا ہے، جس کا مطلب ہے کہ تحقیق و ترقی بولی لگانے والوں سے اپیل کر رہا ہے کیونکہ وہ حصول کے اہداف سے ٹیکنالوجی حاصل کر سکتے ہیں۔] لہذا، فرموں کو تحقیق و ترقی منافع حاصل ہو سکتا ہے جو ٹیک اوور کی لہروں کے ساتھ مل کر چلتی ہے، جس سے ممپنی کو خطرات لاحق ہوتے ہیں جو تحقیق و ترقی سرگری میں مصروف ہے

يونىيكو؛ 2030 تك پائىدار اہداف۔ خرچ كرنا آر اينڈ ڈی تشكيل ديا گيا۔

یو نیسکو ادارہ شاریات کے مطابق 2015 میں، تحقیق اور ترقی عالمی جی ڈی پی کا اوسطاً 2.2 فصد بنتی ہے۔

یونیکو انسیٰ ٹیوٹ برائے شاریات کے مطابق 2018 تک، تحقیق اور ترقی عالمی جی ڈی پی کا اوسطاً 1.79 فیصد تھا۔ ممالک نے 2015 میں 2030 تک پائیدار ترقی کے اہداف تک پہنچنے کے اپنے عزم کے تحت تحقیق کی شدت (SDG 9.5.1) کے ساتھ ساتھ محققین کی کثافت (SDG 9.5.2) کو بڑھانے میں اپنی پیش رفت کی نگرانی کرنے پر اتفاق کیا۔ ڈیٹا کی رپورٹنگ میں اضافے کی حوصلہ افزائی نہیں کی گئے۔ اس کے برعکس، 2015 میں مجموعی طور پر 99 ممالک نے تحقیق میں ملکی سرمایہ کاری کے اعداد و شار بتائے لیکن 2018 میں صرف 69 ممالک نے۔ اس طرح 59 ممالک نے 2018 میں محققین کی تعداد





Similarly, 59 countries recorded the number of researchers (in full-time equivalents) in 2018, down from 90 countries in 2015.

(کل وقتی مساوی) ریکارڈ کی، جو کہ 2015 میں 90 ممالک سے کم ہے۔ یونیسکو ادارہ برائے شاریات ان تحقیق و ترقی ڈیٹا کا عالمی محافظ ہے۔ ڈیٹا UIS ڈیٹا بیں سے آزادانہ طور پر حاصل کیا جا سکتا ہے۔

UNESCO Institute for Statistics is the global custodian of these R&D data; data can be freely obtained from the UIS database. Top countries by R&D spending.

Country R&D as percentage of GDP

Israel	Korea	Sweden	Belgium	USA	Japan	Austria	Switzerland	Germany	Denmark
5.44	4.81	3.53	3.48	3.45	3.26	3.20	3.15	3.14	2.96
Finland	iceland	China	France	Netherlands	Norway	Slovenia	Czechia	Singapore	Australia
2.94	2.47	2.40	2.35	2.29	2.28	2.15	1.99	1.89	1.83

This chart overall mentioned spending on Economic and industrial sector. Plastics is not mentioned separately.

Note: This chart does not include Pakistan and Bangladesh spending on R&D. Even India is not included. From Asian Countries only China and Japan is listed. More comprehensive research is required that what is percentage of spending, specially in Plastics. This note is on the awareness of R & D and spending which historically less or near to zero in Pakistan. Statistics could not be traced for the spending on plastics

For this brief following comprehensive source and more linked can be traced.

نوٹ: اس چارٹ میں تحقیق و ترتی پر پاکستان اور بنگلہ دیش کے اخراجات شامل نہیں ہیں۔ بھارت بھی اس میں شامل نہیں ہے۔ ایشیائی ممالک سے صرف چین اور جاپان درج ہیں۔ مزید جامع تحقیق کی ضرورت ہے کہ خرج کا فصد کیا ہے، خاص طور پر پلاسٹک میں۔ یہ نوٹ تحقیق و ترتی اور اخراجات کے بارے میں آگاہی پر ہج جو پاکستان میں تاریخی طور پر کم یا صفر کے قریب ہے۔ پلاسٹک پر ہونے والے اخراجات کے اعدادوشار کا پتہ نہیں چل کا

Understanding the importance of investing in R & D for the Plastics Industry in Pakistan to address international plastics competitions. To Make Pakistan Plastics - Exalted Superb.

^{1.} Source: Sources are comprehensive; Some are mentioned for reference.

[&]quot;Policy for research and technological development | Fact Sheets on the European Union | European Parliament". 31 March 2023.



ADDITIVES & FUNCTIONAL MASTERBATCHES ORIGIN AMPACET

1) POLYMEN PROCESSING AID:

- POLYMER PROCESSING AID:
 To remove men-fractures and ease in Processinility at less LDR/Desage
- · Suitable for Blown, Cast Film, Blow molding, Pipe & profile extrusion.

23 ANTI-BUDCK:

 To remove blacking at low LDR / Durage without disturbing optics in blown & cast film

3) SLIP AGENT:

- To reduce Coefficient of Intoline (COF) at low LDR/desage.
- . Sultable for Riewn Film, Cast Film & Polywlefin film.

4) ANTISTATIC AGENT:

- · To recture static charge.
- . Suffable for Slown Film, Cant Film,

5) UV STABBLISER:

- . To protect polymeric chairs and packaging constituents. from sun & weathering effect.
- · Prolong shelf life of Agri-Tim, green bosse & FIBC.

6) ANTHOXIDANTE

- To prevent extrude from codamos during extrustue & gives stability against got farmation.
- · Effortive for recycling/pullettring and representating.

7) WHITE MASTERBATCHES (PE & PP BASED):

- . To provide good dispersion at low LDR/dayage
- . Designed for high-and poplications, thin micros films and this wall malded articles.

8) PURGE COMPOUND:

. To save institing and reduce waste during clean subs-

9) ANTIBLOCK & ANTISTATIC FOR CPP/BOPP FILMS

- . To reduce blocking and static charge
- Increase actical properties

Other specialty additives are also available on request.











WHITE MASTERBAT









SUSTAINABLE APPROACHES TO THE PLASTICS INDUSTRY IN PAKISTAN

پاکستان پلاسٹک۔ انڈسٹری میں پائیداری کی رسائی

The purpose of this article is to continue the theme I introduced in my previous article, which was published in the 2023 PAKPlas magazine, which was about sustainable development goals. I think it is a good idea right now to discuss solutions with problems rather than only focusing on problems to deal with the current situation in a positive manner.

The plastic industry is a vital part of Pakistan's economy, providing jobs and products essential for daily life. However, the environmental impact of plastic pollution has become a pressing concern globally and locally. Pakistan faces significant challenges in managing plastic waste, with increasing pollution affecting ecosystems, public health, and the economy. Sustainable approaches are essential to mitigate these impacts and ensure a healthier, more sustainable future for the industry and the country.

Current State of the Plastic Industry in Pakistan

Pakistan's plastic industry has grown rapidly over the past few decades with growth rate of 6-10% in different sectors of plastic products. Current consumption of plastic product is about 9 kg per capita. The major sectors which consume most of the plastic raw material are flexible packaging, rigid packaging, and consumer products. This growth, while economically beneficial, has led to a corresponding increase in plastic waste. The country lacks comprehensive recycling infrastructure and waste management systems, leading to widespread environmental pollution. Plastics often end up in landfills, rivers, and oceans, causing harm to wildlife and human populations.

Key Challenges

1. Waste Management Infrastructure:

Pakistan's waste management systems are underdeveloped, leading to inefficient collection and

recycling of plastic waste.

2. Public Awareness: There is a lack of public awareness about the environmental impact of plastic waste and the importance of recycling.



3. Regulatory Framework:

Weak regulations and enforcement contribute to improper disposal and handling of plastic waste.

4. Economic Constraints: Limited financial resources and investments in sustainable technologies and practices hinder progress.

Sustainable Approaches

1. Enhancing Waste Management Systems





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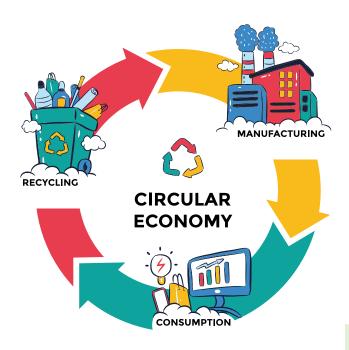




Infrastructure Development: Invest in building robust waste collection and recycling infrastructure. This includes establishing recycling plants, improving collection networks, and integrating informal waste pickers into the formal system.

Advanced Recycling Technologies: Adopt advanced recycling technologies such as chemical recycling, which can handle a broader range of plastic types and convert them back into raw materials.

2. Promoting Circular Economy



Product Design: Encourage the design of products that are easier to recycle, use less plastic, and have longer lifespans.

Extended Producer Responsibility (EPR): Implement EPR policies where producers are responsible for the entire lifecycle of their products, including end-of-life disposal and recycling.

3. Legislation and Policy Reform

Minimize Single-Use Plastics: Gradually phase out

single-use plastics and promote alternatives made from sustainable materials.

Incentives for Recycling: Provide tax breaks, subsidies, and other financial incentives for businesses that engage in sustainable practices and invest in recycling technologies.

4. Public Awareness and Education

Community Engagement: Launch nationwide awareness campaigns to educate the public about the importance of reducing plastic use, proper disposal, and recycling.

School Programs: Integrate environmental education into school curricula to instill sustainable practices from an early age.

5. Innovation and Research

Biodegradable Plastics: Invest in research and development of biodegradable and compostable plastics made from natural materials.

Material Substitution: Explore and promote the use of alternative materials such as paper and glass where necessary and feasible.

Reusable Packaging: Innovate in the design of durable, reusable packaging solutions that can replace single-use plastics in various applications.

6. Partnerships and Collaboration

Industry Collaboration: Foster collaboration between the government, private sector, and non-governmental organizations to develop and implement sustainable practices.

International Cooperation: Engage with international organizations and countries with successful plastic management programs to learn and adopt best practices.







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Success Stories and Examples

The Plastic Bank Initiative: The Plastic Bank works in several countries, including Indonesia and the Philippines, to turn plastic waste into a currency that can be exchanged for goods and services. Adopting similar models in Pakistan can incentivize waste collection and recycling.

Eco-Friendly Packaging: Companies like Tetra Pak have developed sustainable packaging solutions that can be recycled and reused. Promoting such innovations within Pakistan's manufacturing sector can reduce plastic waste.



Conclusion

Transitioning to a sustainable plastic industry in Pakistan is not only an environmental imperative but also an economic opportunity. By adopting a multifaceted approach that includes improving waste management infrastructure, promoting circular economy principles, enacting supportive legislation, raising public awareness, fostering innovation, and encouraging collaboration, Pakistan can significantly reduce its plastic footprint. This shift will not only protect the environment but also pave the way for a more resilient and sustainable economy. It is also imperative that pure or recycled products - Make in Pakistan should be of high quality - Plastics - Make in Pakistan - Exalted Superb.

پاکتان کی پلاسٹک انڈسٹری کو پلاسٹک کے فضلے کے انظام، ماحولیاتی فظام، صحت عامہ اور معیشت کو متاثر کرنے میں اہم چیلنجز کا سامنا ہے۔ ملک کی پلاسٹک کی صنعت نے تیزی سے ترقی کی ہے، مختلف شعبوں میں 10-6 فیصد شرح نمو کے ساتھ۔ تاہم، اس ترقی کی وجہ سے پلاسٹک کے فضلے میں اضافہ ہوا ہے، بنیادی طور پر لچکدار پیلیجنگ، سخت پیکیجنگ اور صارفین کی مصنوعات میں۔ پاکتان کے پیکیجنگ، سخت پیکیجنگ اور صارفین کی مصنوعات میں۔ پاکتان کے کچرے کے انتظام کا نظام ترقی یافتہ نہیں ہے، اور پلاسٹک کے فضلے کے ماحولیاتی اثرات کے بارے میں عوامی آگاہی کا فقدان ہے۔ کمزور ضالبطے پلاسٹک کے فضلے کو غلط طریقے سے ٹھکانے لگانے اور ہیں کمزور ضالبطے پلاسٹک کے فضلے کو غلط طریقے سے ٹھکانے لگانے اور ہیں۔ معاشی رکاوٹیں ترقی کی راہ میں رکاوٹ ہیں۔

پاکستان میں پلاسٹک کی صنعت کے لیے پائیدار طریقوں میں فضلہ کے انظام کے نظام کو بڑھانا، ایک سرکار اکانومی کو فروغ دینا، قانون سازی اور پالیسی میں اصلاحات، عوامی آگائی اور تعلیم، اخراع اور تعلیم، اخراع اور تعلیم، اور صنعتی تعاون شامل ہیں۔ بنیادی ڈھانچ کی ترقی میں سرمایہ کاری، جدید ری سائیکلنگ ٹیکنالوجیز کو اپنانا، سرکار اکانومی پروڈکٹس کو فروغ دینا، اور توسیعی پروڈیوسر کی ذمہ داری کی پالیسیوں کو فافذ کرنا ان اثرات کو کم کرنے میں مدد کر سکتا ہے۔ پالیسیوں کو نافذ کرنا ان اثرات کو کم کرنے میں مدد کر سکتا ہے۔ ٹیکنالوجیز میں سرمایہ کاری سے ایک بار استعال ہونے والے پلاسٹک کو کم کرنے اور ری سائیکلنگ میکنالوجیز میں سرمایہ کاری سے ایک بار استعال ہونے والے پلاسٹک میں سرمایہ کاری سے ایک بار استعال ہونے والے پلاسٹک میں سائیکنٹ میں سرمایہ کاری سے ایک بار استعال کو فروغ دینے میں مدد کو کم کرنے نے اور اسکولوں میں پائیدار طریقوں کو فروغ دینے میں مدد کر سکتی ہے۔

پاکستان پلاسٹک بینک انیشی ایٹو اور ماحول دوست پیکیجنگ جیسے پائیدار طریقوں کو اپنا کر پلاسٹک کے فضلے کو کم کر سکتا ہے۔ ویسٹ مینجمنٹ انفراسٹر کچر کو بہتر بنا کر، سر کلر اکانومی کے اصولوں کو فروغ دے کر، اور معاون قانون سازی کر کے، پاکستان اپنے پلاسٹک کے اثرات کو کم کر سکتا ہے، ماحول کی حفاظت کر سکتا ہے اور ایک زیادہ لچکدار اور پائیدار معیشت کو فروغ دے سکتا ہے۔ یہ بھی ضروری ہے کہ پلاسٹک اشیاء بہت معیاری اور عالمی معیار کی ہوں پاکستان پلاسٹک عمدگی کا جوہر ہو۔



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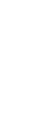


PAKPLAS CORRESPONDENT: UK MR. IRFAN SABIR'S COVERAGE OF INTERPLAS 75TH YEAR CELEBRATION

پاک پلاس کے نامہ نگار: جناب عرفان صابر کی کورت انٹر پلاس کا 75 ویں سال کا جشن

Interplas 2023, a UK Plastics Event, celebrated its 75th year at the NEC Birmingam. Over 540 exhibitors from 30 countries showcased the latest Plastics Technology and innovation. The event, which has a rich history, featured conference sessions and speakers from the industry. The 75th anniversary celebration honored 75 individuals for their significant contributions to the UK plastics sector







Featuring



interplas

9 Packaging Innovations & مد Empack 2024 United Kingdom.

یور پی کی سب سے بڑی پیکیجنگ اور ٹیکنالوجی میلہ

The variety of packaging on show was impressive, particularly with regards to the food and beverage industry. Plastic rigid packaging and flexible packaging were well represented, but there was also presence of Plastic recycle material suppliers were all in evidence and it was good to catch up with many of suppliers over the course of the show.

The three show stages covered Innovation and Design, The Supply Chain, and Manufacturing and The Circular Economy. There were talks, discussions and presentations on a huge variety of topics over the two days covering everything from packaging sustainability to developing a burger brand!

The QR-code was king, connecting businesses and attendees with SMART technology and one tap of the vistors pass. **Sustainability was everywhere, with talk of recycled plastic and the efficient use of materials a theme throughout the show**. It was interesting to see new technology in action, including digital printing and a wide array of automated packing, printing, and labelling machines.

انٹر پلاس 2023، برطانیہ کے پلاسٹک ایونٹ نے 2020 بر ملک بر ملکھ میں اپنا 75 وال سال منایا، جس میں 30 ممالک کے 540 سے زیادہ نمائش کندگان شامل سے اس تقریب میں 75 افراد کو برطانیہ کے پلاسٹک کے شعبے میں ان کے تعاون پر اعزاز سے نوازا گیا۔ پیکیجنگ انڈسٹری میں مختلف قشم کی پیکیجنگ شامل ہیں، بشمول سخت اور کیکدار پلاسٹک، نیز پلاسٹک ری سائیکل مواد فراہم کرنے والے۔ تین مراحل میں انوویشن، ڈیزائن، سپلائی چین، اور مینوفیکچرنگ کا احاطہ کیا گیا، جس میں پائیداری اور مواد کے استعال جیسے موضوعات پر بات چیت ہوئی۔





3D TECHNOLOGY - A MORE ADVANCED PERSPECTIVE PLASTICS - MAKE IN PAKISTAN

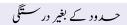
3D ٹیکنالوجی: تر قیاتی مدارج یا کستان پلاسٹک۔ عمسدگی کا جوہر

Preamble:

سرنام

In the dynamic realm of technological advancements, Mr. Saleemuddin, Chairman of PPMA, recently visited Formnext in Frankfurt, Germany, with a mission to convey a transformative message to Pakistani plastics manufacturers. At the heart of this message lies the groundbreaking innovation a technology poised to revolutionize manufacturing processes in Pakistan.

Precision Without Boundaries:



The FreeScan Trio's remarkable capability to scan intricate workpieces without the need for reference points introduces an unparalleled level of precision to manufacturing processes. This feature enables the seamless and efficient capture of intricate details in our products.

Streamlined Workflow:

ہموار کام کا بہاؤ

By eliminating the reliance on reference points, the scanner simplifies the scanning process, saving valuable time and resources. This streamlined workflow not only enhances efficiency but also paves the way for quicker project turnaround.

Versatility for Diverse Workpieces:

مختلف کاموں کے لئے گنجب کشش

With three high-resolution industrial cameras, the FreeScan Trio effortlessly adapts to workpieces of varying shapes, colors, and sizes. This versatility empowers manufacturers to explore a wide range of projects with confidence. A more advance feature will be implemented in Pakistan plastics.

Rapid Capture and Comprehensive Views:

فوری تسخیر -حبامع نظسار گی

The scanner's impressive speed of recording 3,010,000 points per second ensures swift and detailed capture. With a substantial field of view, it excels at providing comprehensive views of workpieces in a single scan, contributing to a more holistic approach to manufacturing.

Body 3D Scanning for Mass Customization

باڈی تھےری ڈی سکیننگ بڑے پیانے پر حسب ضرورت

Body 3D scanning stands at the forefront of a transformative shift in mass customization, offering unparalleled

precision in capturing individual body measurements.

This innovative technology has revolutionized industries like fashion, fitness, and healthcare by enabling the creation of personalized products and services. The adoption of Body 3D Scanning not only enhances user experience but also signifies a paradigm shift



towards a more personalized, efficient, and sustainable approach in manufacturing and design.

PLASTICS MAKE IN PAKISTAN

Plastic manufacturers in Pakistan to probe more and to enhance their productive capabilities to ensure and display their power of innovation and to show their plastics strength – Plastics make in Pakistan – to become competitive and to challenge the challenging world of contemporary plastics.

پی پی ایم اے کے چیئر مین جناب سلیم الدین نے فری سکین ٹریو کو متعارف کرانے کے لیے فرینکفرے میں فارم نیکسٹ کا دورہ کیا، یہ ٹیکنالوجی پاکستانی پلاسٹک کی تیاری کے عمل میں انقلاب برپا کر دے گی۔ سکینر بغیر حدود کے در نتگی، ایک ہموار ورک فلو، مختلف ورک پیسز کے لیے استعداد، اور 3,010,000 پواکنٹس فی سیکنڈ کی تیزی کی رفتار پیش کرتا ہے۔ یہ ایک ہی اسکین میں ورک پیس کے جامع نظارے بھی فراہم کرتا ہے، جس سے مینوفیچرنگ کے لیے زیادہ جامع نقطہ نظر میں حصہ لیا جاتا ہے۔ باڈی 3D سکیننگ، بڑے پیانے پر تحضیص میں ایک انقلابی ٹیکنالوجی، نے ذاتی نوعیت کی مصنوعات اور خدمات کو فعال کر کے فیشن، فٹنس اور صحت کی دیکھ بھال جیسی کی مصنوعات اور خدمات کو فعال کر کے فیشن، فٹنس اور صحت کی دیکھ بھال جیسی کی مصنوعات اور خدمات کو فعال کر دیا ہے۔ پاکستان میں پلاسٹک کے مینوفیچررز مزید تحقیق کریں اور اپنی پیداواری صلاحیتوں میں اضافہ کریں تاکہ وہ اپنی اختراع کی طاقت کو یقینی بنا سکیں اور اپنی پلاسٹک کی چیلنجنگ دنیا کو چرانج کرنے کے لیے ایک قدم ہوگا۔ اور عصری پلاسٹک کی چیلنجنگ دنیا کو چرانج کرنے کے لیے ایک قدم ہوگا۔ اور عصری پلاسٹک کی چیلنجنگ دنیا کو چرانج کرنے کے لیے ایک قدم ہوگا۔ ایکستان پلاسٹکس عمر گی کا جو ہر



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IMPORTANCE OF SKILLED MANPOWER IN ADVANCED MANUFACTURING

حبدید مینوفیکچرنگ میں ہنسر مند افنسرادی قوت کی اہمیت

In today's rapidly evolving manufacturing landscape, the importance of skilled manpower cannot be overstated. As we advance into an era marked by sophisticated technologies, automation, and innovative processes, the need for highly skilled professionals has never been greater. Advanced manufacturing, particularly within the plastics industry, is at the forefront of this transformation, demanding a workforce that is adept, agile, and forward-thinking.

Chairman PPMA Mr. Saleem Uddin Feroz paid several visits to Germany, Amsterdam and USA to find out the cutting edge technology to enhance efficiency, reduce waste and improve product quality.

Recently he visited Lincoln Technical Institute in the United States with a dual intention:

To explore collaboration opportunities in advancing manufacturing technology and to bring similar educational offerings to Pakistan. My focus was on leveraging the institute's expertise in CNC (Computer Numerical Control) machines and advanced training, encompassing 5-axis machining, CNC milling, turning, CAM systems, and programming. This initiative aims to address Pakistan's skills gap by equipping local students with specialized skills essential for the plastics industry's growth and global competitiveness. Through collaboration with Lincoln Technical Institute, the PPMA aims to establish educational pathways that empower Pakistani students to attain

In conclusion, the importance of skilled manpower in advanced manufacturing cannot be underestimated. It is the skilled professionals who drive innovation, ensure quality, enhance safety, and promote sustainability within our industry. As we look to the future, it is crucial that we invest in the development of our workforce, bridging the skills gap and fostering a culture of continuous learning. Together, we can build a resilient and dynamic industry that is well-equipped to navigate the challenges and opportunities of the 21st century.



تیزی سے ترقی پذیر مینوفیچرنگ لینڈ سکیپ میں ہنر مند افرادی قوت کی اہمیت ناقابل تردید ہے۔ چونکہ بلاسٹک کی صنعت کو 3D پرنٹنگ، روبو ٹکس، اور IoT جیسی جدید ٹیکنالوجیز کی وجہ سے بے مثال ترقی اور تبدیلی کا سامنا ہے، ہنر مند پیشہ ور افراد کارکردگی کو بڑھانے، فضلہ کو کم کرنے اور مصنوعات کے معیار کو بہتر بنانے کے لیے بہت اہم ہیں۔ ان کی مہارت صنعت کو حدود کو آگے بڑھانے اور اپنی مسابقتی برتری کو بر قرار رکھنے کی اجازت دیتی ہے۔ ہنر مند کارکن مصنوعات کے معیار، جدت اور موافقت، گابک کی ضروریات کو پورا کرنے اور حفاظت اور یائیداری کو یقینی بناتے ہیں۔ یا کستان پلاسٹک مینوفیکچررز ایسوسی ایشن (پی یی ایم اے) کے چئر مین سلیم الدین فیروز نے حال ہی میں امریکہ میں گنکن ٹیکنیکل انسٹی ٹیوٹ کا دورہ کیا تاکہ مینو فیکچرنگ ٹیکنالوجی کو آگے بڑھانے اور پاکتان میں اسی طرح کی تعلیمی پیشکشیں لانے میں تعاون کے مواقع تلاش کریں۔ اس اقدام کا مقصد مقامی طلباء کو بلاسٹک کی صنعت کی ترقی اور عالمی مسابقت کے لیے ضروری خصوصی مہارتوں سے آراستہ کرکے پاکستان کی مہارت کے فرق کو دور کرنا ہے۔ PPMA کا مقصد ایسے تعلیمی رائے قائم کرنا ہے جو پاکستانی طلباء کو مقامی طور پر اعلیٰ سطی مینوفیکچرنگ کی مہارتیں حاصل کرنے کے لیے بااختیار بناتے ہیں۔



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HARD-TO-RECYCLE PLASTICS - FACING THE CHALLENGE

مشکل ری سائنگل پلاسک۔ چیلنج کا سامن



Several initiatives and projects worldwide illustrate the potential of recycling hard-to-recycle polymers.

Recycling has become a turning point for environmental sustainability, reducing waste, and conserving natural resources. However, not all materials are equally easy to recycle.

Polymers are composed of long chains of repeating molecular units called monomers. This molecular structure endows polymers with desirable physical properties such as durability and flexibility. However, these same properties pose significant challenges to recycling.

VARIETY OF POLYMERS

بولیمر کی مختلف قسمیں

The diversity of polymer types, each with distinct chemical compositions and physical characteristics, is the main reason for the complexity of recycling. Additionally, incorporating various additives and forming composite materials, which blend polymers with other substances, further complicates the recycling process.

Manufacturers introduce additives such as plasticizers, stabilizers, and colorants to enhance specific properties of polymers, making them suitable for various applications.

However, these additives can interfere with recycling processes by altering the thermal and chemical behavior of the polymers, requiring more advanced and selective recycling technologies.

Composite materials, which combine polymers with fibers, metals, or other polymers, create heterogeneous structures that are difficult to separate into constituent components.



This separation is crucial for effective recycling but is often technically and economically challenging.

UNDERSTANDING THE COMPLEXITIES OF RECYCLING CHALLENGING PLASTICS

Recycling certain plastics is particularly challenging due to their unique properties. Understanding these issues is vital for improving recycling methods &reducing plastic waste.

THERMOSETS

تھر موسیٹ

Thermosetting plastics, such as epoxy resins and phenolic resins, undergo a chemical transformation when heated. This process causes the polymers to crosslink, making them infusible.

The cross-linking process involves the reaction of functional groups on the polymer chains, this reaction initiates by heat, light, or chemical catalysts. Once these bonds form, the material cannot be re-melted or re-shaped because breaking the crosslinks would degrade its structure. This irreversible transformation distinguishes thermosetting plastics from thermoplastics and presents challenges for recycling and reprocessing.

This complexity requires advanced recycling technologies, such as chemical recycling or specialized mechanical separation processes, which can be energy-intensive and costly. Consequently, multi-layered packag-







ing often ends up in landfills, contributing to environmental pollution.

اخرّائی حل MOLECULAR RECYCLING مولیکولر ریسائیکلنگ

Recent advances in science and technology are offering promising solutions to these challenges. Innovations in molecular recycling, material science, and process engineering are enabling the recycling of polymers that society considers non-recyclable.

Molecular recycling is a broad sector that includes dozens of different technology processes that are characterized by the types of outputs they produce. According to Closed Loop Partners, there are three main categories of molecular recycling: Purification, depolymerization, and conversion.

INNOVATIVE SORTING TECHNOLOGIES



Improved sorting technologies are essential for separating diverse types of plastics and removing contaminants. The most common Innovations include:

 Near-Infrared (NIR) Spectroscopy: NIR can identify, and sort types of plastics based on their spectral fingerprints.

NIR imaging can separate plastics. Courtesy of Possibility Teledyne Imaging

• Robotics and AI: Automated systems using artificial intelligence and robotics can enhance the efficiency and accuracy of sorting processes.

YUTA, AI Powered Industrial Robot Sorting. Courtesy of Ishitva Robotics Systems

A ROAD-MAP FOR THE FUTURE



Although the industry has made considerable progress, it must achieve further advancements to make the recycling of hard-to-recycle polymers economically viable and environmentally beneficial on a large scale. Researchers and developers need to focus on key areas such as:

Scaling Up Technologies: Molecular recycling processes are still in the pilot or early commercial stages. Scaling up these technologies to manage large volumes of waste is critical.

Improving Economic Viability: Reducing the cost of chemical recycling processes and developing markets for recycled materials will enhance economic feasibility.

Policy and Regulation: Government policies and regulations can promote recycling by incentivizing the use of recycled materials and supporting infrastructure development.

Recycling hard-to-recycle polymers is a complex but essential task for reducing plastic waste and mitigating its environmental impact. Innovations in chemical recycling, biodegradable polymers, and advanced sorting technologies offer promising solutions.

مشکل سے ری سائیل کرنے والے بولیمر کی ری سائیکلنگ ان کی منفرو خصوصات اور یولیمر کی اقسام کے تنوع کی وجہ سے ایک پیچیدہ عمل ہے۔ تھر موسیٹس، جیسے epoxy resins اور گرم ہونے پر ایک سمیائی تبدیلی سے گزرتے ہیں، جس سے وہ ناقابل استعال ہو خاتے ہیں اور جدید ری سائیکلنگ ٹیکنالوجیز کی ضرورت ہوتی ہے۔ اس پیچیدگی کے نتیجے میں کثیر پر توں والی پیکیجنگ لینڈ فلز میں ختم ہو جاتی ہے، جو ماحولیاتی آلود گی میں حصہ ڈالتی ہے۔ مختلف قسم کے یلاسٹک کو الگ کرنے اور آلودگیوں کو دور کرنے کے لیے اختراعی چھانٹنے والی ٹیکنالوجیز، جیسے Near-Infrared NIR سبیکٹر وسکوئی اور روبو ٹکس اور AI ضروری ہیں۔ تاہم، مشکل سے ری سائیکل کرنے والے پولیمر کی ری سائیکلنگ کو اقتصادی طور پر قابل عمل اور بڑے پیانے پر ماحولیاتی طور پر فائدہ مند بنانے کے لیے مزید پیشرفت کی ضرورت ہے۔ محققین اور ڈویلپرز کو ٹیکنالوجیز کو بڑھانے، کیمیکل ری سائیکانگ کے عمل کی لاگت کو کم کرکے معاشی استحکام کو بہتر بنانے، اور حکومتی یالیسیوں اور ضوابط کے ذریعے ری سائیکلنگ کو فروغ دینے پر توجہ دینی چاہیے۔ ان علاقول پر توجہ مرکوز کرنے سے، مشکل سے ری سائیل کرنے والے بولیمر کی ری سائیکانگ ماحولیاتی یائیداری اور فضلہ میں کی کی طرف ایک اہم قدم ثابت ہو سکتی ہے.



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BRIEF HISTORY AND EVOLUTION OF MASTERBATCHES IN THE POLYMER WORLD

The colouration technique did not stop or limited to manufacturers to achieve tyre or rubber production but however, with the higher throughput innovation and development in the thermoplastic consistency. Furthermore, polymers, the Masterbatch coloration method also advancements in polymer started applied in other plastics as well Perfect distri- compounding techniques bution in a masterbatch was also important for manu- facilitated the developfacturers of plastic products. In early 50,s the new ment of customized masterclasses of thermoplastics has started emerging up in batch formulations tailored the market Thermoplastics, especially polyolefins to specific end-user require-(e.g., polyethylene (PE), polypropylene (PP)), styrene ments. plastics (e.g., polystyrene (PS) and copolymers such as ABS) and polyamide (PA) became extremely popu- Global Expansion of Masterbatch: lar materials in various industries from toy manufacturing to automotive engineering. They could be As the demand for plastic products surged globally, batches had not yet been invented.

The turn of the millennium witnessed a paradigm batch technology. shift in masterbatch manufacturing, driven by technological innovations. Automation and computerized In recent years, sustainability has emerged as a definsystems revolutionized production lines, enabling ing factor in the masterbatch industry. With growing



processed using extrusion and injection moulding the masterbatch industry experienced rapid expanprocesses, but one of their greatest benefits was the sion. Emerging markets in Asia, particularly China, multitude of colour possibilities they created. Such emerged as key players in masterbatch production, plastics could be colored by melting and solidifying leveraging economies of scale and technological them together with powder pigments, but master- expertise. This globalization not only fueled competition but also facilitated knowledge exchange and innovation, driving the continuous evolution of master-



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environmental concerns and regulatory pressures, manufacturers are increasingly focusing on eco-friendly formulations and production processes. Bio-based carriers, recycled pigments, and energy-efficient manufacturing methods are becoming integral components of modern masterbatch solutions, reflecting a shift Sustainability in Masterbatches demand

Challenges and Opportunities:

The growth in automotive as well as engineering material for IT equipment has given an different turn to global Masterbatch industry, the automotive sector has witnessed a growing emphasis on light weighting and sustainability. Masterbatch formulations that enhance the mechanical properties of plastics while reducing overall weight are in high demand. Additives such as glass fibers and nano-materials are incorporated into masterbatch formulations to achieve these objectives, contributing to the development of fuel-efficient and eco-friendly vehicles.

The medical industry presents another promising avenue for masterbatch applications. Masterbatch formulations tailored for medical-grade plastics ensure compliance with regulatory requirements while providing properties such as antimicrobial resistance and clarity.

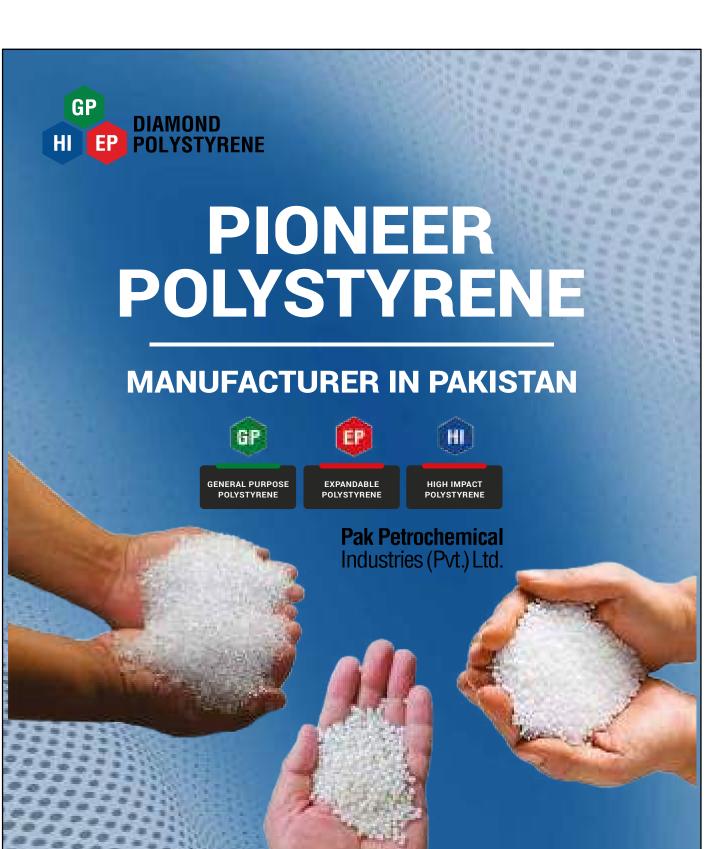
The growing emphasis on circular economy principles presents significant opportunities for the masterbatch industry. By collaborating with stakeholders across the value chain, masterbatch manufacturers can explore innovative recycling technologies and closed-loop systems that minimize waste and promote resource efficiency. This shift towards a circular economy not only aligns with environmental objectives but also opens up new avenues for business growth and differentiation

Despite its remarkable journey, the masterbatch industry faces several challenges and opportunities in the years ahead. One of the primary challenges is the rising pressure to develop sustainable solutions that minimize environmental impact. While bio-based carriers and recycled additives offer promising avenues for sustainability, mastering their integration into masterbatch formulations requires investment in research and development.

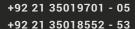
Evolution of Masterbatch Industry in Pakistan.

Following the world pattern of thermoplastic coloration technique, the plastic industry in Pakistan also uses powder coloration technique for coloration of their plastic products. Since the inception of many western multinational companies in Pakistan in early 1980,s it was the first German company Hoechst who started bringing Masterbatches in Pakistan from Germany and gave a new look to plastic coloration method.

In 1991-92,a swiss company named Sandoz have established the ever first Masterbatch plant in Pakistan. With state of the art German extrusion and mixing line, the plant was first of its kind not in Pakistan but in the middle East region as well. It was a great challenging initiative by the local Management of that era because Pakistan was never been a raw material producer of plastic industry which mostly came from Middle East and Saudi Arabaia. Chemical division and so as Masterbatch division as well, which has started a new company under the umbrella of Clariant. Latter on Clariant merged with















Hoechst carrying the same Clariant name and continued the Masterbatch operation in Pakistan under the brand name of Clariant.

Initially the purpose was to provide Masterbatch colouration technique to local plastic industry however immedialty after one year after its kick off the plant started exporting its products to Middle East as well.

Throughout 90,s Clariant was the only Masterbatch manufacturer in Pakistan having major market share in plastic coloration against the imported products, In early 2000 with the growth of plastic industries in Pakistan some other Masterbatch manufactures have also started their local production facilities which include poly bright. Butterfly as well as Bin Rasheed

Industries to feed the growing demand of Plastic industries. Clariant also established their second masterbatches plant in Lahore and termed as Rapid response Unit. This is to serve the North customers in shortest possible time.

In 2008 Pakistan has started exporting Masterbatch to Saudi Arabia ,this is mainly in PVC cable and PET sheet manufacturing industries.

With slight increase in per capita plastic consumption from 2.5kg to 2.65kg two new players have also emerged in the Masterbatches production. FAV Pakistan now have established Masterbatch plant in 2009 while ICI Pakistan established their plant in 2017, both started their production in Karachi to cater not only the market in south but also the entire Pakistan.

In 2023, ATZAA DISPERSIONs new company with experienced masterbatch people have also started producing Masterbatches in karachi mainly focusing colored and additive masterbatches.

World now is focusing more on circuler economy therefore moving more towards recycling plastics. In Pakistan also recycling is getting importance with the passage of time. The recycling of PET bottles and converting it into PET sheet and Pet fibre is now getting very popular in the polymer industry. Some of the recycling products are also exporting to European industry. The local Masterbatch manufacturer is providing additives, colours as well as Optical brightner Masterbatch to enhance to property of recycled product in line with the property of virgin polyester to expand its utility. Coloured recycled polyester has now been widely used in carpet and related industries.

Black recycled polyester has started using up in garment industries which is exported to us and European industries

Major Masterbatches players in Pakistan

- Avient Pakistan Ltd (formly Clariant)
- Lucky Core Industries (formly ICI)
- Bin Rashedd Industries
- FAV Industries
- Usman colours
- Butterfly
- ATZAA DISPERSIONS

Future outlook Masterbatch Industry pakistan

As we look ahead, the future of masterbatch industry in Pakistan appears promising, driven by technological advancements, evolving market dynamics, and the imperative for sustainability. The industry is poised to witness continued innovation in areas such as nanotechnology, smart additives, and functional masterbatch of formulations tailored for specific applications.

Furthermore, digitalization and data-driven approaches are expected to revolutionize masterbatch manufacturing, enabling real-time monitoring, predictive maintenance, and customized solutions based on precise customer requirements. Artificial intelligence and machine learning algorithms will play a crucial role in optimizing formulations, enhancing process efficiency, and driving continuous improvement





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Revolutionizing Construction: The Versatility of Recycled Plastic Interlocking Blocks

انقسلانی تعمیر: ری سائیکل مشده پلاسکے متسرابط بلاکس کی استعداد

In the current environmental discourse, plastic pollution emerges as a critical issue, marked by the annual incursion of an estimated 8 million tons of plastic waste into our oceans. Projections hint at a dire future, foreseeing oceans overwhelmed by plastic, surpassing marine life by 2050. This persistent influx of non-biodegradable and hazardous material not only jeopardizes natural habitats but also constitutes a substantial fraction of waste,



accounting for 65 percent of Pakistan's overall refuse. Recognizing the gravity of this burgeoning crisis, urgent and resolute actions are imperative to curb plastic consumption and forestall ecological calamity. Central to this imperative is the imperative shift towards recycling existing plastic waste, mitigating its disposal into marine ecosystems and landfill sites. Globally, recycling efforts predominantly revolve around the remelting and reshaping of discarded plastic into novel products, capitalizing on the material's thermoplastic properties. In Pakistan, a scant number of corporate entities have assumed leadership roles in recycling initiatives, successfully repurposing a notable portion of their annual plastic consumption. These endeavors underscore the indispensable role plastics occupy within the circular economy framework, wherein materials are cyclically recycled to sustain their utility beyond initial use. At the vanguard of this transformative ethos, the collaboration between the NED University of Engineering and Technology and Bigger Brick manifests in the development of construction blocks

Authors Prof Dr Saud Hashmi and Raza Muhammad Khan

Department of Polymer
Petrochemical &
Engineering
NED University of
Engineering & Technology

crafted entirely from recycled ABS (Acrylonitrile Butadiene Styrene) plastic waste. By repurposing industrial castoffs into construction components such as bricks, tiles, and pavements, this partnership not only tackles the mounting plastic waste predicament but also enhances the economic feasibility and structural robustness of urban landscapes.

Inspired by the modular design principles of LEGO, recycle plastic interlocking blocks represent a pioneering advancement in sustainable construction materials. Crafted exclusively from recycled plastic, including materials traditionally deemed non-recyclable, these blocks epitomize the ethos of circular economy princi-





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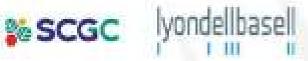












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ples. Their versatile nature allows for diverse applications, ranging from retaining walls and sheds to privacy fencing, accent walls, landscaping features, offices, laboratories, and furniture pieces. Through this innovative approach, a plastic interlocking block not only mitigate plastic waste but also fosters the creation of functional and aesthetically pleasing structures, underscoring the potential of recycled plastics in addressing contemporary construction challenges.

The construction of these blocks not only serves as a testament to sustainable design principles but also extends a lifeline to communities grappling with the aftermath of natural disasters such as floods. By distributing these blocks to recently affected flood victims, the initiative aims to provide immediate shelter solutions while they endeavor to rebuild their permanent residences. Furthermore, the establishment of a rehabilitation center serves as a tangible manifestation of the envisioned housing solutions for flood-affected individuals & marginalized communities residing in remote Northern mountain regions. This ambitious undertaking will be realized through the collaborative efforts of Bigger Bricks and the Department of Polymer & Petrochemical Engineering, epitomizing a convergence of academic ingenuity and industrial innovation. Together, we strive to not only alleviate the plastic waste burden but also

catalyze social impact by fostering resilient communities resilient to the vagaries of nature. The idea was also presented in Sindh Research and Technology showcase organized by Sindh Higher Education Commission and much appreciated by many industrialist and visitors.

انق لابی تعمیر: ری سائیل شده پلاسگ مترابط بلاکس کی استعداد"

یلاسٹک کی آلود گی ایک اہم ماحولیاتی مسلہ ہے، جس میں سالانہ 8 ملین ٹن بلاسٹک کا فضلہ سمندروں میں داخل ہوتا ہے۔ 2050 تک، سمندر پلاسٹک سے مغلوب ہو جائیں گے، سمندری زندگی کو پیچھے جھوڑ دیں گے۔ یاکتان کا فضلہ، جو ملک کے فضلے كا 65 فيصد ب، اس فضل كا ايك المم حصه ب- اس سے خملنے کے لیے، پلاسک کے کچرے کو ری سائیل کرنے کی طرف تبریلی کی ضرورت ہے۔ پاکستان میں، چند کارپوریٹ اداروں نے ری سائیکانگ کے اقدامات میں قائدانہ کردار ادا کیا ہے۔ این ای ڈی یونیورسٹی آف انجینئرنگ اینڈ ٹیکنالوجی اور بگگر برک کے در میان تعاون نے مکمل طور پر ری سائیل شدہ ABS یلاسک کے کچرے سے تعمیراتی بلاکس تیار کیے ہیں۔ یہ بلاکس ہم عصر تعمیراتی چیلنجوں سے نمٹنے کے لیے ورسٹائل اور فعال ہونے کے لیے بنائے گئے ہیں۔ قدرتی آفات سے متاثرہ کمیونٹر کے لیے لائف لائن کے طور پر بھی کام کرتے ہیں، فوری پناہ گاہ فراہم کرتے ہیں اور بحالی کے مراکز قائم کرتے ہیں۔ یہ پہل بلاسک کے فضلے کو ختم کرنے اور مضبوط معاشرتی جماعتوں كو فروغ ديا جا سكے۔





PLASTICS IN PAKISTAN'S AUTOMOTIVE INDUSTRY

پاکستان آٹو موٹیو انڈسٹری میں بلاسٹکس

There are 49 Auto manufacturing countries in world producing Passenger Cars, Light commercial vehicles, Trucks, Buses, Three wheelers and Two wheelers. The industry further goes into specialized vehicle manufacturing including off road vehicles, construction and recreation amongst others. Globally we rank 34th with regards to the number of vehicles manufactured.

In Pakistan we have 13 brands manufacturing Cars including TOYOTA, HONDA, SUZUKI, HYUNDAI, MG, KIA, CHANGHAN, BAIC, GWM, PROTON, AW, DFSK & PEUGEOT. We foresee some further EV brands entering soon.

For manufacturing of plastic parts and components there are large and medium industries within the 65-80 Tier 1 Automotive parts Plastic processors. Further an estimated thousands of SME's are engaged in the manufacturing of components and parts for the aftermarket.

The use of plastics in Pakistan's automobile industry is growing, aligning with global trends due to the advantages plastics offer in terms of weight reduction, cost efficiency, and design flexibility.

Here are some key aspects of this trend:-

1. Weight Reduction and Fuel Efficiency

Plastics are significantly lighter than metals, which helps reduce the overall weight of vehicles. This leads to improved fuel efficiency and lower emissions, which are critical factors in meeting environmental regulations and consumer demand for greener vehicles.

2. Cost Efficiency

Plastics can be produced at a lower cost compared to metals, especially when considering the complex shapes and integrated components required in modern vehicle designs. This cost efficiency is beneficial for both manufacturers and consumers.

3. Design Flexibility

Plastics offer greater flexibility in design, allowing for

innovative shapes and integrated components that would be difficult or impossible to achieve with traditional materials. This flexibility supports the development of modern, aesthetically pleasing, and aerodynamically efficient vehicle designs.

4. Durability and Corrosion Resistance



Plastics are resistant to corrosion and can endure harsh environmental conditions better than metals. This increases the longevity of vehicle components, reducing maintenance costs and improving vehicle reliability.

5. Local Manufacturing and Import Dependency

Pakistan's automobile industry is gradually increasing the local production of plastic components, reducing dependency on imports. Local manufacturers are investing in technology and infrastructure to produce high-quality plastic parts.

6. Applications in the Automobile Industry

Interior Components:

Dashboard, seat frames, door panels, and instrument panels.

Exterior Components:

Bumpers, fenders, and mirrors.

Engine and Mechanical Parts:

Engine covers, intake manifolds, and various under-the-hood components.

7. Challenges

Ensuring consistent quality of plastic components can be challenging due to variability in local manufacturing capabilities.







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Recycling and Waste Management:

· Managing plastic waste and developing efficient recycling processes is critical to address environmental concerns.

Technological Advancements:

· Keeping up with global advancements in plastic technologies requires significant investment in research and development.

Reliance on imported Engineering polymers, Molds, Machinery

8. Future Outlook

The use of plastics in Pakistan's automobile industry is expected to continue growing, driven by advancements in material science, increasing demand for lightweight and fuel efficient vehicles, and the development of local manufacturing capabilities. Efforts towards sustainable practices and improved recycling methods will also shape the future of plastics in the industry. The increased usage of plastics in the Pakistan automotive EV policy is to be seen.

Conclusion

Overall, the incorporation of plastics in the Pakistani automobile industry offers numerous benefits, including weight reduction, cost efficiency, and design flexibility. While there are challenges to overcome, the trend is likely to persist and evolve, contributing to the growth and modernization of the industry.

In Pakistan we still have a long way to go. Our dependency on imported Plastic raw materials persists. For the automotive sector usage of specialized engineering plastics compounds this dependence. Our Tool & Die sector still lags behind with poor efficiencies starting at the design stage and leading right up to the assembly and completion of Molds. Exotic metals used in mould manufacturing and the exorbitant costs charged by local importers increases the Moulds finished prices to levels that in comparison it becomes cheaper to import a complete mould.

As an industry we need to correct this situation and encourage local manufacturing of Molds, Dies, Raw materials and machinery. This will certainly induce rapid development of our Pakistan plastic sector.

پاکستان کی آٹوموبائل انڈسٹری پلاسٹک کے فوائد، جیسے وزن میں کمی، لاگت کی کار کردگی اور ڈیزائن کی لچک کی وجہ سے ترقی کر رہی ہے۔ پلاسٹک دھاتوں سے ہلکا ہوتا ہے، گاڑی کا وزن کم کرتا ہے، ایندھن کی کار کردگی کو فروغ دیتا ہے، لاگت کی کار کردگی کو فروغ دیتا ہے، لاگت کی کار کردگی، ڈیزائن کی لچک، اور پائیداری کو بڑھاتا ہے۔ وہ شکنرن کے خلاف بھی مزاحم ہیں، گاڑی کے اجزاء کی لمبی عمر میں اضافہ کرتے ہیں اور دیکھ بھال کے اخراجات کی کمبی عمر میں اضافہ کرتے ہیں۔ پاکستان کی آٹوموبائل انڈسٹری پلاسٹک کے اجزاء کی مقامی پیداوار میں بتدریج اضافہ کر رہی ہے، جس اجزاء کی مقامی پیداوار میں بتدریج اضافہ کر رہی ہے، جس سے درآ مدات پر انحصار کم ہو رہا ہے۔

پلاسٹک کا استعمال اندرونی اجزاء، بیرونی اجزاء، انجن اور میں ہوتا ہے۔ چیلنجز میں کمینیکل حصول اور انجن کے کور میں ہوتا ہے۔ چیلنجز میں کسال معیار کو یقینی بنانا، پلاسٹک کے فضلے کا انتظام کرنا، اور تکنیکی ترقی کو حل کرنا شامل ہے۔ صنعت اب بھی درآ مد شدہ پلاسٹک کے خام مال پر انحصار کرتی ہے، خاص طور پر ٹول اور ڈائی سیکٹر میں۔ مقامی درآ مد کنندگان کی طرف سے وصول کیے جانے والے بے تحاشہ اخراجات مولڈز کی قیمت میں اضافہ کرتے ہیں، جس سے مکمل مولڈ درآ مد کرنا سستا ہو جاتا ہے۔

ان مسائل کو حل کرنے کے لیے صنعت کو مولڈز، ڈیز، خام مال اور مشینری کی مقامی مینوفیکچرنگ کی حوصلہ افزائی کرنے کی ضرورت ہے، جو پاکستان کے پلاسٹک سیٹر کی تیزی سے ترقی کا باعث بنے گی۔ چیلنجوں کے باوجود، رجحان بر قرار رہنے اور ترقی کرنے کی توقع ہے، جس سے صنعت کی ترقی اور جدیدیت میں مدد ملے گی۔

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Why Corporate Social Responsibility (CSR) کارپوریٹ سابی ذمہ داری کیوں؟ Should Take Compressed Air Seriously کو کمپریسڈ ایئر کو سنجیدگی سے لینا چاہیے۔ (CSR)

Compressed air systems are fundamental to many manufacturing processes, yet they are often overlooked when it comes to energy efficiency and sustainability initiatives. Given their substantial impact on energy consumption and greenhouse gas emissions, companies should prioritize compressed air systems as part of their Corporate Social Responsibility (CSR) strategies. By doing so, they can significantly reduce their carbon footprint, contribute to global efforts against climate change, and improve their corporate profitability.

The Impact on Climate Change

Compressed air systems are notoriously inefficient, with the U.S. Department of Energy estimating that up to 50% of the energy used by these systems is wasted. This inefficiency translates into excessive CO2 emissions, contributing to global warming and climate

change. By conducting regular compressed air audits, companies can identify inefficiencies and implement solutions to reduce energy consumption. These audits provide detailed measurements of air usage and system performance, highlighting areas where energy can be saved and emissions reduced.

Reducing CO2 Emissions

The importance of reducing CO2 emissions cannot be overstated. Carbon dioxide is a primary greenhouse gas responsible for global warming. Compressed air systems, due to their high energy consumption, are significant contributors to CO2 emissions in industrial settings. By optimizing these systems, companies can achieve substantial reductions in their carbon emissions. For example, AirAudit, a leader in energy-efficient compressed air solutions, has demonstrated that their audits can help reduce operating costs by 25% to 50% and maintenance costs by 10% to 80%, while also significantly cutting down CO2 emissions.

Investing in a Sustainable Future

Investing in energy-efficient compressed air systems is an investment in a sustainable future. Companies that prioritize sustainability are better positioned to meet evolving environmental standards and consumer



expectations. Green energy initiatives focus on reducing energy consumption and costs while minimizing the carbon footprint. By implementing innovative technologies and practices, companies not only contribute to a cleaner planet but also enhance their long-term viability and competitiveness.

Enhancing Corporate Profits

Sustainability and profitability are not mutually exclusive. In fact, optimizing compressed air systems can lead to significant cost savings. By reducing energy waste, companies can lower their operating expenses. Additionally, efficient systems require less maintenance, further decreasing costs.

The data provided by compressed air audits enable companies to make informed decisions about system upgrades and adjustments, ensuring that their operations are both cost-effective and environmentally responsible.

REDUCING CO2 EMISSIONS



AirAudit, a leader in energy efficient compressed air solutions



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The Role of Data Logging and Audits

A compressed air audit involves detailed and accurate measurements of air usage over a given period, typically a production week. This process acts as a health check for the system, identifying potential energy savings and necessary adjustments. Regular audits, ideally conducted annually, allow companies to stay ahead of changes in air demand and energy costs. They can also identify simple yet effective solutions, such as minor piping corrections or compressor control adjustments, which can significantly enhance system efficiency.

Conclusion

Corporate Social Responsibility (CSR) in the manufacturing industry must encompass all aspects of energy use, including compressed air systems. By taking compressed air seriously, companies can make a meaningful impact on climate change, reduce their CO2 emissions, and improve their profitability. Regular compressed air audits and the implementation of energy-efficient technologies are essential steps towards achieving these goals. Companies like AirAudit, in Karachi Pakistan, provide the expertise and innovative solutions necessary to lead the way in sustainable manufacturing. Investing in these initiatives is not just a moral imperative; it is a smart business strategy that ensures long-term success and sustainability.



CORPORATE SOCIAL RESPONSABILITY

کپریسڈ ایئر سسٹم مینوفیکچرنگ کے عمل میں اہم ہیں لیکن اکثر توانائی کی کارکردگی اور پائیداری کے اقدامات میں نظر انداز کیے جاتے ہیں۔ وہ ضرورت سے زیادہ CO2 کے اخراج میں حصہ ڈالتے ہیں اور گلوبل وارمنگ میں حصہ ڈالتے ہیں۔ باقاعدگی سے آڈٹ ناکاریوں کی نشاندہی کر سکتے ہیں اور توانائی کی کھیت کو کم کرنے کے حل کو نافذ کر سکتے ہیں۔ کمپریسڈ ایئر سسٹم کو بہتر بناکر، کینیاں آپریٹنگ اخراجات اور دیکھ بھال کے اخراجات کو کم کرسکتی ہیں۔ توانائی سے چلنے ہیں، جبکہ CO2 کے اخراج کو بھی کم کرسکتی ہیں۔ توانائی سے چلنے میں، جبکہ کرنے کے وائر ایئر سسٹمز میں سرمایہ کاری ایک پائیدار مستقبل میں میں میرمایہ کاری ہے۔ کیونکہ جو کمپنیاں پائیداری کو ترجیح دیتی ہیں وہ ماحولیاتی معیارات اور صارفین کی توقعات کو پورا کرنے کے لیے ماحولیاتی معیارات اور صارفین کی توقعات کو پورا کرنے کے لیے بہتر یوزیشن میں ہیں۔

کپریسڈ ایئر سٹمز میں سرمایہ کاری لاگت میں نمایاں بچت کا باعث بن سکتی ہے، کیونکہ انہیں کم دیکھ بھال کی ضرورت ہوتی ہے اور کم توانائی کے ضیاع کی ضرورت ہوتی ہے۔ با قاعدہ آڈٹ، جو سالانہ کیے جاتے ہیں، کپنیوں کو ہوا کی طلب اور توانائی کے اخراجات میں تبدیلیوں سے آگے رہنے کی اجازت دیتے ہیں۔ وہ آسان حلول کی نشاندہی کر سکتے ہیں، جیسے کہ پائینگ کی معمولی اصلاحات یا کمپریسر کنٹرول ایڈجسٹمنٹ، جو سٹم کی کارگردگی کو بڑھا سکتے ہیں۔

آخر میں، مینوفیکچرنگ انڈسٹری میں کارپوریٹ ساجی ذمہ داری (CSR) کو توانائی کے استعال کے تمام پہلوؤں بشمول کمپریسٹر ایئر سسٹمز کا اعاطہ کرنا چاہیے۔ با قاعد گی سے آڈٹ اور توانائی کی بچت والی طیکنالوجیز کا نفاذ ان اہداف کے حصول کے لیے ضروری والی طیکنالوجیز کا نفاذ ان اہداف کے حصول کے لیے ضروری اقدامات ہیں۔ کراچی پاکستان میں AirAudit جیسی کپنیاں پائیدار مینوفیکچرنگ میں رہنمائی کے لیے ضروری مہارت اور اختراعی حل فراہم کرتی ہیں



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PLASTICS MAKE IN PAKISTAN: A SUCCESS STORY

۔ عمہ رگی کا جوہر

An excerp from the report by United Nations COMTRADE database. Plastics are on the greatest innovation and it has been the most used material of the modern life specially in electric.

In the vibrant landscape of Pakistan's industrial sector, one name shines brightly: Klass Electric. Led by the visionary senior Vice Chairman of Pakistan Plastics Manufacturers Association (PPMA), Mr. Khalil Ahmed, Klass Electric has scripted a remarkable success story in the realm of local manufacturing, particularly in the production of electric switch sockets and fittings. Inspired by the long term planning and and vision to bolster the dream into reality and with the theme "Plastics - Make in Pakistan - Exalted Superb to manufacturers of electric items in his capacity

The journey began with a bold decision by Klass Electric to embark on the path of local manufacturing. Recognizing the immense potential of the Pakistani market and driven by a commitment to contribute to the nation's economic growth, Klass Electric initiated production within its own facilities. Moreover, they extended their support to 30 local manufacturers by providing them with molds, technical information, and guidance.

The strategic establishment of manufacturing units across key cities like Lahore, Karachi, Gujranwala, Faisalabad, Sargodha, and Daska has not only boosted local production but has also significantly reduced the country's dependence on imports, particularly from China. This concerted effort has borne fruit, evident in the substantial decrease in imports of electrical apparatus for switching or protecting electrical circuits from \$50 million in 2019 to \$29.89 million during 2023, as reported by the United Nations COMTRADE database on international trade.

work for sustainable economic expansion and

prosperity. As Pakistan embarks on its odyssey industrialization towards and self-sufficiency, lessons gleaned from Klass Electric's voyage serve as a quiding light, illuminating the path towards a brighter more prosperous future for the nation and of course - plastics make in Pakistan - Exalted Superb.



Chief Executive Klass Electric

پاکستان بلاسٹک مینوفیکچررز ایسوسی ایش کے سینئر وائس چیئرمین بناب خلیل احمد کی قیادت میں کلاس الیکٹرک نے مقامی مینوفیکچرنگ بالخصوص اليكثرك سوئج ساكث اور فتنكَّر كي تباري مين نمايان کامیابال حاصل کی ہیں۔ سمپنی نے اپنی سہولیات کے اندر پیداوار شروع کی اور مول<mark>ڈز، تکنیکی معلومات اور رہنمائی فراہم کرے 30</mark> مقامی صنعت ک<mark>اروں کی مدد کی۔ لاہور، کراچی، گوجرانوالہ، فیصل آباد،</mark> سر گودھا، اور <mark>ڈسکہ جیسے اہم شہروں میں مینوفیکچرنگ یونٹس کے</mark> اسٹریٹجک <mark>قیام نے ن</mark>ہ صرف مقام<mark>ی پیداوار کو فروغ دیا ہے بلکہ خاص</mark> طور یر چین سے درآمدات یر ملک کے انحصار کو بھی نمایاں طور پر کم کیا ہے۔ کلاس الیکٹرک کے اقدامات کے اثرات بہت دور رس ہیں، 100 سے زبادہ معاون فروش اب مقامی معیشت کو تقویت دیتے ہوئے ضروری مواد کی فراہمی میں سرگرم عمل ہیں۔ <mark>کلاس ال</mark>یکٹر ک ك سفر سے حاصل ہونے والے اسباق ايك رہنمائى كاكام كرتے ہيں، جو قوم کے لیے ایک روش اور زیادہ خوشحال مستقبل کی طر<mark>ف راہیں</mark> روش کرتے ہیں۔ یونائیٹر نیش کے ادارہ Comtrade Database نے الیکڑیکل سرکٹ کی پاکستان میں درآمدات میں کمی کی نشاندہی کی ہے جو کہ ایک ہمت افزا پزیرائی ہے اور اس سلسلہ میں مزید موثر انظامی ۔ ٹیکنیکل اقدامات سے پاکستان میں مزید درآمدت میں کی ہوسکتی ہے۔ پاکستان بلاسٹک - عمد گی کا جوہر ایک تحسین آمیز اقدام ہے اور اسمیں مزید پیشرفت متوقع ہے۔



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PLASTICS KNOWLEDGE VS PLASTICS SKILLS

پلاسٹکس کا عسلم بمقابلہ پلاسٹکس کی مہارت

The debate between knowledge and skill manpower is an ever-persistent one. Both facets are indispensable for driving innovation, productivity, and sustainability within this sector. However, understanding the nuances of each and finding the right balance is crucial for the industry's continued growth and development.

PLASTICS KNOWLEDGE

بلاسٹکس کا علم

Knowledge, often acquired through formal education and extensive training, forms the backbone of the plastic industry. Engineers, researchers, and technicians armed with in-depth understanding of materials science, polymer chemistry, and manufacturing processes play a pivotal role in driving advancements in product design, material development, and process optimization. Their expertise enables the industry to explore new frontiers, develop innovative solutions, and adapt to emerging challenges such as environmental sustainability and regulatory compliance.

پلاسٹکس کا ہنر Plastics Skills

On the other hand, skill manpower, comprising of machine operators, technicians, and craftsmen, brings hands-on expertise and operational proficiency to the table. These individuals are the linchpins of production facilities, adept at operating complex machinery, executing precise manufacturing processes, and troubleshooting operational issues in real-time. Their practical knowledge and experience are invaluable for ensuring efficient production, maintaining quality standards, and minimizing downtime, thus optimizing overall productivity and profitability.

Both Plastics knowledge and skill manpower are indispensable, striking the right balance between the two is essential for harnessing the full potential of the plastic industry.

The interplay between knowledge and skill manpower forms the cornerstone of success in the plastic industry. By fostering a harmonious synergy between theoretical expertise and practical proficiency, industry stakeholders can unlock the full potential of their workforce, drive innovation, and sustain long-term growth in an increasingly competitive global market.

Pakistan Plastics industry has achieved the great



efficiency and product make in Pakistan are of high quality and standard. However the quality, research and innovations have no limits. More and more, research collaborations are needed to achieve high standard and quality.

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Empowering the Plastic Industry Since 2011

In the ever-evolving realm of plastics, FAV Plastico PVT LTD embraced a vision to redefine standards by introducing Make in Pakistan Masterbatch. Rooted in a commitment to quality and innovation, the company recognized the burgeoning demand for locally crafted master batches and embarked on a transformative journey in the industry.

کامیابی-ارتقتء Evolution of Quality and Success

Established in 2011, FAV Plastico PVT LTD swiftly emerged as a trailblazer in masterbatch production, marked by unwavering dedication to precision and investments in state-of-the-art technology. Over the years, the company has solidified its reputation for excellence and dependability, earning the trust of a discerning clientele.

Beyond catering to the domestic market, FAV Plastico PVT LTD has extended its reach to international frontiers, exporting its premium master batches worldwide. By upholding a relentless focus on craftsmanship and customer satisfaction, the company has garnered acclaim on a global scale, elevating Pakistan's stature as a premier hub for plastic manufacturing.

A Vision for the Future

With sights set on continued progress and innovation, FAV Plastico PVT LTD is poised to shape the plastic industry's landscape. By diversifying its product portfo-

industry's landscape. By diversifying its product portfolio and enhancing manufacturing capabilities, the company is primed for further market disruption. Upholding pillars of quality, innovation, and sustainability, FAV Plastico PVT LTD is prepared to build upon its achievements and redefine industry benchmarks.

Exploring New Horizons

در بافست

متقبل کی جہت

In an endeavor to showcase its latest breakthroughs,

FAV Plastico PVT LTD actively participates in prestigious exhibitions such as the upcoming K Show in Germany. This global platform serves as a testament to the company's commitment to innovation and excellence.



With a vibrant palette of over 11,000 shades developed in

under 13 years and an unwavering dedication to customer satisfaction, FAV Plastico PVT LTD strives to fulfill diverse requirements promptly. The company's ethos of welcoming all orders, regardless of size, and investing in cutting-edge equipment underscores its dedication to customer contentment.

Embrace Brilliance with Favolene - Color your world with Favolene

Experience the essence of distinction and supremacy in master batches with Favolene. Revamp your world with FAV Plastico PVT LTD and witness the epitome of excellence redefining industry norms.

FAV Plastico PVT LTD نے دو الی کا میں قائم ہونے والی FAV Plastico PVT LTD نے پاکستان کی بلاسٹک کی صنعت میں اپنی مقامی طور پر تیار کردہ ماسٹر نیج مصنوعات کے ساتھ انقلاب برپا کر دیا ہے۔ بہترین اور قابل اعتادی کے لیے عالمی سطح پر مشہور، کمپنی دنیا بھر میں اپنے پر یمیم ماسٹر بیچز برآمد کرتی ہے۔ در سگی اور جدید ترین شیکنالوجی پر توجہ کے ساتھ، برآمد کرتی ہے۔ در سگی اور جدید ترین شیکنالوجی پر توجہ کے ساتھ، ہے اور مینوفیکچرنگ کی صلاحیتوں کو بڑھا رہا ہے۔ کمپنی اپنی تازہ ترین اختراعات کی نمائش کے لیے جرمنی کے کم شو جیسی باو قار نمائشوں میں بڑھ چڑھ کر حصہ لیتی ہے۔ صرف 13 سالوں میں تیار کیے گئے سامون کی اطمینان اور تکنیکی ترتی کا بباعث ہے۔

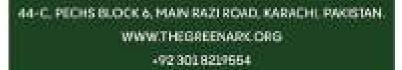


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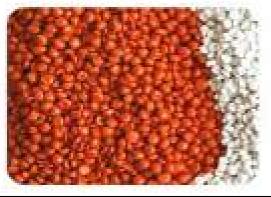
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- Represents innovation in sustainable materials development.
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PAKPLAS EXCLUSIVE CONVERSATION WITH Mr. Habib Maqbool Elahi Group Director The Mac Corp

Spotlight

TGA Sustainability Pt Ltd was founded in 2022 to create a value chain in the circular economy. Its operation and activity aim to not only provide sustainability produced recycled materials, but also add and create value to non-recyclable materials. The core business of TGA is to provide recycling solution for post-industrial and post-consumer waste. Apart from making recycled polymer resins, TGA aims to create products from non-recycled waste, hence creating a new value to materials that were previously destined to go to landfills.

Please you provide an overview of The Green Ark (TGA) and its mission within the plastics recycling and packaging industries?

The Green Ark (TGA) is dedicated to transforming the plastics recycling and packaging industries through innovative recycling methods and sustainable practices. Our mission is to establish a circular economy, reduce environmental impact, and promote the widespread adoption of sustainable practices.

What inspired this idea?

The idea for TGA was inspired by the urgent need to address the growing plastic waste problem and the potential to turn this waste into valuable resources. We saw an opportunity to create high-quality products from recycled materials while contributing to environmental sustainability.

How does TGA utilize advanced recycling technologies to transform non-recyclable end-of life multilayered plastic materials into sustainable building solutions?

Habib Elahi Group Director The Mac Corp Sustainability Leader | Change Enabler | Founder TGA Sustainability Pvt Ltd



TGA employs cutting-edge recycling technologies that break down non-recyclable multilayered plastics into reusable materials. We process these plastics into sustainable building solutions such as Eco Pav and Eco Til, which are durable, eco-friendly alternatives to traditional construction materials.

TGA produces high-quality resin from post-industrial plastic waste. Can you elaborate on the process and the unique benefits of your mono-polymer resin in the plastics recycling chain?

We source post-industrial and post-consumer plastic waste and process it using advanced techniques to produce high-quality mono-polymer resin. We have installed state of the art recycling machines such as Starlinger and other machines from Taiwan & China. We ensure testing at every stage, enabling our resin is consistently meeting quality standards.

What is the raw material used - Virgin or Recycled?

Our primary raw materials are post-industrial & post-consumer waste, in fact our resin products are a substitute in many applications for virgin materials.

What do you mean by the Trash is a treasure claim?

Our "Trash is a treasure" claim highlights our belief that waste materials have inherent value and can be transformed into high-quality products. By recycling



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and repurposing plastic waste, we create valuable resources and reduce environmental pollution.

How is TGA advancing the plastic packaging industry with sustainable solutions?

TGA is advancing the plastic packaging industry by developing eco-friendly packaging solutions made from recycled materials. These solutions are designed to be both functional and environmentally friendly, helping to reduce the environmental footprint of packaging.

What role does your recycled plastic resin play in creating eco-friendly packaging products?

Our recycled plastic resin is a key component in creating eco-friendly packaging and consumer products. It provides the same quality and performance as virgin resin while significantly reducing the environmental impact associated with plastic production and disposal.

What inspired you to adopt a circular economy model for TGA, and how has this approach evolved since its inception?

The circular economy model was inspired by the need to create a sustainable, closed-loop system where waste is minimized, and resources are continuously reused. Since its inception, our approach has evolved to incorporate more innovative recycling technologies and expand our range of recycled products.

Can you explain what the circular economy means in the context of your business?

In the context of our business, the circular economy means designing products and processes that prioritize reuse, recycling, and sustainability. It involves transforming waste into valuable resources and reducing our reliance on finite natural materials.

What are the key environmental and economic benefits of TGA's circular economy practices compared to traditional linear manufacturing methods?

The key environmental benefits include reduced

waste, lower carbon emissions, and decreased pollution. Economically, our circular economy practices reduce material costs, create new market opportunities, and foster innovation in sustainable product development.

What technologies or innovations has TGA adopted to improve its recycling process and ensure the quality and safety of its recycled plastic products?

TGA has adopted advanced sorting, washing, and processing technologies to enhance the quality and safety of our recycled plastic products. These innovations ensure that our products meet high standards and are safe for various applications.

Can you elaborate on TGA Initiative's efforts in driving awareness and action towards efficient plastic waste management through various sensitization and advocacy campaigns?

TGA Initiative engages in a range of activities, including educational campaigns, clean-up drives, and community events, to raise awareness about the importance of efficient plastic waste management. We aim to inspire individuals and organizations to adopt sustainable practices and support recycling efforts.

What are some of the biggest challenges TGA faces in implementing and maintaining a circular economy model, and how do you overcome issues related to the contamination of recyclable plastics?

One of the biggest challenges is managing the contamination of recyclable plastics, which can reduce the quality of recycled materials. We address this by implementing rigorous sorting and cleaning processes and investing in technologies that enhance the purity ofrecycled plastics.

How important are partnerships and collaborations in achieving your circular economy goals, and can you give examples of how TGA works with other businesses, governments, or communities to promote recycling and sustainability?

Partnerships and collaborations are crucial for achieving our circular economy goals. We work with business-







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es to develop sustainable products, collaborate with governments on policy initiatives, and engage with communities to promote recycling and environmental stewardship.

Why do Pakistani plastics industries not focus on R&D in their entities at a larger scale?

Many Pakistani plastics industries face challenges such as limited resources and lack of awareness about the benefits of R&D. There is a need for more investment in research and development to drive innovation and sustainability in the industry.

Why do you think sole partnerships are rare in Pakistan and joint collaborative ventures aren't flourishing?

Sole partnerships and joint ventures face challenges such as cultural differences, lack of trust, and regulatory barriers. Encouraging open communication and creating supportive policies can help foster more collaborative ventures in Pakistan.

Considering recent legislation in Pakistan aiming to ban various plastic products, what approach would you suggest for legislators to support the betterment of the plastics industry and environment?

There is lack of regulations for setting up a recycling company, a lot of set ups are at karkhana levels and don't comply to any safety standards. The product quality is also inferior, thus setting up a precedent for inferiority within the recycled plastic industries. If the govt encourages corporates to invest in recycling businesses, with international standard facilities like ours, there will be a major change within the recycling sector. I suggest that legislators focus on creating a balanced approach that includes proming alternatives, supporting sustainable infrastructure, and providing incentives for businesses to adopt environmentally friendly practices. Collaboration between government, industry, and community stakeholders is essential for effective implementation.

Could you unveil TGA's future plans, core values, and CSR initiatives that align with your commitment to sustainability and environmental

responsibility?

Our future plans include expanding our recycling capabilities, developing new sustainable products, and increasing our community engagement efforts. Our core values are innovation, sustainability, and collaboration. Our CSR initiatives focus on education, community development, and environmental conservation.

How does TGA educate and motivate its human resources, customers, and stakeholders about the importance of the circular economy and sustainable practices?

TGA conducts regular training sessions, workshops, and awareness campaigns to educate and motivate our employees, customers, and stakeholders. We also provide resources and support to help them adopt sustainable practices and understand the benefits of a circular economy.

What is your perspective on the growth and potential of Pakistan's plastics industry in the near future, and how can TGA contribute to elevating industry standards?

I see significant growth potential for Pakistan's plastics industry, especially with increasing awareness of sustainability and environmental impact. TGA can contribute by setting high standards for recycled products, promoting innovation, and advocating for sustainable practices across the industry.

How can our readers support or get involved with TGA's efforts in promoting a circular economy, and are there any resources, books, or websites you recommend for those interested in learning more?

Readers can support our efforts by participating in our community events, adopting sustainable practices, and spreading awareness about the importance of recycling. I recommend resources such as "Cradle to Cradle" by William McDonough and Michael Braungart and websites like the Ellen MacArthur Foundation for more information on the circular economy.

Can you share a success story or case study that highlights the impact of TGA's circular economy



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practices and innovative products on the community and environment?

One success story is our collaboration with the local municipality and community of Baldiya Town to implement a comprehensive recycling program under an initiative called AZM. In this Initivative, TGA in partnership with International Labour Organisation, aimed to eliminate child labor in waste picking and uplift community lifestyles through education, sustainability, and economic opportunities.

TGA educated 467 children aged through story telling sessions and awareness programs on importance of efficient waste disposal, elevated a neighborhood by transforming a road with the use of eco til and eco pav, recycled tiles and paver made out of multilayered plastics, and empowered men and women from low-income households in squatter settlements. This initiative has significantly reduced waste in the that community, provided jobs, and created high-quality recycled products.

How does TGA Build pioneer sustainability in the construction industry with products like Eco Pav and Eco Til, and what impact do these products have on reducing plastic pollution?

TGA Build pioneers sustainability by developing construction products like Eco Pav and Eco Til, made from recycled plastics. These products reduce plastic pollution by diverting waste from landfills and provide durable, eco-friendly alternatives to traditional materials.

With the global packaging industry rapidly advancing, how does TGA ensure its packaging solutions meet international standards and remain competitive?

We ensure our packaging solutions meet international standards by continuously investing in research and development, adopting advanced technologies, and adhering to stringent quality control measures. This commitment helps us remain competitive in the global market.

Is TGA's focus on sustainability a part of your corporate social responsibility, and how does it integrate with your overall business strategy?

Yes, sustainability is a core aspect of our corporate social responsibility and integrates seamlessly with our business strategy. It drives our innovation, reduces costs, and enhances our brand reputation.

How do you measure and track your environmental impact, and what have been some of your most significant achievements?

We measure our environmental impact through metrics like waste reduction, carbon footprint, and resource efficiency. Significant achievements include diverting tons of plastic waste from landfills and producing high-quality recycled products that contribute to environmental conservation.

Do you have any final messages or insights you would like to share with the plastics community about embracing sustainable practices and the future of the industry?

My final message to the plastics community is that embracing sustainable practices is not just a necessity for the environment but also a tremendous opportunity for innovation and growth.

By adopting circular economy principles, we can create value from waste, reduce our environmental footprint, and build a more sustainable future for all. The future of the plastics industry lies in our ability to innovate and collaborate towards a more sustainable model

This year's theme in Pakplas Magazine is Plastics - Make in Pakistan. Exalted Superb. We claim that products make in Pakistan are equal to any standard of the plastics world. Is the claim of the Pakplas magazine strong or superfluous?

The claim of Pakplas Magazine that products Make in Pakistan are equal to any standard of the plastics world is strong and valid. Pakistani companies, including TGA, are increasingly adopting advanced technologies and sustainable practices that allow us to produce high quality, world-class products. This theme rightly emphasizes the potential and capabilities of the Pakistani plastics industry to compete globally.



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RECORD-BREAKING ATTENDANCE OF OVER 320,000 VISITORS PERFECT CONCLUSION TO CHINAPLAS'S RETURN TO SHANGHAI



After a six-year hiatus, CHINAPLAS 2024 made a glorious return to Shanghai and concluded successfully on April 26 at the National Exhibition and Convention Center (NECC), Hongqiao, Shanghai, PR China. The grand comeback to Shanghai immediately captured the attention of the global plastics and rubber industries with its immense scale and extraordinary appeal. The exhibition not only achieved a record-breaking number of exhibitors, with 4,495 companies participating from 38 countries and regions, occupying total exhibition area of 380,000 sqm, but also set a new record for visitor attendance. A total of 321,879 visitors from over 170 countries and regions attended the mega event, representing a 29.67% increase compared to the 2023 Shenzhen



exhibition. Among them, the number of overseas visitors reached 73,204, accounting for 22.74% of the total, marking a significant growth of 157.50% compared to the 2023 Shenzhen exhibition.

"We have repeatedly broken records, surpassing the number of exhibitors, total visitor count, and overseas visitor count of any previous edition of CHINAPLAS. The outcome is both expected and unexpected. As the exhibition returned to Eastern China after six years, various aspects such as the lively atmosphere, highlights of innovative technologies, the quantity and quality of visitors, and the proportion of overseas buyers have all significantly exceeded expectations," said Ms. Ada Leung, General Manager of Adsale Exhibition Services Ltd., the organizer of CHINAPLAS.





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Global Plastics and Rubber Market Trends Highlighted at CHINAPLAS

Focusing on the four main themes of "Circular Economy," "Innovative Materials," "Digitalization" and "High-End Technologies from China," the exhibition showcased innovative technologies presented by global exhibitors. It highlighted keywords such as carbon reduction, energy efficiency, cost reduction, intelligence, efficiency and high quality, directly addressing customer pain points and demands, and getting a lot of attentions in the fairground.

The wave of sustainability is sweeping across the globe. Many exhibitors dedicated their efforts to the realm of "Circular Economy" and "Sustainability." They introduced various innovative achievements, including bio-based plastics and biodegradable plastics with exceptional performance, single-material solutions, post-consumer recycled polycarbonate, chemically recycled medical-grade ABS materials and additives to enhance the performance of recycled plastics, carbon capture technologies, 100% recyclable closed-loop production lines for bottle caps, and online granulating recycling technologies. These innovations related to the circular economy were richly presented at CHINAPLAS 2024, fostering deep exploration and collaboration within the industry.

As industry insiders immersed themselves in the visually stunning experiences, they were also treated to a series of captivating auditory delights. The exhibition featured a wide range of exciting concurrent events and activities, namely The World Trends and Plastics and Rubber Technology Summit, Plastics Recycling & Circular Economy Conference and Showcase, Tech Talk, Medical Plastics Connect, Application in Focus, The Innovation of Injection Molding Forum, Empowering Product Quality with Advanced Moulding & Innovative Technology Symposium 2024, Product Innovation Gallery, Market Insights Hub, etc which have drawn large crowds, bringing a vibrant and engaging experience to all participants. With unique theme and highlights, each activity closely followed the trends and hot topics in the plastics and rubber industries,

bringing together professionals from various fields to discuss the development of the industry. Additionally, several local and overseas business matching activities were organized at the fairground with overwhelming responses.

The grand event has come to a successful conclusion, but the excitement never ends. For those who missed or wanted to replay any exciting moments of the exhibition, please scan the below QR codes of CHINAPLAS Live or the live photo album to have a virtual exhibition tour now.





Scan to enter CHINAPLAS Live

Scan to enter the live photo album of CHINAPLAS

About CHINAPLAS 2024

CHINAPLAS 2024 is organized by Adsale Exhibition Services Ltd., Beijing Yazhan Exhibition Services Ltd., Adsale Exhibition Services (Shanghai) Ltd., Adsale Exhibition Services (Shenzhen) Ltd. and co-organized by China National Light Industry Council - China Plastics Processing Industry Association, China Plastics Machinery Industry Association, Shanghai Society of Plastic Industry and Messe Düsseldorf China Ltd. The event is also supported by various plastics and rubber associations in China and abroad.

First introduced in 1983, CHINAPLAS has been approved by UFI (The Global Association of the Exhibition Industry) since 2006. CHINAPLAS is exclusively sponsored by the Europe's Association for Plastics and Rubber Machinery Manufacturers (EUROMAP) in China for the 33rd time. CHINAPLAS is currently Asia's leading plastics and rubber trade fair.





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COVER STORY PLASTICS MAKE IN PAKISTAN



سسرورق کی کہانی پاکستان پلاسٹکس عمسدگی کا جوہر

Plastics – Make in Pakistan initiative is a smart move of the pakplas magazine, to attract and inform the plastics contemporary world that plastics products - make in pakistan - are of international standard and superb in quality.

The main difference between Make "MADE is that: Make is the present form of the verb. Made is the past form. Make is used when the action of creating or assembling something happening in the present. Made is used when the action of creating or assembling something has already happened in the past. Make is a continuing process...

Current theme of Pakplas magazine is Pakistan's image of plastics to shine as a blooming star in the field of plastics. A campaign is developed to portray that in Pakistan's Plastics scene the fine quality of Plastics work is being done. This message is to spread to all that Pakistan Plastics is Superb. Whether it is plastics composting, plastics blending, plastics manufacturing, Plastics Machines or plastics service provider. Men and Machine, technical skills, plastics laboratory analysis, material analysis, reinforced fiber, nanotechnology, polymer nanofibers coloring chemistry, rigid packaging, wood plastics composites, pipe extrusion, inject synthetic etc. Are being undertaken by the plastics industry of Pakistan plastics industry need to face the challenge of fine quality plastics products importing in pakistan and whereas the quality in making pakistan plastics product is equal to all standards in the contemporary plastics world.

It strengthening the sense that anything can be built by plastics. Pakistan plastics is manufacturing ships, light aircrafts, missiles technology and various other machines, railway carriages and consumer products etc. Etc. Research and innovation can materialize the human approaches into reality. Everyday a new products in plastics is emerging, the human approach, ideas and research has no limitations. The recent trend

is blending, composting through which variety of plastics is being invented. Research and development and invention of new technologies is on the high side. Pakistan is not lagging behind, more research and development is taking place in Pakistan and the products - make in Pakistan are of international standard exalted superb.

Pakistan plastics create and extended advantage by: advance technology in innovative machines. Dependable machinery with quality control. New vision - boundless technical progress. Presence around the globe – men and machines. Growth driven - a consequent growth strategy results in the economies of scale and progress. And above all - quality plastics products under extremely economic conditions. Plastics - make in pakistan – exalted superb. Plastics manufacturing power in pakistan.

Plastics is a mother industry manufacturing hundreds of plastics components, products and packaging using plastics parts/accessories/packaging for all the industrial sector for export and domestic products manufacturing in pakistan. As the use of recycled plastics continue to grow, recycling of plastics is inevitable. Imagine a world built on sustainable choice. Think durability, think longevity, and think recycling a hot topic all over the world.

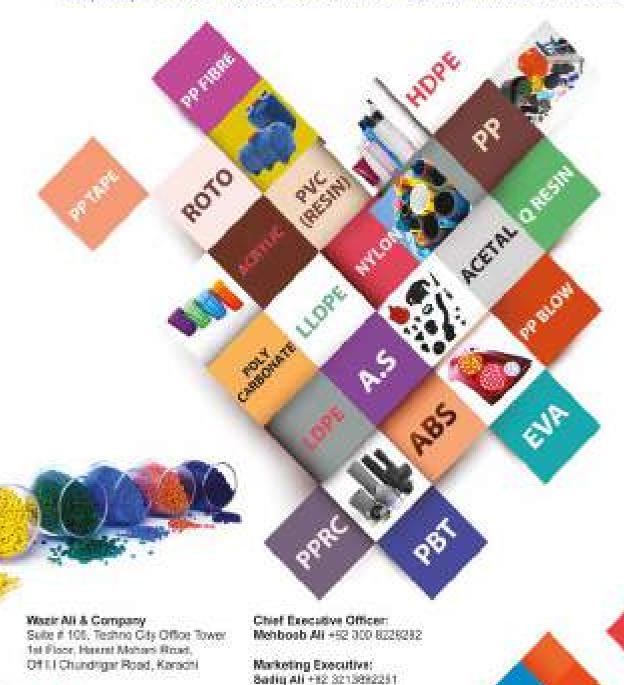
Pakistan plastics is not lagging behind and are making every effort to recycle their plastics waste stream and help them to boost successfully and contribute a great part using and reusing the waste management which obviously contributing to circular economy. The plastics and plastics recycling is greatly in use and reuse and reuse to make the waste stream as far as possible to zero. Pakistan plastics emphasize and ensure that the good quality recycling of plastics and a good quality of plastics products are to make - i.E. Plastics – Make in Pakistan – Pakistan Plastics – exalted superb.

Once an ambitious will is established, Plastics becomes that much full of possibilities, it keeps us going, wondering, dreaming and whatmore?



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COVER STORY PLASTICS MAKE IN PAKISTAN



سسرور**ن کی کہانی** پاکستان پلاسٹکس عمسدگی کا جوہر

پلاسٹکس "MAKE"ان پاکستان اقدام پاک پلاس میگزین کا پاکستان میں بننے والی پلاسٹک مصنوعات کے معیار کو فروغ دینے کے لیے ایک اسٹریٹ کا اقدام ہے۔ "Make" اور "Make" کے درمیان بنیادی فرق یہ ہے کہ "MAKE" فعل کی موجودہ شکل ہے، جبکہ "MADE" ماضی کی شکل ہے۔ جبکہ یاکستان کا ایک جبکتے سارے کے طور پر امنی ہے، جس میں پاکستان کا ایک جبکتے سارے کے طور پر امنی ہے، جس میں پاکستان میں پلاسٹک کے کام کے بہترین معیار کو ظاہر کرنے پاکستان میں پلاسٹک کے کام کے بہترین معیار کو ظاہر کرنے کے لیے ایک مہم تیار کی گئی ہے۔

پاکستان کی پلاسٹک انڈسٹر می مختلف پہلوؤں جیسے کمپوزنگ، ملینڈنگ، مینوفیکچرنگ، مشینیں اور خدمات فراہم کرنے والے کام کر رہی ہے۔ یہ صنعت تکنیکی مہارتیں، مواد کا تجزیہ، تقویت یافتہ فائبر، نینو ٹیکنالوجی، پولیمر نانوفائبر، رنگ کاری، سخت پیکیجنگ، لکڑی کے پلاسٹک کے مرکبات، پائپ کا اخراج، اور انجیکشن ترکیبیں بھی تیار کر رہی ہے۔

پاکستان پلاسٹک بحری جہاز، ملکے ہوائی جہاز، میرائل ٹیکنالوجی،
ریلوے کیر بجز اور صارفین کی مصنوعات تیار کر رہا ہے۔
تحقیق اور اختراعات انسانی نقطہ نظر کو حقیقت میں ڈھال
رہے ہیں، روزانہ نئی مصنوعات سامنے آرہی ہیں۔ حالیہ
رجحان ملاوٹ اور کھاد بنانے کا ہے، جس میں پلاسٹک کی ایک
قشم متعارف کرائی گئی ہے۔ پاکستان پلاسٹک تحقیق اور ترقی

میں پیچھے نہیں ہے اور اس کی مصنوعات بین الا قوامی معیار کی اعلیٰ ترین ہیں۔

پاکتان پلاسٹک جدید ترین مشینوں میں جدید ٹیکنالوجی، کوالٹی کنٹرول کے ساتھ قابل اعتاد مشینری، ایک نیا وژن، دنیا بھر میں موجودگی، ترقی سے چلنے والی حکمت عملیوں اور انتہائی معاشی حالات میں معیاری پلاسٹک کی مصنوعات بناتا اور بڑھاتا ہے۔ پاکستان میں پلاسٹک کی تیاری کی بہت مہارت اور عمدہ ہے۔ پاکستان میں سینکرٹوں پلاسٹک کے اجزاء، مصنوعات، اور ہیکیجنگ برآمد اور گھریلو مصنوعات کی تیاری کے لیے استعال ہوتی ہے۔

پلاسٹک کی ری سائیکلنگ ناگزیر ہے کیونکہ ری سائیل پلاسٹک کا استعال مسلسل بڑھ رہا ہے۔ پاکستان پلاسٹک اپنے پلاسٹک کے فضلے کو ری سائیکل کرنے کے لیے ہر ممکن کوشش کر رہا ہے، جس سے سر کلر اکانومی میں حصہ ڈالا جا رہا ہے اور کچرے کو کم کیا جا رہا ہے۔ اس اقدام میں اچھے معیار کی ری سائیکلنگ اور پلاسٹک کی مصنوعات کی اہمیت پر زور دیا گیا ہے، جس سے پاکستان پلاسٹک کو ایک مضبوط پائیدار اور کارآمد بنادیا ہے۔ بہر مہارت نظم و ضبط، اور ارادہ کی پختگی جنم لیتی ہے تو پلاسٹکس کی ممکنات اجاگر ہوتی جاتی ہیں اور یہ جاری وساری عمل ہے جو متحرک رکھتا ہے خوابوں کی سخمیل اور بہت کچھ، ہونا جیرانیاں اور مہتابیاں اجاگر ہورہی ہیں اور انجی بہت کچھ ہونا جیرانیاں اور مہتابیاں اجاگر ہورہی ہیں اور انجی بہت کچھ ہونا باتی ہے اور؟



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SPEL'S COMMITMENT TO INNOVATION AND QUALITY

Synthetic Products Enterprises Limited (SPEL), a publicly listed company in Pakistan, is at the forefront of the country's plastics manufacturing sector. With over forty-five years of experience, SPEL has built a reputation for excellence in producing high-tech engineering plastics and packaging solutions. Our products cater to various industries, including FMCG, food packaging, and automotive parts, highlighting our versatility and innovation. especially in the manufacturing process is highly automated, ensuiring the each bottle passes through stringent leakage test. Any defected bottles are automatically rejected, while the approved ones are meticulosly packed.

In the automotive sector, SPEL has made significant advancements in the production and assembly of door trims. As a pioneer in mold-making technology in Pakistan, SPEL has gained a competitive edge by localizing production. This innovation has reduced dependency on foreign suppliers, shortened lead times, and provided greater control over the manufacturing process. Continuous improvements in design, materials, and production techniques have optimized workflow, enhanced quality, and minimized waste.

A major milestone in SPEL's journey was the introduction of vacuum forming machines in Pakistan. Additionally, the automation of the PVC/TPU sheet pasting process on door panels has enhanced durability and appearance, reducing human error and increasing production efficiency.

Spel journey of improvment in both FMCG and automative sectors reflects our commitment to leveraging advance technologies and automation to enhance product quality and manufacturing effeciency. Paving the way for sustainable growth.

By integrating advanced manufacturing techniques, eco-friendly practices, and a focus on quality, SPEL continues to lead the way in Pakistan's plastics industry. The innovation, R&D and quality of products are of equal to any standard of contemporary plastic world – Plastics – Make in Pakistan exalted superb.



Mr. Zia Hyder Naqi Director, SPEL Technology Support (Private) Limited

معیار اور عمر گی کا امتیاز:

SPEL, بلاسٹک مینوفیچرنگ سیکٹر میں ایک معروف پاکتانی تمپنی ہے۔ 54 سال سے زیادہ کے تجربے کے ساتھ، SPEL مختلف صنعتوں کے لیے ہائی ٹیک انجینئرِنگ بلاسٹک اور پیکیجنگ سلوش تیار کر تا ہے، بشمول FMCG، فوڈ پیکیجنگ، اور آٹوموٹیو پارٹس۔ سمپنی انجکشن بلو مولڈنگ (IBM) اور ایکسٹروشن بلو مولڈنگ (EBM) ٹیکنالوجیز کا استعال کرتے ہوئے FMCG سیکٹر کے لیے اعلیٰ معیار کی بو تلوں میں مہارت رکھتی ہے۔ مینو فیکچرنگ کا عمل انتہائی خود کار ہے، مستقل مزاجی اور معیار کو یقینی بناتا ہے۔ SPEL اعلیٰ معیار کو بر قرار رکھتے ہوئے ماحول دوست طرز عمل کو بکھا کر کے یائیداری کو ترجیح دیتا ہے۔۔ آٹوموٹیو سیکٹر میں، SPEL نے ڈور رِّم پروڈ کشن اور اسمبلی، پروڈ کشن کو لوکلائز کرنے، اور ویکیوم^{*} بنائے والی مشینیں متعارف کرانے میں اہم پیش رفت کی ہے۔ کمپنی نے اپنی ایک فیکٹری کے لیے PAS 2060 ہر ٹیفیکیشن حاصل کر لیا ہے، جس نے پائیداری اور ماجول دوست بیکیجنگ حل کے لیے اپنی وابسکی کا مظاہرہ کیا ہے۔ تحقیق و جستجو اور جدت طرازی نے بلاسٹکس صنعت کو ایک نئی طرز اور معیار سے روشاس کر کے پاکستان بلاسٹکس کو عمد گی کا جوہر عطا کیا ہے۔

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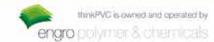
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fueling its demand expansion.

recycling technologies. Its environmental benefits, ers like DOP and CPW. ease of installation, and long-lasting performance make it a preferred choice for architects and builders PVC's strength, moisture resistance, and low mainteacross the world.

extract additional carbon from the ground and helps building and construction. conserve energy. The market is expected to develop 2023).

to grow over time.

ENVIRONMENTAL &TECHNI-CAL BENEFITS AND REGULATORY INFLUENCE

PVC is less dependent on petroleum, with approximately 57% made from salt and 43% from oil. This composition results in lower greenhouse gas emissions and energy conservation during production and throughout its lifecycle. The adoption of global standards by national regulatory bodies, such as ASTM, BS, and ISO, has bolstered the use of recycled PVC

INNOVATIONS IN PVC نی وی سی اضافی اور یائیدار **ADDITIVES & SUSTAINABLE CONSTRUCTIONS**

Technological advancements have led to the devel-

This article outlines why PVC is the smart choice to opment of environmental-friendly stabilizers and plastifuture-proof construction and examines the trends cizers. For example, calcium/zinc stabilizers have replaced lead-based options, enhancing the environmental safety and durability of PVC products. Similar-Polyvinyl Chloride (PVC) has emerged as a pivotal ly, plasticizers such as Epoxidized Soya Bean Oil material in the green building sector, largely due to (ESBO)/ DINCH provide improved flexibility and its sustainability, versatility, and advancements in reduced health risks compared to traditional plasticiz-

nance make it ideal for various construction applications. It is extensively used in cabinets, vanities, floor-There is a growing demand for PVC recycled prod-ing, paneling, cladding, windows, roofing, fencing, ucts, recovered and transformed into new and useful decking, and flooring. PVC's inherent flame resistance goods. PVC recycling also reduces the need to and durability further contribute to its popularity in

at a compound annual growth rate of 8.0% from Due to their inherent waterproofing and durability, 2023 to 2028, growing from a projected value of uPVC and WPC doors resist damage from excessive USD 3.3 billion in 2023 to USD 4.9 billion by that moisture. Consequently, these doors won't break time. (Source: Global PVC Recycling Market Report down or stop functioning even in areas with high humidity, rainfall seepage, or bathroom seepage.

This expansion in demand is driven primarily by Similarly, PVC roofing is a highly durable and strong demand from the consumer goods, building energy-efficient option, excelling in weather and & construction, infrastructure, electrical, automotive, chemical resistance, and offering high solar reflectivity and agricultural sectors, and is expected to continue that reduces cooling costs. Additionally, PVC is recyclable, contributing to its environmental benefits, and its lightweight nature makes installation easier and quicker. These qualities make it a preferred choice for sustainable and cost-effective roofing solution.



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PVC foam boards are a modern, lightweight alternative to chipboard and other timber boards, used both in office and home furnishings. They are commonly employed in commercial furniture, kitchen wardrobes, vanities, tables, shelves, and exhibition displays to enhance heat resistance, fireproofing, and aesthetics. Known for their durability, these boards offer long-term solutions, including sound-proof and chemical-resistant options for homeowners and commercial users.

PVC profiles are widely used in construction of windows, doors, and structural applications due to their durability, low maintenance, and energy efficiency. They offer excellent weather and impact resistance, superior thermal insulation, and are non-corrosive unlike metals.

uPVC windows, with their welded construction, combined with the thickness of glass and a 32mm Insulated Glass Unit, can achieve a substantial reduction in noise levels, typically in the range of 40-45 dB. This significant reduction is attributable to the specific features and materials of uPVC windows, making them highly effective at minimizing both high and low-frequency noises.

مستقبل کا نقطہ نظر Future Outlook

The future of PVC in green construction is promising, with ongoing innovations in recycled PVC compounds significantly reducing plastic waste and conserving resources. As recycling technologies advance and environmental regulations become more stringent, PVC is expected to play a crucial role in sustainable construction and various other applications.

By leveraging these innovations, the PVC industry is poised to make significant contributions to the green construction sector. This ensures that PVC continues to meet the evolving demands of sustainability and environmental responsibility, cementing its position as a versatile and eco-friendly material for the future.

PVC is adding elegance to each and every corner & PVC product make in Pakistan.- exalted superb are of high quality.

PVC اپنی یائیداری، استعداد اور ری سائیکانگ طینالوجیز کی وجه سے گرین بلڈنگ سیکٹر میں ایک اہم مواد ہے۔ اس کے ماحولیاتی فوائد، تنصیب میں آسانی، اور دیریا کارکردگی اسے دنیا بھر کے معماروں کے لیے ایک ترجیحی انتخاب بناتی ہے۔ مارکیٹ میں 2023 سے 2028 تک 8.0 فیصد کمیاؤنڈ سالانہ ترتی کی شرح توقع ہے، اس وقت تک اس کی متوقع قیمت USD 4.9 بلین ہو گی۔ یی وی سی پیٹرولیم پر کم انحصار کرتا ہے، جس میں ہر57 نمک سے اور 43% تیل سے بنتی ہے، جس کے نتیج میں گرین ہاؤس گیسوں کا اخراج کم ہوتا ہے اور توانائی کی بچت ہوتی ہے۔ تکسیکی ترقی نے PVC مصنوعات کی استحکام اور حفاظت کو بڑھاتے ہوئے ماحول دوست اسٹیبلائزرز اور بلاسٹکائزرز کی ترقی کا باعث بنی ہے۔ پی وی سی کی طاقت، نمی کے خلاف مزاحمت، اور کم دیکھ بھال اسے مختلف تعمیراتی ایلی کیشنز کے لیے مثالی بناتی ہے، بشمول الماریاں، دینٹی، فرش، یینلنگ، کلیڈنگ، کھڑ کمال، حصیت سازی، باڑ لگانا، سجاوٹ، اور فرش۔ بی وی سی فوم بورڈ گرمی کے خلاف مزاحمت، فائر یروفنگ اور جمالیات پیش کرتے ہیں، جبکہ پی وی سی یروفائلز کھڑ کیوں، دروازوں اور ساختی اییلی کیشنز کی تعمیر میں بڑے پہانے یر استعال ہوتے ہیں۔یا کستانی ساختہ PVC پروڈ کٹس کے ساتھا بہترین کوالٹی اور عمر گی کے ساتھ گھر ، دفتر ہر جگہ کی خوبصور تی کو بڑھا ڑہا ہے۔



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PLASTICS & ME (I)

پلاسٹک۔ اور میرے در میان تصادم

A Dialogue

"Greetings Sir, do you recognize me?"

"No! I don't recognize anyone, because I have my own recognition."

"No sir, not at all, it was the past when people recognized you. Nowadays I am more familiar than you. I work for human beings, I serve them as much as I can. The past was yours but now this is my age. I serve more and I charge less that is why I am your replacement in so many places. The young, old even children appreciate me. I provide every kind of playthings to children".

"You too look just like a child, very very light. If blow, you will fly in the air."

''سرآپنے مجھے پیجانا؟''

'' ہر گرنہیں! میں کسی کونہیں بہچانتا۔میری اپنی خود کی ایک بہچان ہے''

''سرآپ کی پیچان اپنی جگہ کیکن اب ساری دنیا مجھے پیچانتی ہے اس لیے کہ میں ہر کسی کے کام آپ ہوں، ہوں، اور میری اس خدمت کا صلہ بھی آپ کے مقابلہ میں بہت کم ہے۔ بہی وجہ ہے کہ بہت ہی جگہوں پر جہاں آپ خدمات انجام دے رہے تھاب وہاں اس خادمہ کو یاد کیا جاتا ہے۔ گھر کے اندر اور گھر کے باہر میر ابی چرچاہے، ہر جگہ میرے بی گیت گائے جاتے ہیں اور بڑے تو بڑے نے بھی میرے عاشق ہیں ان کے ہر کھیل کود کا سامان میں مہیا کرتی ہوں''۔

'' د کیھنے میں تو تم بھی مجھے 'تی ہی لگتی ہونازک نازک ہی۔ اگر پھونک مار دوں تو ہوا میں اُڑ جاؤگی



"You are right Sir, I am light because I am feminine. That is my beauty; I can also fly in the air. An aeroplane is incomplete without using me. When I fly I look upon the ground like a bird's eye you also look like a child. Sometimes in the form of Eiffel Tower in Paris. Sometimes in the form of a slow moving train."

"Sir you are too heavy. May be increasing cholesterol in your body is the reason. Look at me, I am light and smart, that's why I fly easily. The aeroplane manufacturers are my well-wishers."

"Oh! You are too talkative."

"Yes Sir, no doubt I am talkative and I provide the opportunity of talking to other people also. Radio, T.V, Mobile, Telephone, Computer all these devices are obliged by me. I have given protection to them. I rule all over the world with an iron hand."

''سرآپ نے سیح فرمایا …… میں نازک ہوں اس لیے کہ صفِ نازک جو گھبری۔ یہی میری خوبصورتی ہے، یہی میرات خوبصورتی ہے، یہی میرات حوب اس قدر مقبول ہوں۔ جہاں تک چھونک مارکر ہوا میں اڑانے کی بات ہے تو آپ کا خیال درست ہے۔ میں ہوا میں بڑے شوق سے اڑتی ہوں۔ ہوائی جہاز کی تغییر میرے بغیر نامکمل ہے اور جب میں مجو پرواز ہوتی ہوں اور زمین پرایک طائز اند نگاہ ڈاتی ہوں تو آپ بھی جھے بیچ نظر آتے ہیں۔ بھی پیرس کے ایفل ٹاور کے روپ میں تو بھی زمین پرست رفتار میل گاڑی کی شکل میں ، بھی کسی کھلے گودام میں پڑے ہوئے حالتِ میں تو بھی زمین پرست رفتار میل گاڑی کی شکل میں ، بھی کسی کھلے گودام میں پڑے ہوئے حالتِ ذیک خودہ میں''۔

''سرآپ کا وزن بہت زیادہ ہے کہیں ایسا تو نہیں کہ آپ کے جسم میں کالسٹرال کی زیادتی ہوگئ ہے، مجھے دیکھیے میراوزن کم ہے، میں ہلکی ہول،اسمارٹ ہوں،اسی لیے مزے سے پرواز کرتی ہول، ہوائی جہاز کے کتابیق کارمیرے ہاتھ پر بیعت کر چکے ہیں، میں ان کی بیسا تھی ہول''۔

"بي بي بولنا توتههين خوب آتا ہے كافی چرب زبان لكتی ہو"

''سر بے شک میں چرب زبان ہوں اور لوگوں کو چرب زبانی کا موقع بھی فراہم کرتی ہوں۔ ٹیلیفون سیٹ،موبائیل،ریڈیو،ٹی وی اور کمپیوٹر بیسب میرے ہی مرہونِ منّت ہیں۔ میں انہیں تحقظ فراہم کرتی ہوں۔آج ساری دنیا میں میراہی ڈ نکانج رہاہے، میں ہرمیدان میں اپنالوہامنوا چکی ہوں''۔





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- This product uses Berstar Rusleation Technology (RMT) to increase promountivity by cacle time reduction.

Bormed RG868MO

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- Disposside 3-part entropes, Medical Decision and Information.
- Phannocoutical sage and closures. Offers last crystallisation which reduce cycle time.















"Oh no! Don't you dare put my name on your lips. You don't know may greatness; I have provided power to mankind. I am always in the battlefield in the form of tank, missiles, guns and other weapons". "All over the world, if there is a war, I always led the war; no one can deny my power."



"Sir, it means you are in favour of war, you are the enemy of peace. Don't you want peace in the world? You make widows and orphans on the earth. See me.... I am in favour of peace. My voice is "love to everyone" because love is life and everlasting."

"Oh my dear! I do agree with you and very much impressed by your views. I am ashamed of myself. The people who are the enemy of peace they are the ones who brought me to battlefields otherwise I have always loved peace. I am thankful to those people who used me for good, for things which have brought benefits to mankind"

"The truth is that I am really happy to see you, now tell me where are you from and who are you?"

"the Honourable Sir, first of all I really appreciate your thoughts, now listen to my story...... I am an earthly product like you, my forefathers migrated from the bottom of the earth to the top of the ground. There were so many members in my tribe. I was hidden amongst them, my well-wishers discovered me and soon I became extremely popular. People loved me very much. They coloured me in different colours. I can be coloured in any color. That's one of my many qualities. That is why everyone has good relation with me. Sir I am the most obedient servant for mankind.

"My Name is PLASTICS"

''خاموش بےادب لڑکی! خبر دار جوتم نے اپنی زبان پرمیرانا م لیا جہیں میری عظمت کا انداز و نہیں ہے۔ تہمیں نہیں معلوم کہ میں نے کس طرح انسانوں کو طاقت پہنچائی ہے۔ بھی جبکتی ہوئی تلوار بن کرتو کبھی کمان سے نکلا ہو تیر۔ میدانِ جنگ میں ٹینک، میزائیل، بندوقیں، غرضیکہ ہرسامانِ جنگ کی تخلیق میرے ہی ذریعہ کی گئی ہے۔ دنیا میں جنتی بھی جنگیں اب تک لڑی گئیں اور آج بھی جو جنگیں لڑی جارہی ہیں ان سب میں، میں پیش بیش رہا ہوں، میری عظمت اور میری طاقت سے کئیں لڑی جارہی ہیں۔ کس کو از کارنہیں'۔

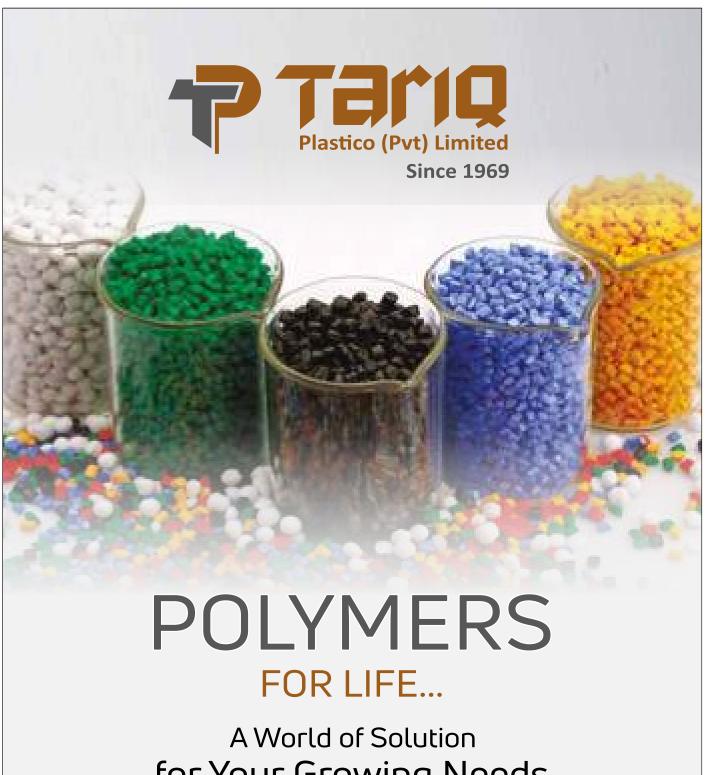
دل پھرطواف کوئے ملامت کوجائے ہے پندار کا صنم کدہ وہراں کیے ہوئے

'' تو سر …… گویا آپ جنگ کے جامی اور مددگار ہیں ، امن کے دشمن ہیں قبل و غارت گری آپ کا شیوہ ہے ، آپ نہیں چاہتے کہ دنیا میں امن و آشتی قائم ہو، اللّٰہ کی مخلوق پرُسکون زندگی گزار سکے۔
عورتوں اور بچوں کو بے سہارا کرنا آپ کا پہند بیدہ مشغلہ ہے اور جہاں تک میر اتعلق ہے ……میرا
پیغام محبت ہے ، میں جنگ کے خلاف ہوں ، میں چاہتی ہوں کہ دنیا میں امن قائم ہو، ہر کسی کواس
کے جینے کا حق دیا جائے''۔

''ئِی بی میں آپ کے خیال سے اتفاق کرتا ہوں اور اپنی اس حرکتِ ظالمانہ پر نادم اور شرمندہ ہوں''۔''دراصل میری رسوائی کا سبب وہ امن کے دشن افراد ہیں جنہوں نے ججھے میدانِ جنگ میں لا کھڑا کیاورنہ میں ہمیشہ سے مخلوقِ خداوندی کی خدمت کرتار ہاہوں۔ میں بھی تہماری طرح امن کا خواہاں ہوں۔ وہ لوگ میر نے محسن ہیں جنہوں نے ججھے وہاں استعال کیا، جن کے ذریعہ انسانی خدمت مقصود تھی۔ اچھا ہے قبتا و کہتم کہاں سے آئی ہواورکون ہو؟

''سرمیں بھی آپ کی طرح زمینی پیداوار ہوں۔میرے آباؤاجداد زمین کی اتھاہ گہرائیوں سے ہجرت کرکے زمین پر آئے تھے۔میرے قبیلے میں ہرطرح کے افراد تھے۔ میں پس پردہ تھی، ہجرت کرکے زمین پر آئے تھے۔میرے قبیلے میں ہرطرح کے افراد تھے۔ میں ہوگئی، مجھا تنا میر سے چاہوں کے لیے مرکز نگاہ بن گئی۔ مجھے جس رنگ میں چاہارنگ لیا گیا، میں ہررنگ میں ڈھل جانے کا ہنر جانتی ہوں۔ جبھی تو ہرکوئی میراشیدائی ہے،سرمیں دنیا کے سارے انسانوں کی خادمہ ہوں، کنیز ہوں۔ ۔۔۔ میرانام پیلاسکس ہے''





for Your Growing Needs

EVERY TYPE OF PLASTIC RECYCLE AVAILABLE



PLASTICS FOR BUS

بسس کے لیے پلاسکے

Thanks to plastics solutions have revolutionized buses, making them lighter, more durable, safer, and comfortable. These materials play a crucial role in both aesthetic enhancements and structural applications, allowing buses to achieve greater efficiency and cost-effectiveness in their operations. Plastics also contribute to reducing the overall carbon footprint of buses, from manufacturing through to maintenance. Their ease of handling and installation adds to their appeal, while their recyclability underscores their environmental benefits, making them a preferred choice for modern and sustainable bus designs. Among the wide range of Bus applications where plastics can be used are:

Polycarbonate-ABS Blend (PC-ABS)

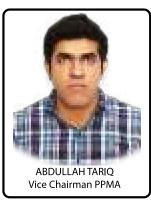
Polycarbonate-ABS blend (PC-ABS) utilized in buses for both interior and exterior applications due to its excellent impact resistdurability, aesthetic appeal. In bus interiors, PC-ABS is commonly used for components such as dashboard panels, door trims, and grab handles. These handles are crucial for passenger comfort and safety, providing a secure grip during travel. PC-ABS ensures longevity and reliability in these components, contributing to an enhanced passenger experience while maintaining the structural integrity of the bus.

PVC-Acrylic

PVC and acrylic are used in buses for different purposes. PVC is used for flooring and interior wall panels due to durability, ease of maintenance, and resistance to wear and tear, while acrylic is used for windows and skylights.



Phenolics, or Thermosets, are versatile and machinable plastics that combine resins with composite materials like glass fiber, canvas, woven cotton, and paper. These materials offer high strength and stiffness, making them ideal for electrical and electronic applications.



PI (Polyimide)

Polyimide (PI) is crucial in buses for its outstanding thermal stability, mechanical strength, and chemical resistance. It is extensively employed in electrical components like wiring insulation and connectors, ensuring reliability even under high temperatures. Additionally, PI's resilience makes it suitable for various engine components, contributing to the overall durability and performance of bus systems.

Polyurethane (PU)

Polyurethane (PU) is extensively used in buses for its versatility and durability. It is commonly employed in various applications such as seating upholstery, armrests, and interior padding. PU provides comfort for passengers while offering excellent resistance to wear, abrasion, and tear, making it ideal for high-traffic areas within the bus. Additionally, PU contributes to noise reduction and insulation, enhancing the overall comfort and experience for passengers during travel.





Global Recycled Standard

Protection Department



Pakistan's Leading Post Consumer Polyolefin Commercial Recycling Project

Products

r-PP Polypropylene

BLACK, GREY, WHITE, BLUE HOMOPOLMER









r-PE (Low /Low Linear Density) Polyethylene

NATURAL, MILKY WHITE, NATURAL HONEY







r-PE High Density Polyethylene

BLACK, DARK GREY









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Behind WAPDA Pole Plant, Kotri, Sindh-Pakistan.



Polyamide-imide (PAI)

Polyamide-imide (PAI) is a popular material in buses due to its high thermal stability, mechanical strength, and chemical resistance. It is used in electrical components, engine parts, fuel handling systems, and interior and exterior parts, enhancing bus performance and reliability.

Nylon (Polyamide, PA)

Nylon (Polyamide, PA) is utilized in buses for a variety of applications due to its excellent mechanical properties and durability. Common uses include manufacturing engine components such as bushings and bearings, electrical connectors and insulators, and interior components like seating upholstery and carpeting. Nylon's resilience to wear, ability to withstand high temperatures, and resistance to chemicals make it a versatile material choice that enhances the reliability and longevity of bus components.

ABS (Acrylonitrile Butadiene Styrene)

ABS is a durable, impact-resistant material commonly used in buses for interior and exterior components. Its ability to be molded into complex shapes makes it ideal for mirror housings and bumpers, while its resistance to heat and chemicals makes it suitable for ventilation systems and electrical housings, ensuring reliable performance in diverse environmental conditions.

Polycarbonate Sheets

Polycarbonate sheet, also known as PC, is a tough, impact-resistant, and virtually unbreakable material used in various applications. It is 20 times stronger than acrylic and retains its properties over a wider temperature range. It is a popular replacement for glass and comes in various textures and surface patterns.

Acetal (Polyoxymethylene, POM)

Acetal (Polyoxymethylene, POM) is utilized in buses for its excellent mechanical properties and durability. Common applications include precision parts such as gears, bearings, and bushings due to its high strength, stiffness, and resistance to wear. In bus interiors, POM is also used for components requiring dimensional stability and low friction, ensuring reliable performance

Acrylic (Polymethyl Methacrylate, PMMA)

Acrylic, a lightweight, durable, and impact-resistant material, is widely used in the bus industry for its optical clarity, lightweight design, and UV resistance. Its lightweight nature reduces vehicle weight, enhances fuel efficiency, and allows for curved shapes for modern designs.

High Density Polyethylene (HDPE)

High Density Polyethylene (HDPE) is widely used in the bus industry for its lightweight, sturdy, impact-resistant, and easy-to-fabricate components. It reduces bus weight, enhances fuel efficiency, and is suitable for various environmental conditions. Its ease of fabrication ensures functionality and comfort in bus interiors.

Polypropylene Sheet, Rod and Tube

Polypropylene (PP) sheets, rods, and tubes are widely used in buses for various applications. They offer excellent toughness, chemical resistance, and lightweight properties, making them ideal for manufacturing interior components such as seat backs, trim panels, and storage compartments. PP's ease of fabrication and low cost contribute to its popularity in bus construction, providing durable solutions that enhance passenger comfort and ensure long-term reliability in diverse environmental conditions.

پلاسٹکس نے انہیں ہلکا، زیادہ پائیدار، محفوظ اور آرام دہ بنانا۔ یہ مواد جمالیاتی اضافہ اور ساختی ایپلی کیشنز دونوں میں ایک اہم کردار ادا جمالیاتی اضافہ اور ساختی ایپلی کیشنز دونوں میں ایک اہم کردار ادا کرتے ہیں، جس سے بسول کو اپنے کاموں میں زیادہ کارکردگی اور لاگت کی تاثیر حاصل ہو سکتی ہے۔ پلاسٹک بھی کمی میں حصہ ڈالتا ہے۔مینوفیچرنگ سے لے کر دیکھ بھال تک بسوں کے مجموعی کاربن فوٹ پرنٹ کو شامل کرنا۔ ان کی ہینڈلنگ اور انسٹالیشن میں آسانی ان کی کشش میں اضافہ کرتی ہے، جبکہ ان کی ری سائیکلیبلٹی ان کی کشش میں اضافہ کرتی ہے، جبکہ ان کی ری سائیکلیبلٹی ان کے ماحولیاتی فوائد کی نشاندہی کرتی ہے، جس سے وہ جدید اور پائیدار بسوں کے ڈیزائن کے لیے ایک ترجیجی انتخاب بن جاتے ہیں۔

TECHMATION

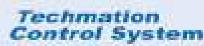
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Techmation servo energy saving system









Application









Delivery owners



NAMES OF STREET

High Energy Efficiency

High Response High Repeatability Precision









RAILWAY STATION

like

PLASTICS IN TRAINS

ریل گاڑی میں پلاسٹک کا استعال

The cost-effective and safe transportation of people and goods is vital to any economy. As modern modes of transport have evolved to meet increasing demands for safety, environmental protection, and speed, the use of plastics in transport manufacture has risen dramatically.

All forms of transport require energy to run and fuel represents a substantial part of running costs. Cutting the weight of cars, airplanes, boats and trains can cut fuel consumption dramatically. The lightness of plastics therefore makes them invaluable to the transport industry. 105kg of plastics, rather than metals, in a car weighing 1,000kg makes possible a fuel saving of up to 7.5%.

Plastics are integral to the modern railway industry,

offering durability, ease of maintenance, and design flexibility for a variety of applications. Externally, they withstand harsh conditions, contributing to the longevity of components such as panels, doors, and station infrastructure. Internally, plastics maintain aesthetic appeal and hygiene standards in fittings seating, flooring, and dashboards. Their recyclability

supports sustainable practices, aligning with stringent environmental requirements. Overall, plastics enable cost-effective, efficient, and environmentally conscious solutions that enhance safety, comfort, and operational efficiency throughout rail transport systems.

so have the materials used in their construction. Plants are prominent in modern train manufacturing with their lightweight, durable, and moldable properties.

Plastics In Trains: A Comprehensive Look



windows.

Several plastics have been employed to enhance train performance, safety, and aesthetics from interiors to exteriors.

This article delves into the various plastics used in trains and their unique roles.

Polycarbonate (PC) **Application: Windows and Glazing**

Polycarbonate is a transparent and impact-resistant plastic. Its high clarity and resistance to breakage make it an excellent choice for train windows. This ensures that even under severe external impacts, such as stone hits, the windows remain intact, ensuring safety for the passengers. Additionally, polycarbonates can be molded into curved shapes, which is beneficial f 0 panoramic train



Trains have been an integral mode of transportation for over a century, and as technology has advanced.









Polyvinyl Chloride (PVC) Application: Flooring, Wall Coverings, and Cable Insulations

PVC is a UV resistant plastic with good fire resistance properties. PVC is commonly used for flooring in trains due to its durability and ease of cleaning. Additionally, PVC wall coverings are preferred for their ability to resist stains and wear. In electrical applications, PVC is used for cable insulations, providing safety from potential electrical hazards.

Acrylonitrile Butadiene Styrene (ABS) Application: Seat Components, Overhead Bins, and Interior Panels

ABS is known for its toughness, Density, and excellent surface finish.

These properties suit interior components like seats, overhead storage bins, and decorative panels. ABS parts can also be easily painted or plated, providing an aesthetic appeal to the train interiors.

Polyetherimide (PEI) Application: Interior Elements Exposed to High Temperatures

PEI has exceptional heat resistance and flame retardancy. Given these characteristics, it's frequently used in parts of the train interior exposed to high temperatures, such as areas near heaters or lighting fixtures.

Polyamide (Nylon) Application: Gears, Bearings, and Other Mechanical Components

Polyamides, known as Nylons, are often used for mechanical train applications. Their excellent wear resistance, high melting point, and self-lubricating properties make them ideal for gears, bearings, and other moving parts, ensuring smooth train operations.

Polypropylene (PP) Application: Chairs, Tables, and Interior Fittings

Polypropylene is lightweight, durable, and offers resistance to chemicals and moisture. These properties make it suitable for interior fittings like chairs and tables. Its lightness contributes to the overall reduction in train weight, enhancing efficiency.

Thermoplastic Polyurethane (TPU) Application: Sealing Gaskets and Sound Insulation

TPU provides excellent flexibility, high wear resistance, and good sound insulation. It is frequently employed in sealing gaskets, ensuring that train compartments remain airtight, and in sound insulation materials, providing a quiet ride for passengers..

Benefits Of Using Plastics In Train Manufacturing

Weight Reduction: One of the primary advantages of plastics is their lightweight nature. Plastics can significantly reduce a train's weight, increasing energy efficiency and potentially higher speeds.

Corrosion Resistance: Unlike metals, plastics don't corrode, ensuring longevity and reduced maintenance Design Flexibility: Plastics can be molded into complex shapes through injection molding, 3D printing, and extrusion, giving designers more flexibility and creativity. Cost-effective: Plastics can be more cost-effective in material and production costs than metals. Safety: Modern plastics are designed to be flame-retardant, reducing the risk of fire and ensuring the security of passengers.

Summing Up

The integration of plastics in train manufacturing is not just a passing trend; it's a significant shift towards more efficient, safer, and sustainable rail travel. As advancements continue, the reliance on plastics and polymer composites is only expected to grow. The future of train travel will undoubtedly see more innovations, and plastics will remain at the forefront of these evolutions.

پلاسٹک اپنی ہلکی پھلکی نوعیت کی وجہ سے جدید نقل و حمل میں تیزی سے استعال ہو رہا ہے، جس سے ایندھن کی کھیت کو نمایاں طور پر کم کیا جا سکتا ہے۔ وہ ریلوے کی صنعت میں بھی بہت اہم ہیں، جو پائیداری، دیکھ بھال میں آسانی، اور ڈیزائن کی لچک پیش کرتے ہیں۔ وہ سخت حالات کا مقابلہ کر سکتے ہیں، جمالیاتی اپیل کو بر قرار رکھ سکتے ہیں، اور پائیدار طریقوں کی حمایت کر سکتے ہیں۔ پلاسٹک ریل فرانسپورٹ کے نظاموں میں حفاظت، آرام اور آپریشل کارکردگی کو برطانے، لاگت سے موٹر، موٹر، اور ماحولیات کے حوالے سے شعوری علی میں بھی حصہ ڈالتا ہے۔



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PLASTIC OR PLASTICS

These two words " PLASTIC AND PLASTICS " are not similar. They have a different meanings. word " PLASTIC " has seven letters and means Softness enough to be changed into a new shape. This is adjective by grammer and is used like this The iron is in " PLASTIC STAGE " it can be hammered now.

While the word 'PLASTICS" has eight letters with addition of "S" in the last. This is a noun by grammar and just like the words.. PHYSICS, STATISTICS, DYNAMICS AND MATHAMATICS etc.

The word "PLASTICS" means name of an organic man material. No doubt this word is generated from the word PLASTIC because it means softness.

Terms such as "PLASTICS" MATIERES PLASTIQUES (French), PLASTE (German) and PLASTMASS (Russian) have been based on the obsolete definition of that kind of flow as 'PLASTIC' Flow.

There is a combination of two words ' PLASTICS SURGERY" which is nowadays commonly spoken. THERMOPLASTICS Here the word "PLASTIC" has no relations with the word "PLASTICS". Plastic Surgery means" a medical operation to bring a damaged area of skin to a usual appearance or to improve it. (Especially in Ladies), when they are afraid to entering in the old, They do Plastic Surgery).

PLASTICS:

Plastics are a group synthetic or naturally occurin, that may be shaped polymers is a substance made of many repealing units.

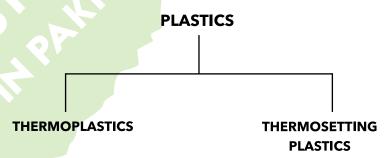
POLY: **POLYMERIZATION:**

erization or word POLY which is commonly used in

Plastics. Poly means Polymerization. Most of the plastics raw material are derived from oil or Petrochemistry. Gases are polymerized and the resultant materials known as Polypropylene or Polyetehylene etc. (The plastics material).

The Poly means Polymerization. Polystyrene means Polymerization. Polystyrene means Polymerization of The Polystyrene we get is generally Styrene Gas. known as GPPS (General Purpose Polystyrene The Product moulded by this Plastics is brittle by nature and its surface is glossy. To make it harder a new Plastics named ABS was invented. It is obtained by Polymerization.

PLASTICS has been categorized in two parts



یلاسٹک اور بلاسٹک دو مختلف الفاظ ہیں جن کے مختلف معنی ہیں۔ سات حروف کے ساتھ پلاسک کا مطلب نرمی ہے اور اسے نئی شکل میں تبدیل کیا جا سکتا ہے۔ پلاسٹک نامیاتی انسانی مواد ہیں، اور -MATIERES PLAS TIQUES، PLASTE ، اور PLASTMASS جيسي اصطلاحات متر وك a group of materials, either کے خراب جھے کو بہتر بنانے کے اسلام مرجری جلد کے خراب جھے کو بہتر بنانے کے when soft and soft shaped when soft and then علی آپریش کے لئے استعال ہو تاہے اور اسکا پلاسٹکس کے ساتھ hardened to retain the given shape. Plastics are کوئی تعلق نہیں ہے۔ پلاسٹک مواد کا ایک گروپ ہے جو اپنی شکل کو بر قرار رکھنے کے لیے تشکیل اور سخت کیا جا سکتا ہے۔ پولیمرائزیش، یا پلاسک میں لفظ "بولی"، ایک ایسا عمل ہے جہاں گیسوں کو بولی پروپیلین یا-Polyethyl ene جیسے مواد بنانے کے لیے بولیمرائز کیا جاتا ہے۔ بولیسٹیرین، پاسٹک کی ایک قشم، ٹوٹنے والی اور چمکدار ہے، جبکہ پلاسٹک کی ایک نئی قشم ABS، -ABS، فوٹنے والی اور چمکدار ہے، جبکہ پلاسٹک اسے سخت بنانے کے لیے ایجاد کی گئی تھی۔





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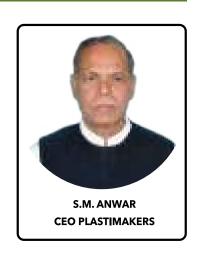
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PLASTICS FOR CIRCULAR ECONOMY

متديرى نظام معيشت كيكئے بلاستكس





WHAT IS A PLASTICS?

Plastics is one of the wonderful inventions of 20th century and Plastics has replaced traditional material i.e. paper, wood, metal and glass. More and more products are being converted into plastics. One can convert nearly everything in Plastics. Usage brings design flexibility, light weight, multiple functionalities etc. Plastics has become an indispensable material.

Plastics are of two categories: THERMOPLASTICS which can be heated and shaped over and over again. THEREMOSETING PLASTICS which is heated and shaped only once.

DEFINITION: Plastics is a material that contains as an essential ingredient and organic substance of large molecular weight, is solid in its finished state and, at some stage in its manufacture or in it's processing into finished articles, can be shaped by flow.

WHAT IS A CIRCULAR ECONOMY?

The Circular Economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible. In this way, the life

بلاسٹکس کیا ہے؟

پلاسٹک 20ویں صدی کی شاندار ایجادات میں سے ایک ہے اور پلاسٹک نے روایتی مواد یعنی کاغذ، لکڑی، دھات اور شیشے کی جگہ لے لی ہے۔ زیادہ سے روایتی مواد یعنی کاغذ، لکڑی، دھات اور شیشے کی جگہ لے لی ہے۔ زیادہ سے رزیادہ مصنوعات کو پلاسٹک میں تبدیل کیا جا ستعال سے ڈیزائن میں لیک، ہلکا وزن، متعدد افعال وغیرہ آتے ہیں۔ پلاسٹک ایک ناگزیر مواد بن گیا ہے۔

پلاسٹک کی دو قسمیں ہیں: تھر موپلاسٹک جسے بار بار گرم اور شکل دی جا سکتی ہے۔ تھیر موسیٹنگ پلاسٹک جو صرف ایک بار گرم اور شکل دی جاتی ہے۔

تعریف: پلاسٹکس ایک ایسا مواد ہے جس میں ایک ضروری جزو کے طور پر بڑے مالیکیولر وزن کا ایک نامیاتی مادہ ہوتا ہے، جو اپنی مکمل حالت میں ٹھوس ہوتا ہے اور، اس کی تیاری کے کسی مرحلے پر یا تیار شدہ اشیاء میں پروسیسنگ کے دوران، بہاؤ کے ذریعے تشکیل دیا جا سکتا ہے۔

سر کلر اکانومی کیا ہے؟

سر کلر اکانومی پیدادار اور کھیت کا ایک ماڈل ہے، جس میں جہاں تک ممکن ہو موجودہ مواد اور مصنوعات کو بانٹنا، لیز پر دینا، دوبارہ استعال کرنا، مرمت کرنا، تجدید کاری کرنا، اور ری سائیکل کرنا شامل ہے۔ اس طرح مصنوعات کا لائف





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- Very good statekage, Dattaut & seat amperies.
- Moso laver & Co-extresion Sires
- 6 Excellent Organoleptic & molt strength
- · Very stiff due to median density

















cycle of products is extended. In practice, it implies reducing waste to a minimum.

CO-RELATION between Plastics and Circular Economy:

In Circular Economy Plastics can be recycled into pellets for making new Plastics Products. Products and raw materials are also reused as much as possible. In a Circular Economy consumers can choose to share products they only use occasionally, such as a power drill or a car, instead of. And so on so forth.

Nearly all types of Plastics can be recycled, however the extent to which they are recycled depends upon technical, economic and logistic factors. As a valuable resource, the most plastic items at the end-of life is to be recycled, preferably back into a product that can then be recycled again and again and so on and to become a part of the Circular Economy.

WHAT IS PLASTICS RECYCLING?

Plastic recycling is the process of recovering scrap or waste plastics and reprocessing the material into useful products, sometimes completely different in form from their original state. For instance, this could mean melting down soft drink bottles and then casting them as plastic chairs and tables. Recycling refers to any recovery operation through which waste materials are reprocessed into products. The major processes involved are Collection, Sorting, Washing, Identification and Classification and Sheading and finally Extruding to make granules.

PLASTICS RECYCLING IS A NECESSITY?

The plastics waste is now considered as environmental hazard due to the THROWAWAY CULTURE. This is due to no application of civic sense and ignorance of waste management in a proper manner. Different types of waste are not collected separately. In our country, we are not using properly re-useable waste and dumping this waste into the earth, into the river, in the city, which creates a lot of pollution everywhere. THIS IS BECAUSE

سائیکل بڑھایا جاتا ہے۔ عملی طور پر، اس کا مطلب بے مصرف باقیات کو کم سے کم کرنا ہے۔ کم کرنا ہے۔

بلاسٹک اور سر کلر اکانومی کے در میان باہمی تعلق

سر کلر اکانومی میں پلاسٹک کو نئی پلاسٹک مصنوعات بنانے کے لیے نکڑوں میں ری سائیکل کیا جا سکتا ہے۔ مصنوعات اور خام مال کو بھی مکنہ حد تک دوبارہ استعال کیا جاتا ہے۔ سر کلر اکانومی میں صارفین ان مصنوعات کو شیئر کرنے کا انتخاب کر سکتے ہیں جو وہ صرف کبھی کبھار استعال کرتے ہیں۔

تقریباً تمام قسم کے پلاسک کو ری سائیل کیا جا سکتا ہے، تاہم ان کو ری سائیل کرنے کی حد تکنیکی، اقتصادی اور لاجٹ عوامل پر منحصر ہے۔ ایک قیمتی وسیلہ کے طور پر، زندگی کے آخر میں پلاٹک کی سب سے زیادہ اشیاء کو ری سائیکل کیا جانا ہے، ترجیحاً ایک ایسی مصنوعات میں جو پھر بار بار ری سائیکل کیا جا سکتا ہے اور اسی طرح سر کلر اکانومی کا حصہ بننا ہے۔

یلاسک کی ری سائیکلنگ کیا ہے؟

پلاسٹک ری سائیکانگ سکریپ یا بے کار پلاسٹک کو بازیافت کرنے اور مواد کو مفید مصنوعات میں دوبارہ پروسیس کرنے کا عمل ہے، جو مجھی مجھی اپنی اصل حالت سے بالکل مختلف ہوتا ہے۔ مثال کے طور پر، اس کا مطلب سافٹ ڈرنک کی بو تلوں کو پھوانا اور چھر انہیں پلاسٹک کی کر سیوں اور میروں کے طور پر ڈھالنا ہو سکتا ہے۔ ری سائیکانگ سے مراد کوئی بھی ریکوری آپریشن ہے جس کے ذریعے بے کار مواد کو مصنوعات میں دوبارہ پروسیس کیا جاتا ہے۔ اس میں شامل بڑے علی جی بندی اور شیرٹنگ اور آخر میں دانے دار بنانے کے لیے نکالنا ہے۔

بلاسک کی ری سائیکلنگ کیا ضرورت ہے؟

بلاسٹک کے فضلے کو اب ماحولیاتی خطرہ سمجھا جاتا ہے۔

بے کار مواد۔ اس کی وجہ شہری احساس کا استعال نہ ہونا THROW AWAY اور کچرے کے انتظام کے بارے میں مناسب طریقے سے لاعلمی ہے۔ مختلف قشم کا فضلہ الگ الگ جمع نہیں کیا جاتا۔ ہمارے ملک میں ہم دوبارہ استعال کے



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THE WASTE AND DIRT ARE NOT PROPERTY RECYCLED AND MISMANAGED AND SENT TO INCINERATOR.

This is alarming and to combat this situation the definite solution is RECYCLING. Therefore the Recycling specially Plastics Recycling is necessity.

Plastic Recycling is difficult but it is being done all over the world.

It is being done in Pakistan too.

CLASSIFICATION OF PLASTICS RECYCLING:

Plastics Recycling is an essential component for Circular Economy which contributing the plastics wastes to make it useable, reusable for consumers reducing wastes. Classifying by the final product of any given recovery process has further differentiated between alternative plastics recycling methodologies.

PRIMARY RECYCLING:

The recovered plastics is used in products with performance characteristics equivalent to those made using virgin plastics.

SECONDARY RECYCLING:

The recovered plastics are used in products that have less demanding performance requirements than the original application.

TERTIARY RECYCLING:

Waste Plastics is used as the feedstock in a process that generates chemicals and fuels.

QUARTERNARY RECYCLING:

Energy is recovered from waste plastics by incineration.

قابل فضلہ کو صحیح طریقے سے استعال نہیں کر رہے اور اس کچرے کو زمین میں، دریا میں، شہر میں کھینک دیتے ہیں، جس سے ہر جگہ بہت زیادہ آلودگی بیدا ہوتی ہے۔ اس کی وجہ یہ ہے کہ فضلہ اور گندگی پراپرٹی کو دوبارہ استعال نہیں کیا جاتا ہے اور صحیح طریقے سے نکالانہیں جاتا ہے بلکہ بھٹیوں اور مختلف غلط طریقوں سے اسے ٹھکانے لگانے کی کوشش کی جاتی ہے اسکا ایک یقینی حل مریقوں سے اسے ٹھکانے لگانے کی کوشش کی جاتی ہے اسکا ایک یقینی حل میں سائیکلنگ خاص طور پر بلااٹک کی ری سائیکلنگ ضرورت ہے۔

پلاسٹک کی ری سائیکلنگ مشکل ہے لیکن یہ پوری دنیا میں کی جا رہی ہے۔ پاکستان میں بھی ری سائیکلنگ (بازگردانی) بڑے پیانے پر ہورہی ہے۔

پلاسٹک کی ری سائیکلنگ کی درجہ بندی

پلاسٹک کی ری سائیکلنگ سر کلر اکانومی کے لیے ایک لازمی جزو ہے جو پلاسٹک کے ناقابل استعال مواد کو استعال کے قابل بنانے میں اپنا حصہ ڈالتا ہے اور صارفین کو فضلہ کم کرنے کے لیے دوبارہ قابل استعال بناتا ہے۔ کسی بھی دی گئی بحالی کے عمل کے حتی مصنوع کے مطابق درجہ بندی نے متبادل پلاسٹک ری سائیکلنگ کے طریقوں میں مزید فرق کیا ہے۔

پرائمری ری سائیکانگ

برآمد شدہ پلاسٹک کو ان مصنوعات میں استعال کیا جاتا ہے جن کی کار کردگی کی خصوصات ورجن پلاسٹک کے استعال کے مساوی ہوتی ہیں۔

ثانوی ری سائیکلنگ

برآمد شدہ پلاسک ان مصنوعات میں استعال کیے جاتے ہیں جن کی کار کردگی کے تقاضے اصل ایپلی کیشن سے کم ہوتے ہیں۔

ترتیری ری سائیکانگ

فضلہ بلاسٹک کو اس عمل میں فیڈ اسٹاک کے طور پر استعال کیا جاتا ہے جو سمیسکل اور ایند ھن پیدا کرتا ہے۔

کوارٹرنری ری سائیکانگ

فضلہ پلاشک سے جلانے کے ذریعے توانائی حاصل کی جاتی ہے۔





Be Pakistani Buy Pakistani
Used as: School bottle | Cym bottle Travelling bottle | Office bottle





MECHANICAL RECYCLING:

مکینیکل ری سائیکانگ

is the process of plastic waste into secondary raw materials or products.

پلاسٹک کے بے مصرف مواد کو ثانوی خام مال یا مصنوعات میں بنانے کا عمل ہے

CHEMICAL RECYCLING:

کیمیکل ری سائیکانگ

It is a broad term used to describe a range of technologies, other than mechanical recycling.

یہ ایک وسیع اصطلاح ہے جو کمینیکل ری سائیکلنگ کے علاوہ مختلف ٹیکنالوجیز کو بیان کرنے کے لیے استعال ہوتی ہے۔

Closed Loop Recycling:

کلوزڈ لوپ ری سائیکلنگ

Recycling for either closed loop or open loop which means a product is recycled into another, almost identical product.

بند لوپ یا او پن لوپ کے لیے ری سائیکانگ جس کا مطلب ہے کہ کسی پروڈکٹ کو دوسری، تقریباً ایک جیسی مصنوعات میں ری سائیکل کیا جاتا ہے۔

ADVANCE RECYCLING:

ایڈوانس ری سائیکلنگ

Advance recycling is recognized as an emerging technology that can accept soft plastics. It can process soft plastics into other plastics.

ایڈوانس ری سائیکلنگ کو ایک ابھرتی ہوئی ٹیکنالوجی کے طور پر تسلیم کیا جاتا ہے جو نرم پلاسٹک کو قبول کر سکتی ہے۔ یہ نرم پلاسٹک کو دوسرے پلاسٹک میں پروسیس کر سکتا ہے۔

Identification of Plastics:

یلاسٹک کی شاخت

In the plastics recycling process, or even in dealing virgin plastics, the identification of plastics is imperative. An indicative chart is enumerated to identify how the plastics identification can be made. For example.

Chart for Identification. Recycling Plastic for Circular Economy:

چارٹ برائے شاخت سر کلر اکانومی کے لیے پلاسٹک کی ری سائیکلنگ

Countries are making every effort to recycle their plastics waste stream and help them to boost successfully and contribute a great part using and reusing the waste management which obviously contributing to Circular Economy. The Plastics and Plastics Recycling is greatly in use and reuse and reuse to make the waste stream as far as possible to zero.

تقریباً تمام ممالک سرکلر اکانومی میں حصہ ڈالنے کے لیے اپنے پلاسٹک کے بے کارمواد کو ری سائیکل کر رہا ہیں۔ پاکستان پلاسٹک کی ری سائیکلنگ بھی کر رہا ہے، لیکن چر بھی ایک قابل ذکر تعداد میں بے کارمواد لینڈ فلز کو بھیجا جاتا ہے۔ پاکستان میں ری سائیکلنگ کمپنیاں بے کار مواد کو اکٹھا کر کے اسے اعلیٰ معیار کے دانے دار، کھاد بنانے اور بلینڈ کرنے والے مواد میں تبدیل کر رہی

It is repeated to mention that plastic recycling is difficult



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 - SAN





but it is being done all over the world. And being done in Pakistan too.

Although plastics is being recycled all over Pakistan. Still there is a great amount of plastics which is being sent to landfills or on the grounds. Therefore there are great opportunities to convert these plastics wastes into the useable products in valuable source and earning a livelihood. The recycled products come to main stream for using and reusing therefore recycling plastics shall become the essential component of the CIRCULAR ECONOMY.

مصرف مواد کو زیادہ قیمتی وسیلہ بنانے میں مدد ملتی ہے۔ یاکتان پلاسٹک کا مقصد یلاسٹک کو ری سائیکل کرنا، انہیں پاکستان میں بنانا، اور سر کلر اکانومی میں ایک سر کر دہ کھلاڑی کے طوریر اپنا درجہ بلند کرنا ہے۔

ہیں۔ یہ عمل سر کلر اکانومی کے لیے ضروری ہے، کیونکہ اس سے پلاسٹک کے بے

Recycling Plastics in Pakistan - Superb.

In Pakistan many recycling companies are involved to collect the waste plastics and making high quality granules of the plastics wastes. In addition to usual extrusion, the companies using their technical skills making composting, blending of plastics making it more compatible to their specific requirement and to make fine quality اور عمدہ کوالٹی کے دانے دار بنانے کے لیے جو نیا مواد کی طرح مکائلی خصوصات granules which has similar mechanical properties as virgin material. This usage has become an essential part of the Circular Economy. The Pakistan Plastics moto is to: Recycle Plastics - Make in Pakistan - Exalted Superb using plastics wastes a more valuable resource.

یا کستان میں یا کستان کی ری سائیکلنگ، عمدہ

ماکستان میں بہت سی ری سائیکانگ کینمال نے کار پلاشک کو اکٹھا کرنے اور . بلاسٹک کے کیجرے کے اعلیٰ معار کے بلاسٹک کے دانے بنانے میں مصروف ہیں۔ معمول کے اخراج کے علاوہ، کمپنیاں اپنی تکنیکی مہارتوں کو استعال کرتے ہوئے کھاد بنانے، پلاسٹک کی ملاوٹ سے اسے اپنی مخصوص ضرورت کے مطابق بناتی ہیں رکھتی ہیں۔ یہ استعال سرکلر اکانومی کا ایک لازمی حصہ بن گیا ہے۔ پاکستان . بلاسٹک کا مقصد یہ ہے کہ بلاسٹک کو ری سائیکل کریں مہارت اور عمد گی کے ساتھ ۔ یا کشان بلاسٹک ۔ عمر گی کا جوہر

Plastics Recycling Overview

Note: This article is correlated to my Previous article " Recycling – Second Life of Plastics " published in Pakplas Magazine 2023.



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Plastics Identification Chart

پلاسٹکس کا شاختی چارٹ

P	Abrev	Ш	Ignition	×	Q	4	9 Behaviour	٥
Polymer	noice	S.G.	igintion	Seltex	Flame	Odour	Benaviour	H.R.
Thermoplastic								
Acetal	РОМ	1.43	Moderate	No	Pure blue. No carbon	Very sharp of formaldehyde	Melts, blackens	220°F
Acrylic	PAA	1.19	Readily	No	Blue with yellow top. Slight smoke	Fruity	Melts, bubbles, carbonization	160-1859F
Acrylonite Butadiene Styrene	ABS	1.02-1.06	Moderate	No	Yellow Smoky	Sweet & rubbery	Softens, blackens, bebbles	160-230°F
Amide	PA	1,04-1.15	Moderate	Mostly Yes	Blue with yellow top.	Like celery, burnt hair or wool	Melts & froths	175-250°F
Carbonate	PC	1.2	Difficult	Yes	Yellow Smoky	Faintly phenolic	Softens, bubbles, carbonizes	275°F
Cellulose Acetate	CA	1.23-1.34	Readily	No	Yellow, some black smoke	Sharp vinegary	Melts & Drips	140-220°F
Cellulose Acetate Butyrate	CAB	1.15-122	Readily	No	Dark Yellow Bule Edges	Rancid cheese or butter	Melts & Drips	140-220°F
Cellulose Nitrate	CN		Very Readily	No	Bright Yellow	Camphor	Burns violently	140°F
Ethylene	PE	0.912-0.965	Readily	No	Blue with yellow top	Candle wax	Melts & Drips	220-250%
Ethylene Terephthalate	PETP	1.4	Moderate	No	Yellow slightly smoky	Pleasant elusive odour	Melts, opacities, blackens	270°F
Ethylene - Vinyl Acetate	EVA	0.929-0.950	Readily	No	Blue slight yellow	Faintly of vinegar	Melts & Drips	190-200°F
Tetrefluoro - ethylene	PTFE	2.13-2.20	Non- Ignitable	Yes	No flame		Turns transparent and jelly-like	550°F
Pmide	PI	1.42	Difficult	Yes	Yellow smokeless	Faintly antiseptic	Chars & cracks	500°F
Methyl Methacrylate	PMMA	1.19	Readily	No	Blue, yellow top slight carbon	Fruity	Melts & Bubbles	140-190°F
4-Methyl Methacrylate	TPX	0.83		No	Blue with yellow tip	Like candle wax	Melts	250-320°F
Phenylene (modified) Oxide	PPO	1.06	Readily	Yes	Yellow, smoky	sweet , floral		175-215°F
Propylene	PP	0.90	Readily	No	Blue with yellow top	Like candle wax	Melts	190-240°F
Styrene	PS	1.04	Readily	No	Yellow black smoke	Oppressive,	Melts & Bubbles	150-170°F
Styrene Acrylonitrile	SAN	1.08	Readily	No	Yellow, smoky	Sweet, floral	Softens, bubbles, blackens	140-205°F
Styrene Butadiene	SBP	1.02	Readily	No	Yellow, smoky	Mainly of sweet floral	Melts & Bubbles	130-150°F
Sulfone		1,25	Moderate	Yes	Yellow, little smoke	Faintly phenolic	Softens: forms black crust	300-345°F
Vinyl Chloride (unplasticised)	UPVC	1.35-1.4	Moderate	Yes	Yellow	Acid, biting	Softens & blackens	150-175°F
Acetal	PVC	1.3-1.4	Moderate	Yes	Yellow, smoky	Acid, biting	Melts & Drips	150-175°F

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Plastics Recycling Awards Europe 2024 Winners Announced in Amsterdam

پلاسٹک ری سائیککنگ ایوارڈ یورپ 2024 ایمسٹر ڈیم میں فاتحین کا اعلان



The winners of the Plastics Recycling Awards Europe 2024 were announced on 20th june 2024 at the Plastics Recycling Show Europe in Amsterdam. For the first time in the seven-year history of the awards, the judges have announced four product and two innovation category winners. The winners exemplify the best advances in the circular use of plastics in products, as well as the latest technology and machinery innovations facilitating plastics recycling.

پلاسٹک ری سائیکلنگ ایوارڈز یورپ 2024 کے فاتحین کا اعلان 20 جون 20 کیا ہے۔ جیتنے والے مصنوعات میں پلاسٹک کے سر کلر استعال کے ساتھ ساتھ پلاسٹک کی ری سائیکلنگ کی سہولت فراہم کرنے والی جدید ترین ٹیکنالوجی اور مشینری کی اختراعات میں بہترین پیش رفت کی مثال ویتے ہیں

Plastics Recycling Awards 2024 winners:

- Automotive, Electrical & Electronic Product: Electrolux 900 Series by Electrolux AB
- Building & Construction Product: RPS Skimmer by Fluidra
- Household & Leisure Product: Blue Finn Chair by Bywyd B.V

Note:

The PPMA Member Mr. Muhammad Umair Khan, CEO, Universal Exporters attended the Recycling Awards Ceremony in Amesterdam and provided the coverage for PakPlas magazine which is grateful.





Automotive, Electrical & Electronic Product: آٹوموٹیو، الیکٹریکل آینڈ الیکٹرونگ پروڈکٹ Electrolux 900 Series by Electrolux A

Winner of the Automotive, Electrical or Electronic Product of the Year category, the Electrolux 900 Series Air Purifier by Electrolux AB, was highly praised by judges for the high percentage of post-consumer recycled content used in a well-designed and multifunctional item.

آٹو موٹیو، الیکٹریکل یا الیکٹر انک پروڈکٹ آف دی ایئر کیٹیگری کا فاتح، الیکٹر ولکس اے بی کی طرف سے الیکٹر ولکس 900 سیریز ایئر پیوریفائز، کو ججوں کی طرف سے ایک اچھی طرح سے ڈیزائن کردہ اور ملٹی فنکشنل آئٹم میں استعال ہونے والے پوسٹ کنزیومر ری سائیکل مواد کے اعلی فیصد کے لیے بہت سراہا گیا۔





Electrolux AB Electrolux 900 Series Air Purifier

Automotive, Electrical or Electronic Product





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Building & Construction Product: RPS Skimmer by Fluidra

تعمیراتی مصنوعات فلوئیڈرا کا آرپی ایس اسکیمر





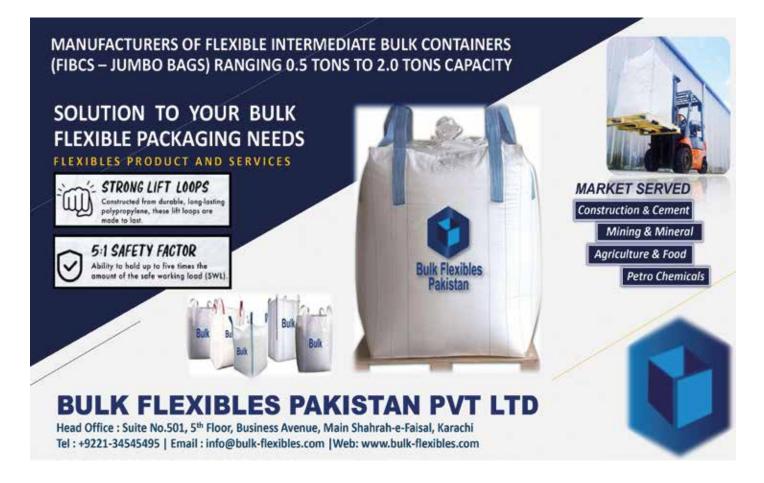


The RPS Skimmer by Fluidra, a vital part of a swimming pool filtration system that needs a high level of durability, is winner of the Building & Construction Product of the Year category. The judges were impressed both by the high percentage of recycled content used in the skimmer and its well-designed recyclability when the component reaches end-of-life.

RPS Skimmer by Fluidra، جو سوئمنگ پول فلٹریشن سٹم کا ایک اہم حصہ ہے جس کو اعلیٰ سطح کی پائیداری کی ضرورت ہے، سال کے بہترین بلڈنگ اینڈ کنسٹر کشن پروڈ کٹ کا فاتح ہے۔ ججز سکیمر میں استعال ہونے والے ری سائیکل مواد کی اعلی فیصد اور اس کی اچھی طرح سے ڈیزائن کی گئی ری سائیکلیبلٹی دونوں سے متاثر ہوئے جب جزو زندگی کے اختتام تک پہنچ جاتا ہے۔









Household & Leisure Product: Blue Finn Chair by Bywyd B.V

گھریلو و لیزئیر مصنوعات۔ بی وائی ڈبلیو وائی ڈی بی۔وی کی بلیو فن کرسی

This year's winner of the Household & Leisure Product of the Year category, covering all types of domestic and leisure goods, is the Blue Finn Chair by Bywyd B.V. The Blue Finn chair is a highly stackable, multifunctional chair with a polymer seat and back made from 85% recycled impact modified Bluewrap, which is the wrapping used for keeping surgical instruments sterile.

گھریلو اور تفریحی پروڈکٹ آف دی ایئر کیٹیگری کا اس سال کا فاتح، تمام قسم کے گھریلو اور تفریحی سامان کا احاطہ کرتا ہے، بلیو فن چیئر







بذریعہ Bywyd B.V ہے۔ بلیو فن چیئر ایک انتہائی اسٹیک ایبل، ملی فنکشنل کرسی ہے جس میں پولیمر سیٹ اور بیک سے بنی ہوئی ہے۔ ۸۵٪ ری سائیکل اثر میں ترمیم شدہ بلیو ریپ، جو کہ سرجیکل آلات کو جراثیم سے پاک رکھنے کے لیے استعال ہونے والی ریپنگ ہے۔





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پلاسٹک پیکیجنگ پروڈ کٹ: نیویا سن لوشن کی Nivea Sun Lotion Bottle by Beiersdorf ہو تل بذریعہ بیئرزڈورف اے جی AG & Morssinkhof Plastics Heerenveen B.V

Beiersdorf AG & Morssinkhof Plastics Heerenveen B.V. are victorious in the Plastic Packaging Product of the Year category with the Nivea Sun Lotion Bottle. This winning design gained high marks for successfully addressing the challenge of cosmetics packaging applications through collaboration.



Beiersdorf AG اور Beiersdorf AG اور Beiersdorf AG اور Morssinkhof Plastics Heerenveen B.V. Nivea Sun Lotion Bottle کے بہترین پلاسٹک پیکیجنگ پروڈ کٹ کے زمرے میں جیت گئے۔ اس جیتنے والے ڈیزائن نے تعاون کے ذریعے کاسمیٹکس پیکیجنگ ایپلی کیشنز کے چلنج سے کامیابی کے ساتھ خمٹنے کے لیے اعلی خمبر حاصل کیے ہیں۔







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Product	Applications		
Hydrophabic/Wydrophilic/Soft Tauch	All Masterbalish for NON-WOYEN APPLICATION		
Arest-Souric	Blown Film, Cask Sheet, Extrusion, Non-World		
Situ/auti-Block	ALPE & FF Boxed		
Arm-ordant	Skywn film, Cast Sheet, Extrusion, Non-Woven		
Arti-cosicture / Arti-Gas	Andoor Moissure/SAS Covers: in Recycle/Repro + Calcium Based Andpe		
UV AGDITIVE	TWINNUEN SHEET, SLAGE FEMS, STRETCH FILM, CTC		
Anti-Fo _{li}	PE, PM Agriculture film, Food Facinging Film, Greenboose Tunnel		
SCPP Additions	Antiflical/Sity, Combination MR, Static, Pourtaing Addition		
- CAL - CAL - A A A A A A A A A A A A A A A A A A			

FILLERS, COMPOUNDS, RAW MATERTIALS, ACTIVE INGRIDIENTS

Product	Active Ingredients	Applications		
Calcium Filier Mb	Calcium Cortoonate	PE FILMS, PPRAFFIA, EXTRUSION COATING, BOP! TARRAULIN,		
Riler Mil	Toks	Alt Application		
Minerals	Telic Lumps/Yowder Covere Calcium Carbonine	Paints, Fubbox, Plastic (PVC/UPVC), Profiles. Maxierbatch		
Transen Entender	1102 Sittender	To decrease the percentage of 1102 in MB/Faints.		
Dispensing Agent	Vertous	Mesterbatch Compounding & Other Applications		
Internal/External Lubricriant	Various	All Application		
Sig Additives	Oloamida /Erucamida Acid	As Per Requirement		
inti Block Raw material Silica		As Per Requirement		

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پروڈکٹ ٹیکنالوجی انوویشن Product Technology Innovation: Multi-Color Corporation for NextCycle IML IML کار کارپوریش برائے نیکسٹ سائنگل کارپوریش کارپو



Multi-Color Corporation NextCycle (Mt. o decorated salt shakers for JOZO

Product Technology Innovation



Winning through from no less than twelve successful finalists in the hotly contested Product Technology Innovation of the Year category is Multi-Color Corporation with NextCycle IML. This category covers technology innovations that facilitate the production of recyclable products and the use of recycled content. The winning innovation helps maximize the value of recycled polypropylene and represents a good balance between shelf appeal and recyclability for mono-material PP packaging.

پروڈکٹ ٹیکنالوجی انوویش آف دی ایئر کیٹیگری میں کم سے کم بارہ کامیاب فائنلسٹوں سے جیتنا نیکسٹ سائیکل IML کے ساتھ ملٹی کلر کارپوریش ہے۔ اس زمرے میں ٹیکنالوجی کی اختر اعات کا احاطہ کیا گیا ہے جو قابل تجدید مصنوعات کی تیاری اور ری سائیکل مواد کے استعال میں سہولت فراہم کرتی ہیں۔ جیتنے والی جدت ری سائیکل پولی پروپیلین کی قدر کو زیادہ سے زیادہ کرنے میں مدد کرتی ہے اور مونو میٹریل پی پیکیجنگ کے لیے شیلف ایبل اور ری سائیکل ایبلٹی کے در میان اچھے توازن کی نمائندگی کرتی ہے۔







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the produce for furtilizer, doc responses, plante say memoral, trackle, goments 5-chowlests terran 6CP products have high strength and slandstop. The attributes of these products differ according to application and over requirement and our realizer realizers, high list strong enough to handle oil lands of heads working conditions.



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PBCs (Postide Intermediate N/B Conteners) about rever community to big day, while bugs, but tage, Super tasts tage. They bugs, str. are made from where IM faths. There man specis to transport and store industrial products. PBCs are economical and versible. We offer packaging for grants and other day goods common in the agreed-busic construction, cheering, naming and sensorer goods influenties. They are available to exclude these, store, supportly and specification depending on the product in the package.



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this manufactural hallow but strong consenters for our climes. This implied a consents containers, treation for liquid coup, descripted, motor oil, premissionified synges and tablets and other riquids. Pleate are non-reactive to plactic are non-reactive to these liquids of liquids, aboveing from to be stored for long protects of time. The coup effective process allows for fast, effected riquid productives of consumers and industrial products.



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PMC Forum Board

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Recycling Machinery Innovation: DischargePro Technology by Powerfil - EREMA Group ری سائیکلنگ مشینری کی اختراع ڈسچارج پرو ٹیکنالوجی یاور فل ۔ ایراما گروپ کی جانب سے

Last but not least, the Recycling Machinery Innovation of the Year category rewards machines that improve the efficiency and effectiveness of plastic recycling processes. This year's winner is Discharge-Pro Technology by Powerfil – EREMA Group, a new generation of plastic melt filters which the judges described as a smart technological advance in the extrusion process

آخری لیکن کم از کم، ری سائیکلنگ مشینری انوویش آف دی ایئر زمرہ ایسی مشینوں کو انعام دیتا ہے جو پلاسٹک کی ری سائیکلنگ کے عمل کی کار کردگی اور تاثیر کو بہتر بناتی ہیں۔ اس سال کا فاتح DischargePro ٹیکنالوجی بذریعہ Powerfil - EREMA گروپ ہے، پلاسٹک پیھلنے والے فلٹرز کی ایک نئی نسل جسے حجزنے اخراج کے عمل میں ایک زبردست تکنیکی پیشرفت قرار دیا۔





Powerfil a Business Unit of EREMA Engineering Recycling Maschines and Adager Grebs Unchargetin technology for new real force series Learning 2776

Recycling Machinery Innovation





Narrated Hakim bin Hizam:

The Prophet (**) said, "The buyer and the seller have the option to cancel or to confirm the deal, as long as they have not parted or till they part, and if they spoke the truth and told each other the defects of the things, then blessings would be in their deal, and if they hid something and told lies, the blessing of the deal would be lost." Sahih Al-Bukhari 2082, Book 34, Hadith 35

ہم سے بدل بن محبر نے بیان کیا ، کہا کہ ہم سے شعبہ نے بیان کیا ، کہا کہ ہم سے قتادہ نے ، کہا کہ میں نے ابوخلیل سے سنا ، وہ عبداللہ بن حارث سے نقل کرتے تھے اور وہ حکیم بن حزام رضی اللہ عنہ سے کہ نبی کریم صلی اللہ علیہ وسلم نے فرمایا ، خریدوفروخت کرنے والوں کو اختیار ہے جب تک وہ ایک دوسرے سے جدا نہ ہوں (کہ بیع فسخ کر دیں یا رکھیں) یا آپ نے («مالم یتفرقا» کے بجائے) «حتی یتفرقا» فرمایا ۔ پس اگر دونوں نے سچائی اختیار کی اور ہر بات کھول کھول کر بیان کی تو ان کی خریدوفروخت میں برکت ہو گی ۔ اور اگر انہوں نے کچھ چھپائے رکھا یا جھوٹ بولا تو ان کے خریدوفروخت کی برکت ختم کر دی جائے گی ۔



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All Eight Winners Received a Winners' Tropy

تمام آٹھ فاتحین نے فاتح ٹرافی موصول کی

All eight winners received a winner's trophy, with a 3D printed base made from 100% recycled ABS plastic car dashboards and the multi-colour top which is laser cut from compressed HDPE beach clean-up bottle caps.

The Plastics Recycling Awards Europe are organised jointly by Plastics Recyclers Europe and Crain Communications, organisers of the Plastics Recycling Show Europe. More than 100 recycled products have been presented for the competetion.

The PPMA member, Muhammad Umair Khan attended the recycling awards ceremony in Amsterdam and provided the coverage for pakplas magazine. Which is grateful.

تمام آٹھ فاتحین کو فاتح کی ٹرافی ملی، جس میں 100 مرس سائیکل شدہ ABS پلاسٹک کار ڈیش بورڈز سے بنی 3D پر نیڈ بیس اور ملٹی کلر ٹاپ جو کمپریسڈ HDPE نیچ کلین اپ بو تل کیپس سے لیزر کٹ ہے۔

پلاسٹک ری سائیکلنگ ایوارڈز یورپ کا اہتمام مشتر کہ طور پر پلاسٹک ری سائیکلرز یورپ اور کرین کمیونیکیشنز نے کیا ہے، جو پلاسٹک ری سائیکلنگ شو یورپ کے منتظمین ہیں۔ 100 سے زیادہ ری سائیکلرز پلاسٹک سے بنی مصنوعات میں اس شو میں پیش کی گئی۔

پی پی ایم اے ممبر محمد عمیر خان نے ایمسٹر ڈیم میں ری سائیکلنگ ایوارڈ یورپ 2024 کی تقریب میں شرکت کی اور اس کی کوریج کی تصاویر اور تفصیلات پاک بلاس میگزین کیلئے مہیا کی ہیں جس کیلئے ہم ان کے شکر گزار ہیں۔





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Rethinking the System: We Need Molecular Recycling

ہمیں مالیکیولر ری سے نیکلنگ کی ضرورے ہے۔

The lower recycling rates worldwide have demonstrated that effectively managing plastic waste needs multiple recycling technologies.

The plastic waste crisis is primarily caused by single-use plastics, with two-thirds of them serving other purposes. Nearly 100% of durable goods and clothes are in landfills without an end-of-life plan, and healthcare facilities in the US generate 3,500 tons of plastic waste daily. Closed Loop Partners conducted a comprehensive study on molecular recycling technologies in the United States and Canada, analyzing the future and viability of the recycling system.

The current system is dominated by mechanical recycling, which has failed to recycle all types of plastics due to its impact on material properties and the need for upgrades. Over 50% of rPet in the US and Canada is downcycled into recycled content fibers for apparel, but these textiles currently have a recycling rate of 1% globally.

Recycled content demand has created targeted interest for only a few plastic families, such as PET and HDPE. Other plastics remain economically unviable to recycle due to their multilateral nature and lack of a consolidated recollection and recycling stream. Technical and financial barriers, as well as inconsistent processability and mechanical properties of PCR, also prevent recycling rates from increasing.

To effectively manage plastic waste, transitioning from a linear to a circular economy requires bringing more technologies into the recycling system. Upstream solutions include design innovation, considering end-of-life, reducing material use, incorporating renewable raw materials, and enabling modularity. Downstream solutions include mechanical recycling, molecular recycling, and policies that incentivize circularity.



پلاسٹک کے فضلے کا بحران بنیادی طور پر ایک بار استعال ہونے والے پلاسٹک کی وجہ سے ہے، جس میں دو تہائی دیگر مقاصد کی شکیل کرتے ہیں۔ تقریباً ممال پائیدار اشیا اور کپڑے لینڈ فلز میں ہیں جن کی زندگی کے اختامی منصوبے کے بغیر ہیں، اور صحت کی دیکھ بھال کی سہولیات روزانہ 3,500 ٹن پلاسٹک کا فضلہ پیدا کرتی ہیں۔ کلوزڈ لوپ پارٹنرز نے امریکہ اور کینیڈا میں مالیکولر ری سائیکلنگ ٹینالوجیز پر ایک مطالعہ کیا، جس میں ری سائیکلنگ سٹم کے مستقبل اور قابل عمل ہونے کا تجزیہ کیا۔ ملینیکل ری سائیکلنگ تمام قسم کے پلاسٹک کو ری سائیکل کرنے میں ناکام رہی ہے کیونکہ اس کے مادی خصوصیات پر اثرات اور میں ناکام رہی ہے کیونکہ اس کے مادی خصوصیات پر اثرات اور اپ گریڈ کی ضرورت ہے۔ لکیری سے سرکلر اکانومی میں منتقل کے لیے ری سائیکلنگ سٹم میں مزید ٹینالوجیز کو شامل کرنے کی ضرورت ہوتی ہے، بشول ڈیزائن کی جدت، زندگی کے اختیام کی ضرورت ہوتی ہے، بشول ڈیزائن کی جدت، زندگی کے اختیام کی ضرورت ہوتی کو فعال کرنا، اور ماڈیولریٹی کو فعال کرنا، اور ماڈیولریٹی کو فعال کرنا۔

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RECYCLED PLASTIC STANDS FOR THE 2024 OLYMPIC GAMES

اولمپکس گیمز 2024کیلئے ری سائیکلڈ پلاسٹک اسٹینڈ

The organizers of the 2024 Olympic Games have announced that they intend to halve the greenhouse gas emissions emitted by the last Olympics in Rio (2016) and London (2012).

RECYCLED PLASTIC STANDS FOR THE 2024 OLYMPIC GAMES:

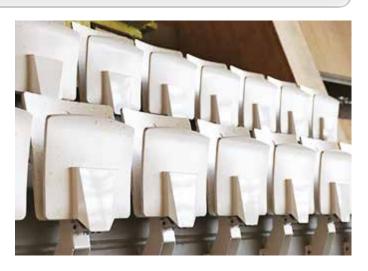
Numerous initiatives have been undertaken to make this a reality, one of which is the production of 11,000 recycled plastic foldable seats that will be used in the stands at the Saint-Denis Olympic Aquatic Centre (Ile-de-France) and Arena 2 (Paris 18th arrondissement). These venues are currently under construction and will host the Olympic swimming and badminton events. Le Pavé® is made from plastic waste, both post-industrial (generated during a product's manufacturing cycle before its consumption, for example, production offcuts) and post-consumer (obtained from sorted waste such as shampoo bottles, cans or caps).

FROM WASTE TO OUTSTANDING MATERIAL:

This plastic waste is crushed and transformed via a secret thermo compression process, and it requires no added resin, chemical additives or colourants. One hundred percent recycled and recyclable, Le Pavé has a unique texture and comes in large 140 × 90 cm sheets with a thickness of 5 to 15 mm. Flexible and resistant to water and stains, these sheets can be worked and used for various purposes, such as wall and floor coverings, worktops, counters, desk tops, furniture and other objects.

A REGIONAL CIRCULAR ECONOMY PROJECT:

One hundred tonnes of recycled plastic were required to produce the 11,000 Olympic seats, meaning the same amount of virgin raw materials were ultimately not extracted. Eighty percent of the plastic waste was collected from inhabitants and schools local to the area that will host the Olympic pool (3,000 seats) and Arena (8,000 seats). Ten million caps have also been collected, equivalent to 20 tonnes of plastic, thanks to Lemon Tri, a local company that offers intelligent, incentive-based, "reverse vending machines".



A SUSTAINABLE AND RECYCLABLE PRODUCT:

With Le Pavé, SAS Minimum has committed to a circular economy and has considered every stage in its products' life cycle to ensure it maintains the smallest possible ecological footprint. "First and foremost, we created a sustainable eco-construction material with no chemical additives or colourants. Then, we created a recyclable eco-construction material to completely avoid waste at end-of-life."

2024 کے اولمپ گیر کے منتظمین کا مقصد سین ڈینس اولمپ ایکوائک سینٹر اور ایرینا 2 کے لیے 11,000 ری سائیکل شدہ پلاسٹک فولڈ ایبل سیٹیں تیار کرکے گرین ہاؤس گیسوں کے اخراج کو نصف کرنا ہے۔ بوسٹ انڈسٹریل اور پوسٹ کنزپومر پلاسٹک کے فضلے سے بنایا گیا ہے۔ تشسیں کچکدار ہیں، پانی اور داغوں کے خلاف مزاحم ہیں، اور کے داشتیں لیکدار ہیں، پانی اور داغوں کے خلاف مزاحم ہیں، اور کو اولمپ Bouygues مقاصد کے لیے استعال کی جا سکتی ہیں۔ کو اولمپ Rrena نے متحاصد کے لیے استعال کی جا سکتی ہیں۔ کو اولمپ Arena نے نتخب کیا ہے۔ کمپنی نے مصنوعات کے اسٹینڈز کے ڈیزائن کے لیے متخب کیا ہے۔ کمپنی نے مصنوعات کے اپنی مصنوعات کے لائف سائیکل کے ہر مرحلے پر غور کرتے ہوئے ایک سرکلر اکانومی کا لائف سائیکل کے ہر مرحلے پر غور کرتے ہوئے ایک سرکلر اکانومی کا عہد کیا ہے۔ تعمیراتی شعبہ، جو کہ فرانسیسی گرین ہاؤس گیسوں کے عہد کیا ہے۔ تعمیراتی شعبہ، جو کہ فرانسیسی گرین ہاؤس گیسوں کے دیر اخراج کو پیدا کرتا ہے، ان اخراج میں اہم شراکت دار ہے۔







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Plastic roads offer higher flexibility, durability and a lifespan almost three times longer than regular roads

A petroleum company has taken a significant step towards reducing plastic waste and promoting environmentally friendly practices by introducing a plastic-infused road in Karachi.

Shell Pakistan announced its collaboration with start-up BRR Enterprises and the local authority District Municipal Corporation (DMC) South to construct this innovative road using recycled Shell lubricant bottles.

Over 2.5 tonnes of discarded Shell lubricant bottles were successfully recycled for the construction of a 730 feet long and 60 feet wide road adjacent to Shell House in Karachi.

By incorporating these plastic bottles into the asphalt road using the dry process method, the company effectively reduced plastic waste while contributing to a more sustainable and environmentally conscious solution.

Plastic waste has long been a major concern due to its

non-biodegradability and toxic nature. Studies have shown that a simple plastic bag can take up to 500 years to decompose, while a plastic bottle can persist for approximately 300 years. Recognising this threat, Shell Pakistan's initiative aims to address the issue of plastic waste and its impact on the environment. This innovation not only provides a sustainable solution but also addresses the pressing social problem of plastic waste.

شیل پاکتان نے BRR انٹر پر اکزز اور ڈسٹر کٹ میونسپل کارپوریشن (DMC) ساؤتھ کے ساتھ مل کر کراچی میں 730 فٹ لجی اور 60 فٹ چوڑی سڑک کی تعمیر کے لیے شیل لبریکینٹ بو تلوں کو ری سائیکل کیا ہے۔ اس اقدام کا مقصد پلاسٹک کے فضلے کو کم کرنا اور ماحول دوست طریقوں کو فروغ دینا ہے۔ سڑک، جو 730 فٹ لبی اور 60 فٹ چوڑی ہے، زیادہ کچک، پائیداری، اور عام سڑکوں کے مقابلے میں تقریباً تین گنا طویل عمر پیش کرتی ہے۔ کمپنی کا مقصد پلاسٹک کے استعال سے تعمیراتی افراجات کو کم کرنا بھی ہے، جو کم سے کم قیمت پر حاصل کیا جا سکتا ہے۔ یہ اقدام نہ صرف ایک پائیدار حل فراہم کرتا ہے بلکہ پلاسٹک کے ساجی مسکلے کو بھی حل کرتا ہے۔ کم کرتا ہے بلکہ پلاسٹک کے ساجی مسکلے کو بھی حل کرتا ہے۔

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SMART PLASTICS: INTERNET OF THING & ARTIFICIAL INTELLEGENCE

اسمارٹ پلاسٹکس اور مصنوعی ذہانت کا محب وعب

Plastics have evolved beyond their ubiquitous presence in everyday products to become intelligent.

The fusion of the Internet of Things (IoT) and Artificial Intelligence (AI) is launching the era of "smart plastics." These materials aim to revolutionize the functionality and efficiency of plastics in healthcare, automotive, and consumer products.

PLASTICS - Transforming the Industry:

In the healthcare sector, smart plastics are changing how medical treatments are administered and monitored. Consider medical devices from plastics that detect a patient's condition changes and adjust automatically, or drug delivery systems that modify dosages in real-time to meet patient needs. Such innovations aim to enhance patient outcomes, minimize medical errors, and support personalized medicine.

The automotive industry benefits significantly from smart plastics. Integrating IoT and AI allows vehicle plastics to gain advanced features, including self-healing properties, color or texture changes in response to environmental shifts, and improved safety through sensors.

Plastics and IoT Integration & AI INTEGERATION:

Companies are advancing towards IoT connectivity, as seen with Medtronic, a leader in medical technology. They champion smart plastics in medical devices, demonstrating innovation in patient care with smart, implantable devices for chronic conditions like heart disease and diabetes.

Overcoming Challenges:

Integrating IoT and AI into plastics presents challenges, including data security, privacy, environmental impacts, and technical manufacturing hurdles. Despite these, smart plastics' future is bright, promising a new generation of active, intelligent materials that enhance our daily lives. This melding of plastics with IoT and AI technologies marks a significant step towards a future where materials actively contribute to our world.



اسارٹ پلاسٹک، (AI) اور مصنوعی ذہانت (AI) کا مجموعہ، صحت کی دیکھ بھال، آٹوموٹو اور صارفین کی مصنوعات میں پلاسٹک کی فعالیت اور کارکردگی میں انقلاب برپا کر رہے ہیں۔ ان اختراعات کا مقصد حفظانِ صحت کے نتائج کو بڑھانا، غلطیوں کو کم کرنا اور ذاتی نوعیت کی دوائیوں کی حمایت کرنا ہے۔ آٹوموٹیو انڈسٹری میں، سارٹ پلاسٹک گاڑیوں کی کارکردگی اور پائیداری کو بہتر بنا سکتے ہیں، صارفین کی مصنوعات میں وہ اشیاء کو زیادہ متعامل، پائیدار، اور موافقت پذیر بناتے ہیں۔ Medtronic جیسی کمپنیاں اور موافقت پذیر بناتے ہیں۔ IoT ربط سازی کی طرف پیش قدمی کر رہی ہیں، دائمی طالت کے لیے سارٹ، نمایاں آلات کے ساتھ مریضوں کی دیکھ بھال میں جدت کا مظاہرہ کر رہی ہیں۔ ڈیٹا سیکیورٹی، دائوں کی در دائی مینوفیچرنگ رکاوٹوں کی در دائی مینوفیچرنگ رکاوٹوں کی مینوفیچرنگ رکاوٹوں کی خیال میں جدت کا مظاہرہ کر رہی ہیں۔ ڈیٹا سیکیورٹی، ماحولیاتی اثرات، اور تکنیکی مینوفیچرنگ رکاوٹوں خیسے چیلنجوں کے باوجود، سارٹ پلاسٹک کا مستقبل فعال، نئی مانول کے فعال اور دانائی مواد کا آغاز۔

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PLASTICS, THE GAME-CHANGER FOR NEW ENERGY TRANSFORMATION

پلاسٹک - حبدید توانائی کی شبدیلی مارمیت کا عنصسر

New energy refers to renewable energy sources other than fossil fuels, such as solar, wind, hydrogen, water, etc. They are not only abundant and inexhaustible, but also produce less carbon emissions and provides enormous benefits for our environment. The wider application of the clean energy sources has been made possible by energy storage. By leveraging the unique properties of plastics, more sophisticated designs, optimized components and efficient processing technologies are emerging. Solar panels are essential in boosting sustainability

PLASTICS PLAYS AN ESSENTIAL ROLE IN GREEN ENERGY سبز توانائی میں پلاسٹک ایک اہم کردار ادا کر تا

Plastic is increasingly used to produce modern solar panel parts, such as encapsulant films, backsheet, frontsheet, structural parts and other components, playing an essential role in the development of PV system. Replacing glass and aluminum, plastic has a list of advantages including being lightweight, low-cost and efficient for manufacturing, and high-performance. It also provides protection from moisture, temperature and UV light.

As plastic is lighter than glass and aluminum, solar panels made with plastic can be installed on a larger number of roofs. Various solar panel manufactures have developed lightweight products with environmental considerations, enhancing its sustainable benefits. Solarge, a manufacturer of solar panels, has partnered with SABIC to develop lightweight low-carbon solar panel. SABIC's differentiated polypropylene (PP) compounds for solar panel offer more than 50% weight reduction and 25% carbon footprint reduction.

SOLAR ENERGY FOR پاکستان کیلئے شمسی توانائی PAKISTAN IS IMPERATIVE:-

Solar energy bound to be the energy in future in Pakistan. Solar Energy and wind are infinite. Opting for solar power is a permanent solution for power generation in Pakistan which can be bring several benefits to the economy and long term advantages. Once installed solar system require onetime cost with minimum maintenance expenses leading significant saving overtime. This long term perspective ensure sustainable and affordable energy which is direly needed for households and businesses in the Pakistan.



توانائی کے نئے ذرائع جیسے شمسی، ہوا، ہائیڈروجن اور یانی وافر، نا قابل استعال اور کم کاربن کا اخراج پیدا کرتے ہیں۔ ایشیا بیسیفک مارکیٹ نئی توانائی کی صنعت کی ترقی میں 73 فصد حصہ ڈال رہی ہے۔ بلکا بھلکا، کم لاگت اور موثر مواد پیش کرتے ہوئے، سولر پینل کے برزوں میں بلاسک کا استعال تیزی سے ہورہا ہے۔ بلاسک سے بنے سولر پینلز کو بڑی تعداد میں چھوں پر نصب کیا جا سکتا ہے، اور Solarge، Merlin Solar ، اور LG Chem جیسے مینو فیکچررز نے ماحولیاتی تحفظات کے ساتھ ملکے وزن کی مصنوعات تبار کی ہیں۔ ونڈ ازجی کا شعبہ بھی قابل تجدید مواد کو اپنا رہا ہے، ZEBRA کنسور شیم نے پہلے ری سائیل کیے جانے والے ونڈ ٹربائن بلید کی مکمل توثیق کی جانچ مکمل کر لی ہے اور دوسرے ری سائیل کے قابل تھر مو پلاسٹک بلید کی تیاری بھی کی جا رہی ہے۔ پاکتان میں مستقبل میں شمسی توانائی ہی <mark>توانائی</mark> ہو گا۔ شمسی توانائی کا انتخاب پاکستان میں بجلی کی پیداوار کے لیے ایک مستقل حل ہے جس سے معیشت کے لیے بہت سے فوائد اور طویل مدتی فوائد حاصل کیے جا سکتے ہیں۔ ایک بار انسال ہونے کے بعد شمسی نظام کو کم از کم دیکھ بھال کے اخراجات کے ساتھ ایک مرتبہ کی لاگت کی ضرورت ہوتی ہے جس وقت اور اخراجات کی نمایاں بچت ہوتی ہے۔ یہ طویل مدتی تناظر یائیدار اور سستی توانائی کو یفینی بناتا ہے جس کی پاکستان میں گھر اور کاروباروں کے لیے اشد ضرورت ہے۔











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PLASTICS: SOWING THE SEEDS FOR FARMING'S FUTURE

پلاسکے۔: نیج بونا کا مشتکاری کے مستقبل کے لیے

Today's farmers shoulder the responsibility of feeding 8 billion people. Faced with demanding environmental safeguards, particularly in Asia the agricultural world must find green solutions for its practices whilst maintaining a good yield. Polymers might just be the solution

Plastics have transformed from a pollutant to a necessity in modern agriculture, promoting efficiency, sustainability, and innovation, highlighting a pivotal shift in agricultural technology towards synthetic materials.

زراعت میں انقلاب Revolutionizing Agriculture

Plastics have significantly improved agriculture, particularly in irrigation systems like drip irrigation. This method reduces water waste, conserves resources, and enhances crop yields and quality compared to traditional methods.

Protecting Crops and اور خفاظت اور Enhancing Efficiency

Plastic mulch films protect crops by conserving moisture, suppressing weeds, and maintaining soil temperature, reducing chemical herbicide use and promoting healthier soil ecosystems.

پائیدار حل Sustainable Solutions

The use of biodegradable mulch films and recycling technologies in agriculture is promoting sustainability, reducing environmental impact and repurposing plastic waste into new products.

Precision Farming and Beyond متع سے متعلق کاشتکاری

Plastics have revolutionized precision farming techniques, enabling data-driven decisions and lightweight, durable equipment components, enhancing crop production efficiency and protection in smart greenhouses and modern farming equipment.

متقبل کے امکانات Challenges and Future Prospects

Advancements in agriculture address challenges like plastic pollution and disposal, but research into bioplastics and recyclable materials offers potential for future sustainability gains.

ایشیا میں کسانوں کو ماحولیاتی چیلنجوں کا سامنا ہے اور انہیں 8 بلین لوگوں کو کھانا کھلانے کے لیے سبز حل تلاش کرنا ہوں گے۔ پلاسٹک جدید زراعت میں ایک ضرورت بن گیا ہے، کارکردگی، پائیداری، اور اختراع کو فروغ دیتا ہے۔ انہوں نے آبپاشی کے نظام کو بہتر بنایا ہے، فصلوں کو محفوظ کیا ہے، اور باید گیریڈ ببل بلج فلموں اور ری سائیکلنگ ٹیکنالوجیز کے ذریعے باید گیریڈ ببل بلج فلموں اور ری سائیکلنگ ٹیکنالوجیز کے ذریعے بائیداری کو فروغ دیا ہے۔ پلاسٹک نے صحت سے متعلق کاشتکاری میں بھی انقلاب برپا کر دیا ہے، ڈیٹا پر مبنی فیصلوں اور ملکے وزن کے آلات کو قابل بنا کر۔ بائیو پلاسٹک اور ری سائیکل مواد میں مستقبل کی تحقیق مستقبل میں پائیداری کے فوائد کا باعث بن مستقبل کی تحقیق مستقبل میں پائیداری کے فوائد کا باعث بن





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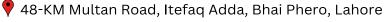






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PLASTICS - NEXT GENERATION FIBER-REINFORCED POLYKETONES, ALTERNATIVES TO NYLON 66 AND ACETAL.

نئ نسل کا پلاسٹک -منائب سے مضبوط پولی کیٹونز، Nylon 66 اور Acetal کے متبادل۔

An expanded range of polyketone-based formulations have been launched by Avient designed to broaden options for processors looking for strong mechanical performance to support demanding applications.

The new Complet PKE long-glass-fiber-reinforced formulations reportedly can provide alternatives to nylons 66 and 6 and acetal based formulations, offering added supply security and sustainable benefits.

Complēt PKE formulations are semi-crystalline and are said to deliver excellent chemical resistance, low moisture uptake, and dimensional stability similar to nylon 66. When compared to alternatives during standard testing, these materials can help reduce carbon footprint over the product lifecycle, producing 61% less CO2 than nylon 66, 46% less than nylon 6, and 30% less than acetal. Grades are available with 30% to 50% long glass fiber, allowing customers to request customized performance requirements for certain applications.

These materials are especially useful in applications in chemical, fuel contact, and high-moisture environments that benefit from chemical and hydrolysis resistance. The Complet PKE portfolio series are manufactured in North America and are available globally.

"This development represents meet response to demands from oil & gas, transportation, and industrial industries uses for next-generation engineered materials with a property retention as low as -22 F for pipes, tubing, fluid management, and more."



ایوینٹ نے پولی کیٹون پر مسبنی ونارمولیشنز کی ایک نئی رہنج سفروع کی ہے جے Complet PKE کہا حباتا ہے، جو پروسیسرز کے لیے مضبوط مکینیکل کارکردگی پیش کرتے ہیں۔ یہ نیم کرسٹل لائن ونارمولیشنز، جو نیم کرسٹل ہیں، بہترین کیمیائی مسزاجمت، کم نمی کی مقتدار اور جہتی استحکام ونراہم کرتے ہیں جو کہ نایلان 66 کی طسرح ہے۔ 60 nylon سے ہم کم کرتے ہیں جو کہ نایلان 66 کی طسرح ہے۔ 60 Accetal سے ہم کم کرتے ہیں جو کہ نایلان 60 کی طسرح ہے۔ 60 CO2 سے ہم کم کریڈ کریڈ کریڈ کاسس ونائسبر کے ساتھ دستیاب ہیں، 30 کے گلاسس ونائسبر کے ساتھ دستیاب ہیں، 20 کمہ کلاسس ونائسبر کے ساتھ دستیاب نیار کی گئی ہے اور عسالمی سطح پر دستیاب ہے۔ یہ مواد حناص طور پر کیمیائی، ایندھن کے رابطے اور زیادہ نمی والے ماحول میں مفید ہیں۔













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Pakistan Plastics Sports Industry: Plastics are instrumental in sports

پاکستان بلاسٹک کھیلوں کی صنعت: بلاسٹک کھیلوں میں کارآ مد ہے۔

Sialkot is one of the industrial cities in Pakistan. According to industry estimates, in 2020, when Pakistan's GDP per capita was \$1,538, Sialkot boasted a GDP per capita of \$2,400. With earnings of about two billion dollars from exports annually, the rise of the city's wealth is driven partly by its export-oriented industries. Two of its main industries are sports goods and surgical instruments, which are almost entirely concentrated in Sialkot alone.

Plastics have emerged as a transformative force in the realm of sports, revolutionizing the performance of athletes and the infrastructure of stadiums that entertain fans year-round. From innovative apparel and footwear designs leveraging plastics to enhance agility and durability, to cutting-edge stadiums incorporating recycled plastics to elevate performance, plastics are instrumental in helping athletes of all calibers achieve their peak performance.

Enhancing Athletic Performance with Plastics:

Plastics have reshaped every facet of sports equipment

und attire, from safety gear to clothing and footwear, by rendering them lighter, sturdier, and more flexible. Hard plastic compounds like polycarbonate are now ubiquitous in safety gear such as helmets, face shields, and pads, offering superior protection. Meanwhile, softer plastic foams like polypropylene and ethylene-vinyl acetate (EVA) mitigate impact and weight, reducing injury risks in high-contact sports like football.

Athletic apparel benefits from materials like polyester, nylon, and spandex, which provide comfort, stretch, and durability. These fabrics, commonly used in jerseys, swimsuits, and specialized competition attire, optimize performance by streamlining outfits and enhancing athletes' competitive edge. Plastics like polyurethane and EVA are integral to footwear, offering water resistance, moisture control, and lightweight cushioning for enhanced performance across various sports disciplines.

Sports equipment increasingly incorporates plastics. Tennis racquets feature plastic composites that reduce vibration, improving maneuverability for players of all skill levels. Golf balls, once made from wood or leather,



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now employ rubber and plastic coatings for affordability and performance. Plastics are also employed in the construction of referee whistles, goal nets, and corner flags, underscoring their omnipresence in sports.

Plastics Revolutionize Stadium Efficiency:

Beyond aiding athletes, plastics play a pivotal role in stadium construction and maintenance, fostering efficiency and sustainability. Artificial turf, composed of plastic compounds like polyethylene, conserves water, reduces maintenance costs, and optimizes playing conditions. Many turf manufacturers utilize post-consumer plastics, contributing to circular economy initia tives.

Rubberized tracks, comprising layers of plastic infused with polyurethane, minimize joint impact and enhance athletic performance. Materials like Dow's VORAMER polymer, derived from recycled rubber, exemplify the integration of sustainability into modern stadium design.

In stadium infrastructure, plastics like polyvinyl chloride (PVC) are prevalent in flooring and roofing due to their insulating properties, reducing energy consumption. Plastics also facilitate water conservation and provide recycling options for end-of-life materials, ensuring stadiums are environmentally friendly.

Circular Economy Initiatives:

Plastic components render athletic gear and apparel more affordable, democratizing sports participation. With plastics enhancing performance across sports, athletes are achieving unprecedented levels of success, reshaping the sporting landscape. Continued support for circular economy initiatives ensures that plastics remain integral to sports while minimizing environmental impact.

Plastics Make in Pakistan, Superb Sports Manufacturing in Sialkot Pakistan:

In Sialkot, Pakistan's renowned hub for sports manufacturing, the utilization of plastics underscores the industry's commitment to innovation and sustainability. By embracing plastics, Pakistan's sports industry in Sialkot continues to propel athletes towards excellence while championing environmental stewardship.

Sialkot produces the same top brands, and there is no

doubt that it can produce the same quality under its brand name. However, creating a brand requires heavy investments in design, packaging and marketing. Thanks to e-commerce, many street wear brands are now entering the markets through online marketplaces like Amazon and eBay. The sports goods – plastics make in Pakistan, exalted superb, worldwide recognition. The potential scope is unlimited.

پاکستان کے ایک بڑے صنعتی شہر سیالکوٹ نے کھیلوں کے سامان اور آلاتِ جراحی یر توجہ دینے کے ساتھ اپنی فی کس جی ڈی یی میں نمایاں اضافہ دیکھا ہے۔ پلاسٹک کھیلوں کی صنعت میں ایک تبدیلی کی قوت بن گیا ہے، جو کھلاڑیوں کی کار کردگی اور اسٹیڈیم کے بنیادی ڈھانچے کو بہتر بنا رہا ہے۔ یلاسٹک نے کھیلوں کے سازوسامان اور لباس کو نئی شکل دی ہے، انہیں ہاکا، مضبوط اور زیادہ لحیکدار بنا دیا ہے۔ وہ حفاظتی سامان، ایتھلدیک ملبوسات، جوتے، اور اسٹیڈیم کی تعمیر میں استعال ہوتے ہیں، کار کردگی اور یائیداری کو فروغ دیتے ہیں۔ اسٹیڈیم کے بنادی ڈھانچے میں بھی بلاسٹ کا استعال کیا جاتا ہے، جیسے کہ مصنوعی ٹرف، ربڑ کی پٹری، اور ایولی فرش اور حیات سازی۔ یہ مواد (PVC) ویلیل کلورائڈ سر کلر اکانومی کے اقدامات میں حصہ ڈالتے ہیں، اس بات کو یقینی بناتے ہیں کہ بلاسٹک کھیلوں کے لیے لازمی رہے اور ماحولیاتی انزات کو کم سے کم کریں۔ سالکوٹ کی اسپورٹس مینو فیکیرنگ انڈسٹری جدت اور یائیداری کے لیے پر عزم ہے، جس میں بلاسٹک کے استعال سے فضیلت اور ماحولیاتی ذمہ داری کو فروغ ملتا ہے۔ شہر کے ای کامرس نے بھی بہت سے اسٹریٹ وئیر برانڈز کے بازار میں داخلے کی اجازت دے دی ہے۔ کھیلوں کا سامان - بلاسٹک یا کستان میں بنا ہے، شاندار، دنیا بھر میں پہیان۔ مکنه گنجائش لا محدود ہے۔ پاکستان بلاسٹکس۔ سیالکوٹ کھیلوں کے سامان کا مرکز ۔





Your Next Car Could Be Made Out of Plastic Bottles

آپ کی اگلی کار پلاسکے کی بو تلوں سے بنائی حب سسکتی ہے۔

In a groundbreaking move poised to change the automotive industry, a Pennsylvanian company has been running simulations to test the viability of recycled plastics being transformed into automotive parts.

Here are the key points:

The company is leveraging stimulation technology to revolutionise the materials used by original equipment manufacturers (OEMs). Through simulations, materials like plastic can be tested to showcase their efficacy and reduce costs for OEMs. If successful, the invention of recycled automotive parts could reduce the emissions produced during the manufacturing process.

Not only could recycled car parts reduce emissions during the manufacturing process, but they could also reduce emissions from creating replacement parts. This could lower overall emissions produced by the automotive industry drastically, changing the perspective and potentially making this once ticking-time-bomb industry sustainable for longer.

While the potential benefits of OEMs using recycled materials to create automotive parts are numerous, there are some challenges. The quality and collection methods of the recycled materials may impact their efficacy for use as automotive parts, and market perceptions about quality could cause roadblocks if this technology is used on a large scale. These issues could prevent the use of recycled plastics being used for automotive parts altogether if left unsolved. Regardless of the outcome, these tests give merit to the concept of stimulation, highlighting how important it can be as well as how it can reduce the costs of potential innovations. It also shows a growing interest in sustainability as more tech companies look for new solutions to reduce emissions. A world where the vast majority of cars are made out of recycled plastics may be right around the corner.



پنسلوانیا کی ایک سمینی ری سائیل شده پلاسک کو آٹوموٹو پرزوں کے طور پر استعال کرنے کی سہولت کی جانچ کر رہی ہے۔ کمپنی اصل آلات کے مینوفیکچررز (OEMs) کے ذریع استعال ہونے والے مواد میں انقلاب لانے کے لیے محرک ٹیکنالوجی کا استعال کر رہی ہے۔ ان سمولیشنز کا مقصد ری سائیک شده مواد کی افادیت کو ظاہر کرنا اور OEMs کی لا گت کو کم کرنا ہے۔ اگر کامیاب ہوا تو، ری سائیل شدہ آٹوموٹیو پرزے مینوفیکچرنگ کے عمل کے دوران اور متبادل یرزوں کی تخلیق سے اخراج کو نمایاں طور پر کم کر سکتے ہیں، مکنه طور پر آٹو موٹیو انڈسٹری کو زیادہ دیر تک یائیدار بنا سکتے ہیں۔ تاہم، ری سائیل شدہ مواد کے معیار اور جمع کرنے کے طریقے اور معیار کے بارے میں مارکیٹ کے تاثرات جیسے چیلنجز ری سائیل پلاسک کے وسیع پیانے پر استعال میں ر کاوٹ بن سکتے ہیں۔ یہ یائیداری میں بڑھتی ہوئی دلچیسی کو بھی ظاہر کرتا ہے کیونکہ زیادہ ٹیک کمپنیاں اخراج کو کم کرنے کے لیے نئے حل تلاش کرتی ہیں۔ ایک ایسی دنیا جہاں کاروں کی اکثریت ری سائیل شدہ بلاسٹک سے بنی ہو۔



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MICROPLASTIC FILTRATION DEVICE - PLASTICS NEXT GENERATION

مائیکروپلاسٹک فلٹ ریشن ڈیوائٹ پلاسٹکس کی اگلی نسل



Victoria Ou (right) and Justin Huang (middle) won first place in their category and also snagged one of the top \$50,000 prizes for their invention

Victoria Ou and Justin Huang, both 17, won \$50,000 for their microplastic filtration device.

- It's the first filtration system to successfully use ultrasound to filter microplastics from water.
- They hope to scale their device for water treatment plants to reduce microplastic pollution worldwide.

Two teenagers from Woodlands, Texas invented a device that could help address one of the most pervasive and challenging forms of pollution on Earth: microplastics.

These microscopic plastic particles show up in the deepest parts of the ocean, at the top of Mount Everest, and are in everything from the dust in your home to your food and water.

Victoria Ou and Justin Huang, both 17, hope to prevent that one day with their award-winning device that removes microplastics from water using ultrasonic — or high-frequency — sound waves. Their device is the first to use this method successfully.

Ou and Huang presented their work at last week's Regeneron International Science and Engineering Fair (ISEF) in Los Angeles, where top competitors from science fairs worldwide congregated to share their projects and compete for \$9 million in prizes.

The Texas duo received first place in their Google-sponsored category, Earth and Environmental Sciences, and they also snagged the \$50,000 prize from the Gordon E. Moore Award for Positive Outcomes for Future Generations.

Though the ultrasonic technique is in its very early stages, the high schoolers hope that one day it could filter the plastic out

of your drinking water and from the industrial and wastewater that humans dump into the environment.

ووڈ لینڈز، ٹیکساس سے تعلق رکھنے والے دو 17 سالہ بچوں نے اپنے
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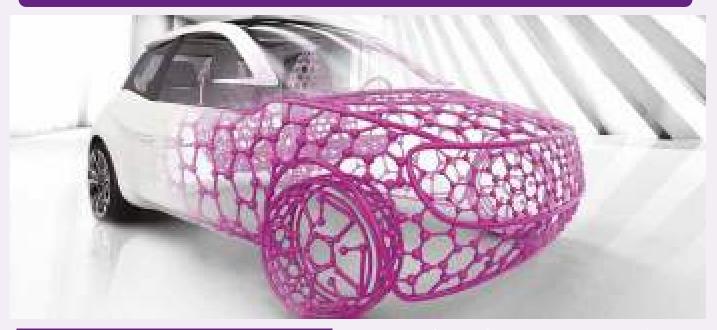
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PLASTICS COMPOSITES WITH GLASS FIBER POLYETHER ETHER KETONE (PEEK)

پلاسٹک گلانسس منائنبر ترکیبی عمسل



PEEK GLASS FIBER COMPOSITE CRYSTALLIZATION

PEEK (Polyether ether ketone) is a high-performance thermoplastic known for its excellent mechanical, thermal, and chemical resistance properties. When reinforced with glass fibers, PEEK composites become even stronger and more versatile. Their high-temperature resistance and wear properties make them suitable for the automotive industry. They are utilized for various components such as gears, bearings, bushings, and structural parts.

The crystallization process of PEEK glass fiber composites is pivotal. Especially under conditions of high undercooling and intense shear. They ensure product quality and longevity. Researchers and engineers from SKF, and Penn State University, studied this phenomenon.

High Undercooling with PEEK Composites

High undercooling refers to the process where a material is cooled below its equilibrium melting point before solidification. This promotes rapid crystallization and has several advantages. Researchers emphasize that high undercooling conditions are crucial for understanding the crystallization kinetics of PEEK composites. Additionally, they suggest that fast scanning calorimetry (FSC) is key to achieving high undercooling. It enables the tracking of crystallization kinetics across various temperature ranges.

Peek collabrative Research involve experts from SKF and Pennstale University and plastics GF manufacturers may pay the way for the development of advanced materials for diverse industrial application enforcements.

PEEK گلانسس فٹائنبر حبامع کر سٹلائزیشن

PEEK Polyether ether ketone ایک اعلی کارکردگی والا تھر مو پلاسٹک ہے جو اپنی بہترین مکینیکل، تھر مل اور سمیائی مزاحمتی خصوصیات کے لیے جانا ج۔ جب شیشے کے ریشوں سے تقویت ملتی ہے، PEEK کمپوزٹ اور بھی مضبوط اور زیادہ ہمہ گیر ہو جاتے ہیں۔ ان کی اعلی درجہ حرارت کی مزاحمت اور بہننے کی خصوصیات انہیں آٹوموٹو انڈسٹری کے لیے موزوں بناتی ہیں۔

PEEK گلاس فائبر کمپوزائٹس کی کرسٹلائزیشن کا عمل اہم ہے۔ خاص طور پر اعلی انڈر کولنگ اور شدید قینچ کے حالات میں۔ وہ مصنوعات کے معیار اور کمبی عمر کو یقینی بناتے ہیں۔ SKF اور پین اسٹیٹ یونیورسٹی کے محققین اور انجینئرز نے اس رجمان کا مطالعہ کیا۔

PEEK کمپوزٹس کے ساتھ ہائی انڈر کولنگ

ہائی انڈر کولنگ سے مراد وہ عمل ہے جہاں کسی مواد کو ٹھنڈا ہونے سے پہلے اس کے توازن پھلنے والے پوائٹ سے نیچے ٹھنڈا کیا جاتا ہے۔ یہ تیزی سے کر سٹلائزیشن کو فروغ دیتا ہے اور اس کے کئی فوائد ہیں۔



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PLASTICS RECYCLING INSULIN PEN

بلاستک ری سائیکلنگ انسولین قلم

The first insulin pen was developed in 1985, providing millions of diabetics with a discreet and accurate means of self-administering the correct dose of insulin.

This pen would improve the quality of life for people living with diabetes, whilst eliminating the need for bulky glass syringes. Almost 40 years later, the insulin pen is now an essential device for people living with diabetes. Comprised of 77% plastics (PP, POM, PC/ABS)

A Circular Economic Sector

Novo Nordisk has set itself the challenge of finding an end-of-life solution for these products; to transform them from waste to resource. This Danish healthcare company—distributes 600 million disposable injector pens worldwide each year. This represents over 12,000 tones of plastic.



Novo Nordisk hopes to eventually avoid transporting the pens back to Denmark by setting up a recycling process in France. By 2024, the company aims to collect 5 million of the 25 million pens used each year in France.

Nova Nordisk's has a "circular for zero" environmental policy, and so far, it has developed and hope to recycle 700000 plastics pens by end 2023. They will be processed and recycle by ZIRQ Solutions and plan to reuse them in manufacturing of furniture's etc.



پہلا انسولین قلم 1985 میں تیار کیا گیا تھا، جو لاکھوں شوگر کے مریفنوں کو انسولین کی صحیح خوراک کا خود انتظام کرنے کا سمجھدار اور درست ذریعہ فراہم کرتا ہے۔ یہ قلم ذیا پیطس کے ساتھ رہنے والے لوگوں کے معیار زندگی کو بہتر بنائے گا، جبکہ شیشے کی بھاری سرنجوں کی ضرورت کو ختم کرے گا۔ تقریباً 40 بنائے گا، جبکہ شیشے کی بھاری سرنجوں کی ضرورت کو ختم کرے گا۔ تقریباً 10 سال بعد، انسولین قلم اب ذیا پیطس کے شکار لوگوں کے لیے ایک ضروری آلہ نوو نورڈسک نے (PP, POM, PC/ABS) ہے۔ 477 پلاسٹک پر مشتمل ہے خود کو ان مصنوعات کے لیے زندگی کے آخری حل تلاش کرنے کا چیلئج مقرر کیا ہے۔ انہیں فضلہ سے وسائل میں تبدیل کرنا۔ یہ ڈنمارک کی صحب کی دیکھ نیان کیا کہ کرتے والی کمپنی — ہم سال دنیا بھر میں 600 ملین ڈسپوزایبل انجیکٹر پین نقسیم کرتی ہے۔ یہ 12,000 میل کرتا ہے۔

نوو نورڈسک کو امید ہے کہ فرانس میں ری سائیکانگ کے عمل کو ترتیب دے کر بالآخر قلم کو واپس ڈنمارک منتقل کرنے سے گریز کرے گا۔ 2024 تک، کمپنی کا مقصد فرانس میں ہر سال استعال ہونے والے 25 ملین قلموں میں سے 5 ملین جمع کرنا ہے۔ نوو نورڈسک کی ماحولیاتی پالیسی "صفر کے لیے سرکلر" ہے، اور اب تک، اس نے 2023 کے آخر تک 700000 پلاسٹک کے قلموں سلوشنز کے ذریعے ZIRQ کو ری سائیکل کرنے کی امید کی ہے۔ انہیں سلوشنز کے ذریعے کا اور انہیں فرنیچر وغیرہ کی تیاری میں دوبارہ ستعال کرنے کا مضوبہ ہے۔













A 3D-PRINTED PAVILION MADE FROM RECYCLED PLASTIC

ری سائنکل بلاسٹک سے بنا ایک 3D پرنٹ شدہ یو بلین

Architecture studio Hassell and 3D printing studio Nagami have developed an innovative pavilion entirely made from 3D-printed recycled plastics. This futuris tic project seeks to create buildings that can be erected at any latitude and withstand the most extreme temperatures and conditions, be that deserts, snowy landscapes or war zones

To complete this project, Hassell—the company behind numerous innovative architectural designs—and Nagami have joined forces with creative collective .to.org, a platform dedicated to philanthropic projects

Treating waste plastic as the inexhaustible resource" that it is and demonstrating a commitment to the circular economy will help reduce pollution and reverse ".the effects of climate change

This new-style pavilion is fully customised. It is easy to transport and can even be assembled on-site! Aside from offering great freedom of design, 3D printing also provides an individual response to climate issues, as it enables the structure to be customised to suit its environment, whatever that may be

آر سینگیر اسٹوڈیو ہاسل اور پر نٹنگ اسٹوڈیو ناگامی نے ایک جدید پویلین تیار کیا ہے جو مکمل طور پر تھری ڈی پرنٹ شدہ ری سائیکل پلاسٹک سے بنا ہے۔ یہ مستقبل کا منصوبہ الیمی عمارتیں بنانا چاہتا ہے جو کسی بھی عرض البلد پر کھڑی کی جا سکیں اور انتہائی درجہ حرارت اور حالات کا مقابلہ کر سکیں، چاہے وہ صحرا ہوں، برفانی مناظر ہوں یا جنگی علاقے۔

اس پراجیکٹ کو مکمل کرنے کے لیے، ہاسل۔متعدد اختراعی آر کیٹیکیجرل ڈیزا ننز کے ساتھ شمولیت to.org کے پینچھ والی کمپنی۔اور ناگامی نے تحلیقی اجماعی اختیار کی ہے، جو کہ انسان دوستی کے منصوبوں کے لیے وقف ہے۔

پلاسٹک کو وہ لازمی مواد سمجھنا جو ختم نہ ہونے والا ہے اور دائرہ اقتصاد کے لئے عہد ظاہر کرنا، کرنا اور سرکلر اکانومی سے وابسٹک کا مظاہرہ کرنے سے آلودگی کو "کم کرنے اور موسمیاتی تبدیلی کے اثرات کو رپورس کرنے میں مدد ملے گی۔

یہ نے طرز کا پویلین مکمل طور پر ترتیب شدہ ہے۔ اسے آسانی سے منتقل کیا جا سکتا ہے اور حتیٰ کہ مقام پر اس کو جوڑا جا سکتا ہے! خوبصورت ڈیزائن کی استحقاق فراہم کرنے کے علاوہ، تھری ڈی پرنٹنگ آب و ہوا کے مسائل پر انفرادی ردعمل بھی فراہم کرتی ہے، کیونکہ یہ ڈھانچے کو اس قابل بناتا ہے کہ اس کے ماحول کے مطابق ہو، چاہے وہ کچھ بھی ہو۔



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A MATERIAL MADE FROM STONE AND RECYCLED PET

پھر اور دوبارہ استعال شدہ پولی اٹھیلین ٹیریچھیتلیٹ (PET) سے تیار کردہ مواد

Cordis, the EU's Community Research and Development Information Service, has added a new video about Sustonable in its series of explanatory videos titled "Make the Connection".

Materials imitating natural stone are popular for countertops and other furnishings but have a heavy environmental impact. As reported, the EU-funded Sustonable project has found a way to produce such surfaces using less energy and water and just half of the raw materials. The solution combines crushed stone with recycled PET to create a material that looks and feels

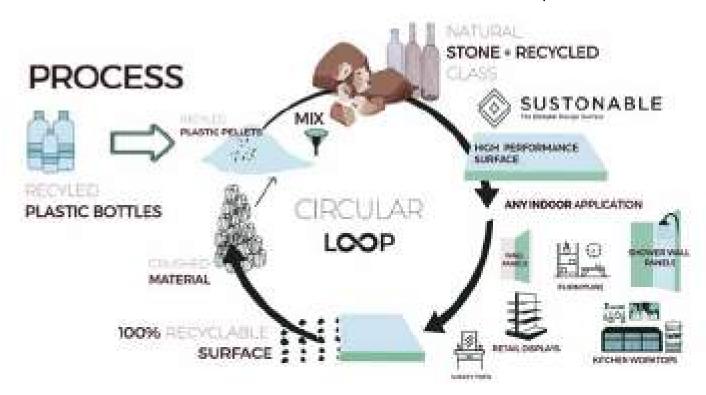
just like composite stone.

Each square meter of the material would contain around 100 plastic bottles, preventing them from going to landfill, Cordis informed. "The patented material is not only more environmentally friendly but also cheaper to produce and lighter than engineered stone, making it easier to transport and install. What's more, it can be recycled and reused, contributing to a circular economy."

CORDIS، EU کی کمیونٹی ریسرج اینڈ ڈویلچنٹ انفار میشن سروس، نے "MAKE THE CONNECTION" کے عنوان سے وضاحتی ویڈیوز کی اپنی سیریز میں ایک نئی ویڈیو شامل کی ہے۔

قدرتی پھر کی نقل کرنے والے مواد کاؤنٹر ٹاپس اور دیگر فرنشنگ کے لیے مشہور ہیں لیکن ان کا ماحولیاتی اثر بہت زیادہ ہے۔ جیسا کہ اطلاع دی گئی ہے، EU کی مالی اعانت سے چلنے والے مسٹن ایبل پروجیکٹ نے کم توانائی اور پانی اور صرف آدھے خام مال کا استعال کرتے ہوئے ایسی سطحیں تیار کرنے کا ایک طریقہ تلاش کیا ہے۔ یہ محلول پسے ہوئے پھر کو ری سائیکل شدہ پی ای ٹی کے ساتھ جوڑ کر ایک ایسا مواد بناتا ہے جو بالکل جامع پھر کی طرح نظر آتا ہے۔

کورڈیس نے بتایا کہ مواد کے ہر مربع میٹر میں تقریباً 100 پلائک کی ہوتلیں ہوں گی، جو انہیں لینڈ فل میں جانے سے روکتی ہیں۔ "بیٹنٹ شدہ مواد نہ صرف زیادہ ماحول دوست ہے بلکہ پیدا کرنے میں ستا اور انجینئرڈ پیھر سے ہلکا ہے، جس سے اسے نقل و حمل اور انسال کرنا آسان ہو جاتا ہے۔ مزید یہ کہ اسے ری سائیکل اور دوبارہ استعال کیا جا سکتا ہے، جس سے مرکلر اکانومی میں حصہ ڈالا جا سکتا ہے۔





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THE REMOVABLE PLASTIC SEAWALL

تتحب کے بلاسٹکے دیوار ^ا

French company Wave Bumper has developed a method to protect against flooding during storms and cyclones. This method takes the form of a removable seawall. It uses patented technology to send wave energy back out to sea and reduce the impact of the next wave.

BIGBUMP - POLYPROPYLENE BAGS

A new method for protecting the coastline is currently being tested on the French Atlantic coast, particularly in La Tranche-sur-Mer in the Vendée region, as this part of the coast is particularly vulnerable to adverse weather.

The system — which is not anchored to the ground and is therefore totally removable —consists of a series of polypropylene bags (known as "BigBump") filled with sand that come together to form a seawall. The resulting barrier is lightweight, easy to use and quick to install.

This solution is combined with the patented "BumperBlade", a curved block that's placed on the BigBump bags and faces the ocean. These send waves back out to sea, preventing them from crashing into and weakening the coastline. This innovative solution, which is essentially a rigid shield made from polypropylene and composite materials, reduces the risk of marine submersion and erosion.

Over the past four years, Wave Bumper has developed protection modules adapted to various severe weather conditions: cyclones, hurricanes, and typhoons. This technology is protected by six patents and has won numerous awards in innovation competitions, including the Blue Ocean Awards. They're currently in the process of working with the European Space Agency to design an application that can predict changes in the coastline. The company also aims to acquire a composite factory within the next year so that they can handle their own production.

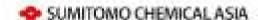


فرانسیسی کمپنی ویو بمپر نے طوفانوں کے دوران سیالب سے بھانے کے لیے ایک بٹنے والی سی وال تیار کی ہے۔ "-Big" نامی یہ سٹم ہلکا، استعال میں آسان اور انسٹال کرنے میں تیز ہے۔ اسے پیٹنٹ شدہ "بمپر بلیڈ" کے ساتھ ملایا گیا ہے، جو ایک خمیدہ بلاک ہے جو اہروں کو واپس سمندر کی طرف بھیجتا ہے، جو انہیں ساطی پٹی سے شرانے اور کرور ہونے سے روکتا ہے۔ یہ جدید حل سمندری ڈوبنے اور کٹاؤ کے خطرے کو کم کرتا ہے۔ ویو بمپر نے مختلف موسمی حالات کے لیے حفاظتی ماڈیولز تیار کیے ہیں، جن میں طوفان، سمندری طوفان اور ٹاکفون شامل ہیں، اور جدت کے مقابلوں میں متعدد ایوارڈز جیت چکے ہیں۔ وہ اس وقت یورپی خلائی ایجنسی کے ساتھ مل کر ایک ایسی ایپلی کیشن ڈیزائن کرنے ایجنسی کے ساتھ مل کر ایک ایسی ایپلی کیشن ڈیزائن کرنے تیریلیوں کی پیش گوئی کر سکے اور اگلے سال کے اندر ایک تیریلیوں کی پیش گوئی کر سکے اور اگلے سال کے اندر ایک تیریلیوں کی پیش گوئی کر سکے اور اگلے سال کے اندر ایک جامع فیکٹری حاصل کرنے کا ارادہ رکھتی ہے۔



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POLYMER SLEEPERS, A SUSTAINABLE ALTERNATIVE SOLUTION

پوکیمر سکیپرز، ایک پائیدار متبادل حسل

For many years now, the German company has been designing and marketing polymer railway sleepers, a sustainable alternative to traditional sleepers made of wood, concrete or metal.

Railway sleepers play a crucial role in the safety and functionality of railways. By providing support and stability to the rails, they help prevent derailments and ensure that trains run smoothly and safely.

Advances in technology and materials mean that wood, the "historic" construction material for sleepers, is now competing with others such as concrete and steel, as well as, more recently, polymers.

RECYCLED PLASTIC SLEEPERS - MORE THAN 50 YEARS OF SERVICE LIFE

Polymer sleepers are made from recycled polypropylene and polyethylene and reinforced with glass fibre (granules). One hundred per cent recycled and recyclable, they combine environmental benefits with significant advantages in terms of installation and maintenance. With a lifespan of over 50 years, they are resistant to wear and tear, climatic factors, deterioration caused by insects and fungi, hazardous materials, chemicals, acids or other dangerous liquids. This longevity translates into reduced maintenance costs, which in turn means lower overall infrastructure operating costs.

Equally resistant to warping and fracturing, they guarantee a stable and reliable track structure, while retaining the same flexible properties as wooden sleepers.

Another advantage is that the extrusion process used to manufacture them means that these polymer sleepers can be produced in any length required by the customer or in long lengths of over 5 metres. Particularly light, they are easy to handle and quick to install, with no need for specialised tools.



کئی سالوں سے، جرمن سمپنی بولیمر ریلوے سلیپرز کو ڈیزائن اور مارکیٹنگ کر رہی ہے، جو لکڑی، کنگریٹ یا دھات سے بنے روایتی سلیپرز کا ایک یائیدار متبادل ہے۔

جر من کمپنی پولیمر ریلوے سلیپرز کو ڈیزائن اور مارکیٹنگ کر رہی ہے، جو ککڑی، کنگریٹ یا دھات سے بنے روایتی سلیپرز کا ایک پائیدار متباول ہے۔ یہ سلیپرز ریلوے کی حفاظت اور فعالیت میں اہم کردار ادا کرتے ہیں، ریلوں کو سپورٹ اور استحکام فراہم کرتے ہیں۔ پولیمر سلیپرز، جو ری سائیکل پولی پروپیلین اور پولی تھیلین سے بنائے گئے ہیں ان کی عمر 50 سال ہیں اور شیشے کے ریشے سے مضبوط کیے گئے ہیں، ان کی عمر 50 سال سے زیادہ ہے اور یہ پہننے، آنسو، موسمی عوامل، اور کیرٹوں، فنگی، خطرناک مواد، کیمیکڑ، تیزاب اور دیگر کی وجہ سے ہونے والے بگاڑ کے خلاف مزاحم ہیں۔ خطرناک مائع۔ وہ ملکی، مضبوط، اور پائیدار ہیں، اور گاہک کے لیے مطلوبہ کسی بھی لمبائی یا 5 میٹر سے زیادہ لمبی لمبائی میں تیار کیے جا سکتے ہیں۔ یہ ہلکا پھلکا ڈیزائن انہیں خصوصی ٹولز کی منرورت کے بغیر ہینڈل اور انسٹال کرنا آسان بناتا ہے۔









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SAFE AND AFFORDABLE DRINKING WATER THROUGH A PLASTIC BAG

محفوظ اور سستا پلاسٹکس کے تھیلے کے زریعے صسانس یانی

At first glance, the SaWa bag looks like your average blue plastic bag. However, it's far more than just packaging — it can purify contaminated water using a solar disinfection process and provide low-income communities with safe, affordable drinking water.

A SUSTAINABLE AND COST-EFFECTIVE WATER PURIFICATION SOLUTION

To make this purification process a reality, Danish company 4Life Solutions (formerly known as Solar-Sack) has improved upon its SODIS method, a simple solar disinfection concept developed in the 1980s, which is recognised by the WHO and UNICEF. While SODIS uses the sun's rays and PET bottles to make contaminated water safe, 4Life Solutions and its partner Bernhardt — which specialises in flexible plastic packaging — have designed a reusable plastic bag with innovative multilayered technology that combines durability and transparency, allowing the optimum spectrum of UV light to penetrate the water. Their SaWa bag (which stands for "Safe Water" and also means "OK" in Swahili) needs nothing more than the sun's energy to eliminate 99.99% of the dangerous pathogenic bacteria present in contaminated water.

SAWA BAG TECHNOLOGY

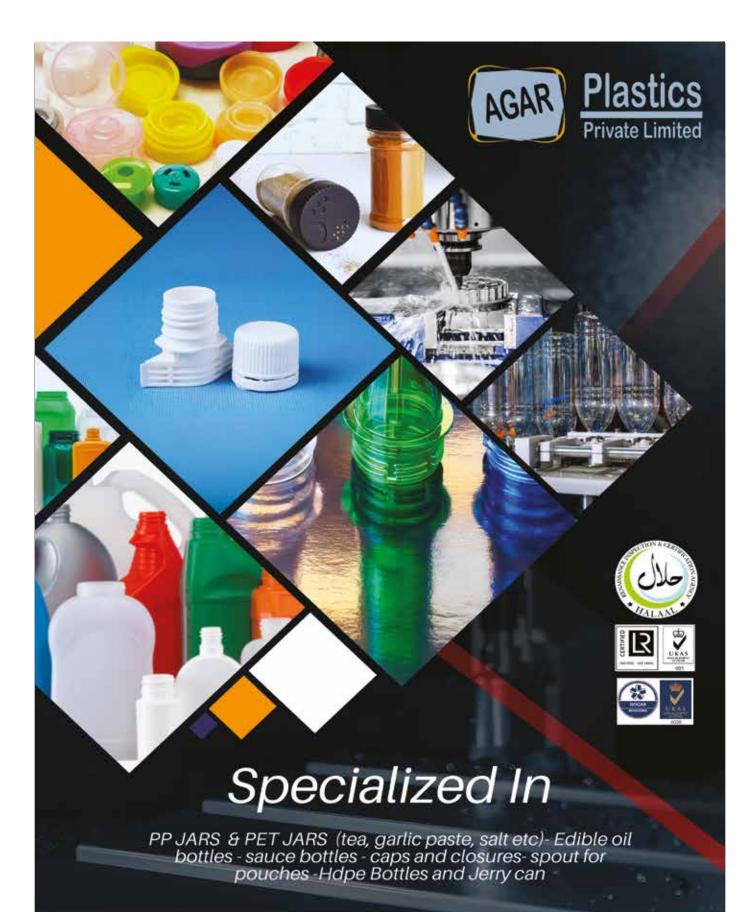
SaWa Bag's purification technology is based on PET bottles' 40-year-old Solar Water Disinfection (SODIS) process, which the World Health Organization (WHO) has endorsed as a safe way to purify water. It works by harnessing UVA and UVB rays and heat from the sun.

The SaWa bag is certified to the international safety and performance standards for water purification set by the WHO.

A huge impact on the environment and global health Across the globe, 2.2 billion people don't have access to safe drinking water. Serious diseases linked to the consumption of contaminated water, such as cholera, typhoid and dysentery, cost the lives of more than 2 million people a year.



و نمارک کی کمپنی SaWa نے 4Life Solutions بیا تیار کیا ہے، ایک دوبارہ قابل استعال پلاسٹک بیگ جو آلودہ پانی کو صاف کرنے کے لیے شمسی توانائی سے جراثیم کشی کا استعال کرتا ہے۔ بیگ، جس کا مطلب ہے "محفوظ پانی" اور سواحلی میں "اوکے" کا مطلب ہے، آلودہ پانی میں ہم9.99 بیتھوجینک بیٹیریا کو ختم کرنے کے لیے سورج کی توانائی کا استعال کرتا ہے۔ SaWa بیگر میل پر 40 مال پرانے سولر واٹر ڈس انفیکشن (SODIS) کے عمل پر میں 40 سال پرانے سولر واٹر ڈس انفیکشن (UVB شعاعیں اور سورج کی حرارت استعال ہوتی ہے۔ یہ بیگ ڈبلیو آج او کی طرف سے مقرر کردہ پانی صاف کرنے کے لیے بین الاقوامی حفاظت اور کارکردگی کردہ پانی صاف کرنے کے لیے بین الاقوامی حفاظت اور کارکردگی کے معیارات کے لیے تصدیق شدہ ہے۔ SaWa بیگ کم آمدنی والے طبقوں کو بینے کا محفوظ، سستی پانی فراہم کرنے کے لیے ماحول اور عالمی صحت پر نمایاں اثر ڈالٹا ہے۔ ماحول اور عالمی صحت پر نمایاں اثر ڈالٹا ہے۔



PROTECT OUR PLANET FROM PLASTIC POLLUTION:



An excerpt of the UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) Report:

Plastics are polluting our planet and choking our ocean, harming human health, and damaging ecosystems vital to our livelihoods. The UN Environment Programme is raising the alarm on the severity of the global plastics crisis and highlighting the networks of everyday people, coastal workers, and communities who are spearheading solutions to beat plastic pollution.

More than 430 million tons of plastic are produced each year, two-thirds of which is cast aside as waste after just one use. If trends continue, plastic waste will triple by 2060, with dire consequences for both ecosystems and human health. Eleven million metric tons of plastics enter our ocean alone each year, in addition to the estimated 200 million metric tons that already flow through our marine environments. Data from the Ocean Conservatory.

At the current rate of production, there will be more plastic than fish in the ocean by mid-century, according to Nikola

Simpson, Head of the United Nations Development Programme's Barbados and Eastern Caribbean Blue Economy Accelerator Lab.

"We just keep producing, producing, producing plastic," she says. The UN Environment Programme is determined to help the world avert such a catastrophic future. UNEP's 2023 report, "Turning off the Tap: How the world can end plastic bollution and create a circular economy," maps out a plan to reduce global plastic waste by 80% within two decades.

پلاسٹک سمندروں اور ماحولیاتی نظام کو آلودہ کر رہا ہے، انسانی صحت اور معاش کو نقصان پہنچا رہا ہے۔ اقوام متحدہ کے ماحولیات پروگرام (UNEP) نے خبر دار کیا ہے کہ اگر پلاسٹک کی بیداوار اپنی موجودہ شرح پر جاری رہی تو 2030 تک پلاسٹک سے گرین ہاؤس کی بیداوار اپنی موجودہ شرح پر جاری رہی تو 2030 تک پلاسٹک سے سالنہ 430 ملین ٹن سے نیادہ پیدا ہونے کے ساتھ، اس کا دو تہائی فضلہ کے طور پر ضائع ہو جاتا ہے۔ . اگر رجانات جاری رہے تو 2060 تک پلاسٹک کا فضلہ تین گنا بڑھ سکتا ہے، جس سے ماحولیاتی نظام اور انسانی صحت پر شدید اثرات مرتب ہوں گے۔ UNEP کی 2023 کی رپورٹ میں دو دہائیوں کے اندر پلاسٹک کے عالمی کچرے کو 80 فیصد تک کم کرنے کے ماری در ایسٹن میں دو دہائیوں کے اندر پلاسٹک کے عالمی کچرے کو 80 فیصد تک کم کرنے کے





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SELF-HEALING POLYMERS FOR FOOD PACKAGING

خود شفا مجشس پولیمر کھانے کی پیکنگ کے لیے

Self-healing polymers can revolutionize the packaging industry by significantly enhancing product durability, safety, and reliability.

The challenge of mimicking nature has long intrigued materials scientists. Natural systems have evolved remarkable abilities like self-cleaning, self-lubricating, and self-healing properties. Inspired by nature, researchers have developed synthetic materials with self-repair capabilities, marking a new frontier in material science. This effort has resulted in polymeric materials that autonomously themselves, similar to how bones regenerate or blood clots.

Food Packaging Applications

Self-healing polymers are especially promising for the food packaging sector. These materials can autonomously mend cracks or other physical damages when exposed to specific triggers such as heat, light, or certain chemicals. This capability not only helps in maintaining the integrity of the packaging but also extends the shelf life of the products contained within, ensuring food safety and reducing waste.

self-healing polymers. For instance, films made from cellulose and natura been waxes have developed to become hydrophobic and capable of self-repair after being

treated with heat or exposed to humidity. Another innovative example includes packaging films based poly(vinyl alcohol) (PVA) that incorporate nanoparticles, enhancing the material's ability to heal itself when damaged.

Manufacturing Self-Healing Polymers

Creating these advanced materials involves several even after damage.



methods like solvent casting, extrusion, layer-by-layer assembly, with the latter proving particularly effective in precisely controlling the properties and thickness of the films. This meticulous fabrication process is crucial in ensuring the functionality and effectiveness of the self-healing properties.

The potential for this technology extends beyond just practical applications; they represent a significant Recent studies have explored various applications of step toward sustainability. By reducing the need for

> frequent replacements and maintenance, these materials decrease environmental footprint of packaging solutions. The ongoing research and development in this field

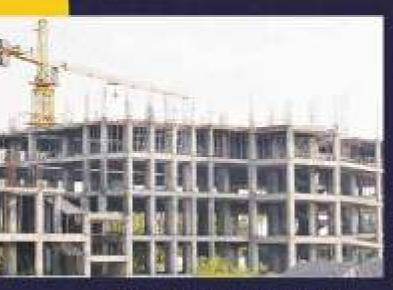
promise to optimize these materials for better performance and environmental impact. The aim is to produce smarter packaging solutions that not only self-repair but also integrate other functionalities such as active food monitoring and extended shelf life. self-healable packaging materials offer practical benefits in food product development and preservation. They can maintain food protection

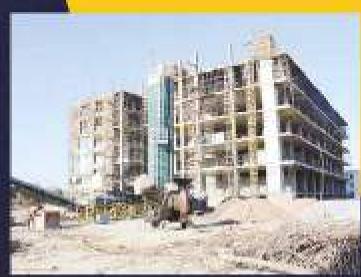
Source: Plastics engineering 185



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THE FACTS ABOUT ANTIMONY IN PET BOTTLES

اینٹیمونی کے بارے میں حت کق PET بو تلوں میں

PET has long been the most popular material for food and beverage packaging. However, antimony (Sb) has been associated with bottled water for the last 20 years. What are the facts?

Antimony in PET Production

Manufacturers frequently use antimony trioxide (Sb2O3), antimony acetate, and antimony glycolate as catalysts in PET resin production. Consequently, antimony remains in the finished products. Researchers need to conduct additional studies to determine if Antimony in PET can be an endocrine disruptor.

METHODOLOGICAL ISSUES TESTING SB:

Researchers from the University of Geneva reviewed over 192 scientific articles studying antimony in PET bottles. They identified several analytical issues in experimental design and common flaws included whether the limit of detection (LOD) of the analytical technique matched the analyte concentration. Additionally, researchers often did not use Certified Reference Materials (CRMs) with concentrations similar to the analyte.

Furthermore, almost none of the studies provided information on antimony concentration in water before bottling. Researchers often reported analyte concentration per volume, but the authors recommend reporting based on bottle surface area.

PET FACTS

Despite these methodological issues, several widely proven facts exist regarding PET and antimony presence:

HIGHER SB LEVELS ARE IN PET:

PET contains more Sb than materials like polypropylene (PP), low-density polyethylene (LDPE), high-density polyethylene (HDPE), polycarbonate (PC), and polystyrene (PS).



Storage time increases antimony concentration: Studies show that antimony concentrations in bottled water increase over time at ambient temperatures.

TEMPERATURE PROMOTES ANTIMONY RELEASE:

Researchers found that high temperatures combined with storage time favor Sb release from PET, especially above 60-70 degrees Celsius. Appropriate storage plays a main role.

FREQUENCY OF USE INCREASES ANTIMONY RELEASE:

The frequency of reuse is a major factor that linearly increases Sb leaching from PET bottles at all tested temperatures.

Sb concentrations are below regulated values: In many countries, drinking water standards no longer apply once the water is packaged. For instance, in the European Union, the maximum admissible concentration for drinking water is 5 μ g/L but 40 μ g/L for bottled water. In the U.S., the EPA regulates tap water with a maximum contaminant level of 6 μ g/L, while bottled water lacks a specific migration limit for antimony from PET packaging materials.

Source: Plastics engineering 189



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POLYMERS IN CANCER TREATMENT: INNOVATIONS AND APPLICATIONS

کینسر کے عسلاج میں پولیمر: اخت راعبات اور آلہ

In oncology, polymers have become powerful tools for boosting cancer treatment efficacy and patient compliance.

Polymers have emerged as indispensable in the realm of cancer therapy, serving both conventional and alternative treatment modalities. They deliver chemotherapeutic agents more effectively, directly targeting tumor sites while sparing healthy tissues, which significantly mitigates side effects and enhances treatment outcomes. Polymers also contribute to controlled drug release systems, diagnostics, imaging enhancements, and combination therapies, each aspect tailored to improve precision and patient outcomes in cancer care



Polymers play a key role in cancer therapy by enhancing the direct delivery of chemotherapeutic agents to tumor sites. This targeted approach boosts drug efficacy and lowers the adverse side effects associated with chemotherapy. For example, polymer-drug conjugates are designed to release their payload only in a tumor's acidic environment, protecting healthy tissues from toxic effects.

Furthermore, polymers are crucial in developing controlled drug release systems. These systems sustain therapeutic drug levels in the bloodstream over extended periods, reducing the need for frequent drug administration. Engineers can design such polymers to react to specific body stimuli—like pH or temperature changes—to release drugs at controlled rates exactly where and when needed.

Diagnostic and Imaging Enhancements

Moreover, polymers play a vital role in cancer diagnostics and imaging. Researchers can load polymer nanoparticles with imaging agents, which accumulate in tumor tissues, enhancing tumor visibility during procedures like MRI or PET scans. This



enhances the accuracy of tumor detection and monitoring, essential for effective treatment planning and assessment.

ماوراد حب راحی عسلاجیات Combination Therapies

Recent innovations also include polymers in combination therapies, delivering multiple drugs or combining therapy with diagnostic agents. This multifaceted approach not only combats cancer on several fronts but also allows for real-time treatment efficacy monitoring. Polymers carrying both chemotherapeutic agents and genetic material can attack cancer cells and correct harmful gene mutations simultaneously.

Biocompatibility and Degradability

طب بی ہم آہنگی اور انحطاط

Additionally, the development of biocompatible and biodegradable polymers has revolutionized cancer therapy. These polymers break down into non-toxic substances that the body can easily eliminate, minimizing long-term side effects and enhancing patient safety during treatment.

Polymers in cancer therapy mark a frontier in biomedical engineering, melding drug delivery, diagnostic imaging, and material science. As research progresses, the next generation of polymeric materials promises even more precise and personalized cancer treatments.



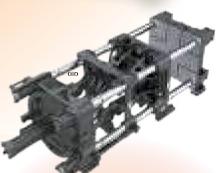


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