



R.N.I. No. MAHENG/2012/45652

# PLASTISCOPE

The Official Journal of the Organization of Plastics Processors of India

Volume No. 11

• Issue No. 4

• Mumbai

• October 2022

**OPAL DINNERWARE**

**MICROWAVE SAFE GLASS MIXING BOWLS**

**GLASS BOTTLES & JUGS**

**VACUSTEEL FLASKS**

**VACUSTEEL SPORTS BOTTLES**

**FOOD STORAGE CONTAINERS**

**MAX FRESH STORAGE CONTAINERS**

**INSULATED HOT POTS**

**GIFT SETS**

**KITCHEN APPLIANCES**

**STEEL STORAGE CONTAINERS**

**INSULATED WATER JUGS**

**PURO INSULATED WATER BOTTLES**

**MAX FRESH LUNCH PACKS**

**INSULATED & VACUSTEEL LUNCH CARRIERS**

**CLEANING**

**cello®**

**COMPANION FOR LIFE**

*Welcome to the exciting world of Cello*

*Choose from the 3000 exquisite household products from the world of Cello.*

Follow Us On:



Also available on:



Download the Cello Mobile App from



All Cello Products are made from BPA Free food grade plastic.

For Corporate Enquiries:

(West and South) Mr. Nitin - 9821459344 / (North & East) Mr. Vivek - 9911625261

Email: [cello.sales@celloworld.com](mailto:cello.sales@celloworld.com) • To know more about our range visit [www.celloworld.com](http://www.celloworld.com)

Situations/Cello/2021



TAKE THEM FOR GRANTED

# TRUST

**No.1** AT THE HEART OF A CO-ROTATING TWIN SCREW EXTRUDER



HIGH PERFORMANCE + EFFICIENCY | DESIGNED TO WORK IN PERFECT UNISON WITH THE EXISTING SYSTEM |

MADE WITH ADVANCED METALLURGY AT OUR VERY OWN STATE-OF-THE-ART FOUNDRY

TRUSTED BY OVER 6000 EXTRUDER LINES IN 40 COUNTRIES | OVER 1million EPZ PARTS SOLD

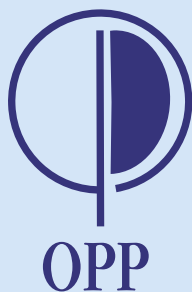
EXEMPLIFYING ENGINEERING EXCELLENCE

[www.steerworld.com](http://www.steerworld.com)

For more information write to [sanjay.shah@steerworld.com](mailto:sanjay.shah@steerworld.com) | +91 99670 49506

# FROM THE PRESIDENT'S DESK

Mr. Mahendra Sanghvi



## CONTENTS

From the President's Desk .....	3
News From India.....	26
Plastic Products .....	30
Plastic Raw Materials.....	32
Plastic Machinery.....	35
M&As/TIE-UPS/ Investments.....	39
Plant Expansions/ Set-Ups .....	42
Circular Economy/ Bio-plastics/ Recycling .....	47

Dear Members,

Greetings from Organization of Plastics Processors of India!

I hope all of you who participated in K-2022 either as Exhibitor or as Business Visitors had a successful visit including SMEs.

I feel that every person connected with Plastic Business had something to gain from K-2022.

We have represented to Department of Chemicals & Petrochemicals to increase the Customs Duty on Plastic Finished Goods to 20%. We have given details of imports of Plastic Value Added Products which are being imported in very large numbers. We will follow up regarding increase in the Customs Duty to 20% on Plastic Products very closely with Department of Chemicals & Petrochemicals, Ministry of Commerce & Industry and Ministry of Finance.

Plastindia 2023 is just two months ahead. I am certain that all of you – an Exhibitor or as a Visitor you must be preparing for participation in PLASTINDIA 2023 which is being held from 1<sup>st</sup> Feb 2023 to 5<sup>th</sup> Feb 2023.

CHEMPLAST CUDDALORE VINYLs LIMITED and DCW LIMITED have filed a Petition seeking Imposition Of Safeguard (Quantitative Restrictions) on Imports Of PVC Suspension Resins. Directorate General of Trade Remedies (DGTR) has given notice regarding Safeguard (Quantitative Restrictions) investigation concerning imports of PVC Suspension Resins with Residual VCM above 2 PPM. We had a meeting of different Associations. During this meeting it was decided to oppose Safeguard (Quantitative Restrictions) on Imports Of PVC Suspension Resins.

Our Representations and close follow -up have achieved the following results:-

- Extension of enforcement date of QCOs of 12 Petrochemicals viz. EVA Copolymers, Maleic Anhydride, Styrene, Acrylonitrile, Polyethylene Material For Moulding And Extrusion, LAB, FDY, POY, PSF, IDY, PSY, Synthetic micro - fibres for use in cement based matrix.
- Extension of enforcement date of Quality Control Orders of 6 Petrochemicals viz. (i) Acrylonitrile Butadiene Styrene (ABS) (ii) Ethylene Dichloride (EDC) (iii) p-Xylene (iv) Polycarbonate (v) Polyurethanes and (vi) Vinyl Chloride Monomer

With Best Wishes,

**Mahendra Sanghvi**  
President

Printed, Published and Edited by:

**DEEPAK LAWALE** on behalf of **ORGANIZATION OF PLASTICS PROCESSORS OF INDIA**, Printed at **DESIGN WORLD CREATIONS**, Unit No. 204, A-Wing, Suashish IT Park, Off. Dattapada Rd, Borivali East, Mumbai - 400 066 and Published from ORGANIZATION OF PLASTICS PROCESSORS OF INDIA, 404/405, Golden Chambers, New Link Road, Andheri (West), Mumbai 400 053.

Editor: **DEEPAK LAWALE**



# DRYING AT THE HEART *of it* ALL

Bry-Air Knows Drying Best

Waterless Plastic  
Desiccant Dryer



Plastic  
Desiccant Dryer



Nano  
Desiccant Dryer



Mould  
Dehumidification  
System



**BRY-AIR (ASIA) PVT. LTD.**

21C, Sector-18, Gurugram – 122015, Haryana, India  
bryairmarketing@pahwa.com

Toll Free  
**1800 102 7620**

Social Connect



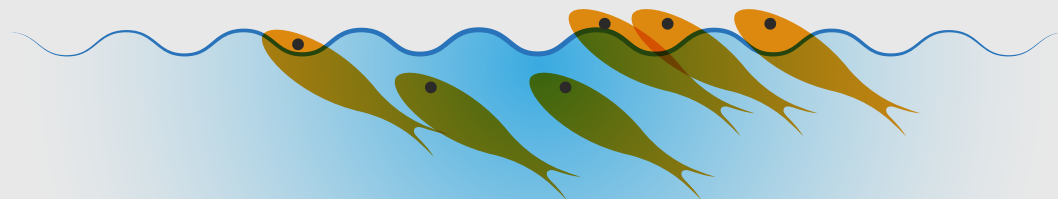
Overseas Offices: Malaysia • China • Switzerland • Brazil • Nigeria • Vietnam • Indonesia • Philippines • Korea • Japan • UAE • Saudi Arabia • Bangladesh • USA • Canada

PDE/PDE Range/2022-23





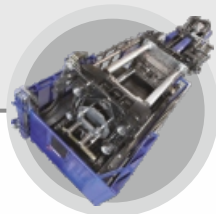
**FUTURE  
 NEXT**  
 We are future ready to  
 make it possible.



There's a bit of Windsor  
 in your **EVERYDAY LIFE.**

At Windsor, we stay ahead of the curve and constantly strive to be the frontrunner in enhancing the future of our customers. Our latest generation machines are a perfect blend of highest quality and superior performance.

With an impressive installation base of over 30000 machines, we have our presence in more than 65 countries.



INJECTION MOULDING MACHINES



PIPE EXTRUSION LINES



BLOWN FILM CO-EXTRUSION LINES



**WINDSOR MACHINES LIMITED**

Corp. Off.: Plot No. 5402 - 5403, Phase-IV, GIDC Vatva, Ahmedabad - 382 445. Gujarat, (INDIA).

Phone: +91 79 2584 1591/2/3, 3500 2700 | [info@windsormachines.com](mailto:info@windsormachines.com) | [www.windsormachines.com](http://www.windsormachines.com)

UNISON



**( AN AMERICAN LEGEND )**

**140+ YEARS OF EXPERIENCE**

**160+ PATENTS**

**200+ HONORS**

**YIZUMI PRECISION MACHINERY (INDIA) PVT. LTD.**

Address: Plot No: 7 Maha Gujarat Industrial Estate, Moraiya Patia,  
Ahmedabad-382210. Gujarat  
Tel:+91 9099906175

Email: [imm@vizumi.com](mailto:imm@vizumi.com)

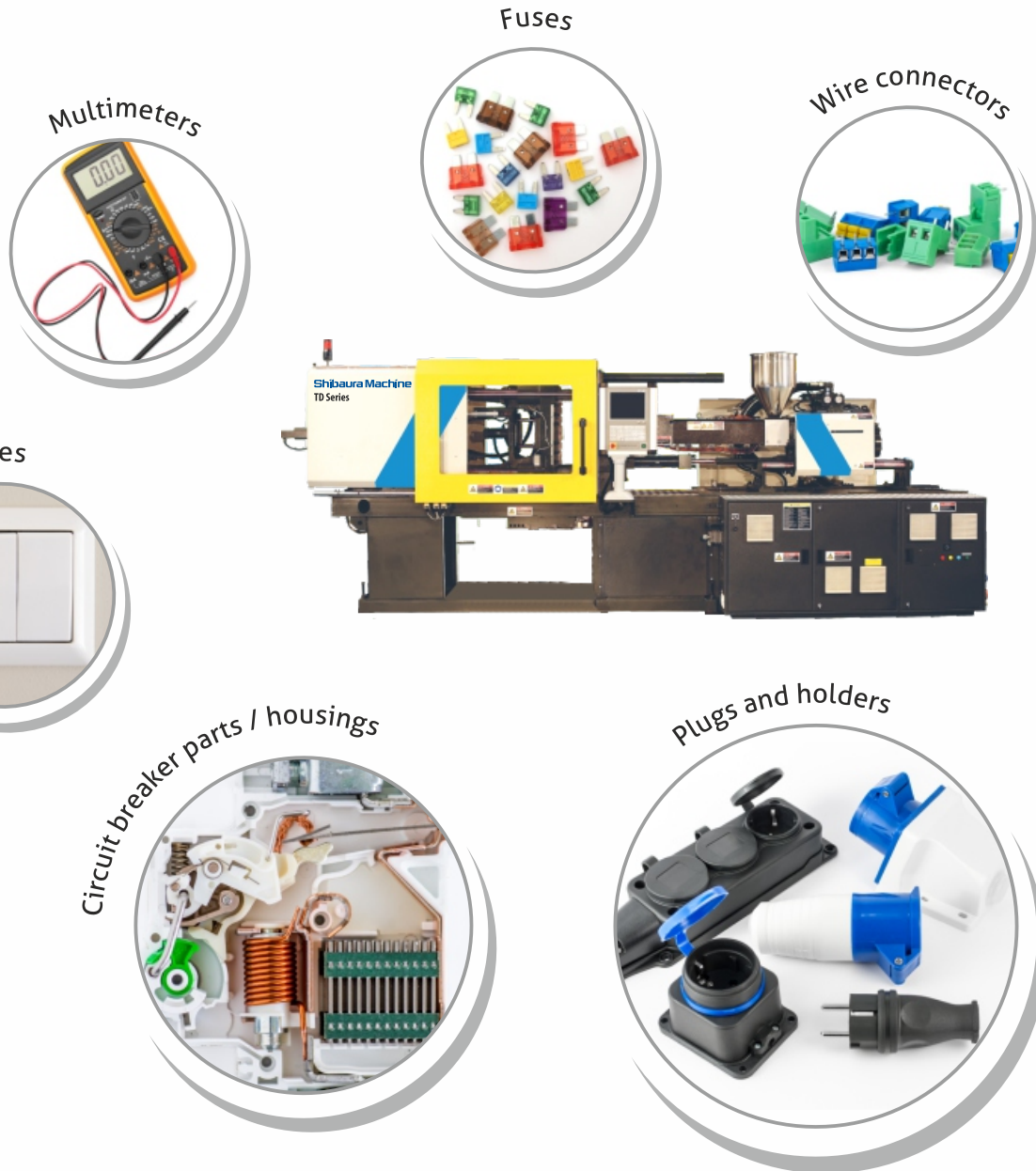
Website: [www.vizumi.com](http://www.vizumi.com)



## Safety matters

### IN ELECTRICAL PRODUCTS MOULDING

TD range of Five-point twin toggle injection moulding machines from 60 - 1300 T




**SHIBAURA MACHINE INDIA PRIVATE LIMITED**

**| Injection moulding machines | Die casting machines | Machine tools | Industrial robot | Auxiliary equipment**

Factory and head office: 65 (PO Box No. 5), Chennai - Bangalore Highway, Chembarambakkam, Poonamallee Taluk, Chennai - 600123.  
Tollfree: +91-9150063555 Email: sales@shibauramachine.co.in Web: <https://www.shibauramachine.co.in>





# Ultra Purge™ speeds up color changes, removes carbon and reduces scrap

Chem-Trend's Ultra Purge™ extracts the material residues that build-up in hot runner systems and cause hang up spots in injection molded parts, weeks after a color change. It can also pull carbon chunks, cut production downtime and scrap by half, compared to the purge compound used previously.

Switching to Ultra Purge™ can boost efficiency, clean the screw and barrel and reduce costs. Chem-Trend has invested extensively in R&D to develop grades of Ultra Purge™ that are compatible with a wide range of hot runner technologies, supplied by world leaders.

**Toll-free number : 1800-123-8586**

 **Chem  
Trend**

*Release Innovation™*

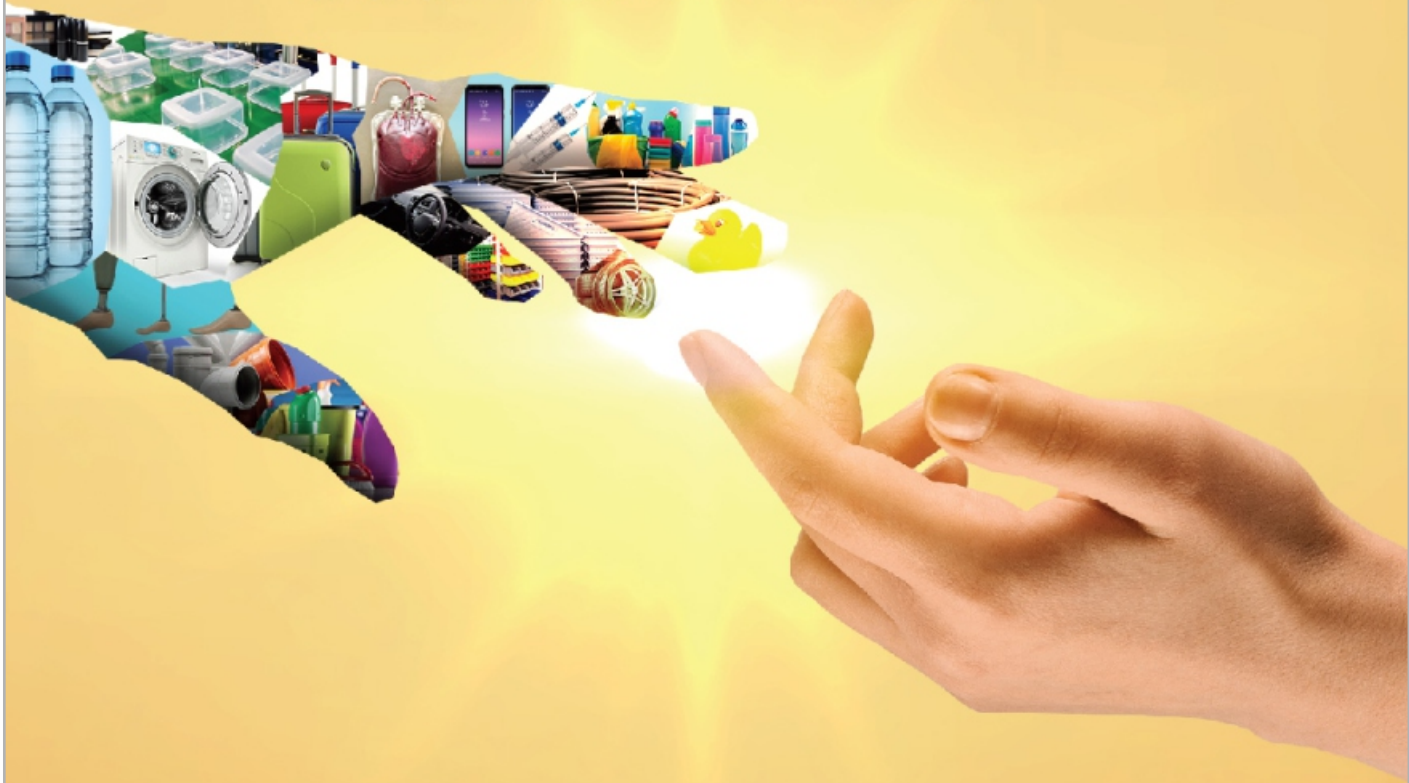
a brand of  
 **FREUDENBERG**

**Visit us at: [in.chemtrend.com](http://in.chemtrend.com)**

# TOUCHING THE FRONTIERS OF AN EXCITING FUTURE

Look around you. Most critical and necessary items related to healthcare, agriculture, industry, piping, packaging and other product areas showcase the infinite amount of applications of Reliance Polymers in our lives.

In fact, we strive to aid in creating ideas and products to enhance the quality of your everyday life. **Sustainably and Responsibly.**

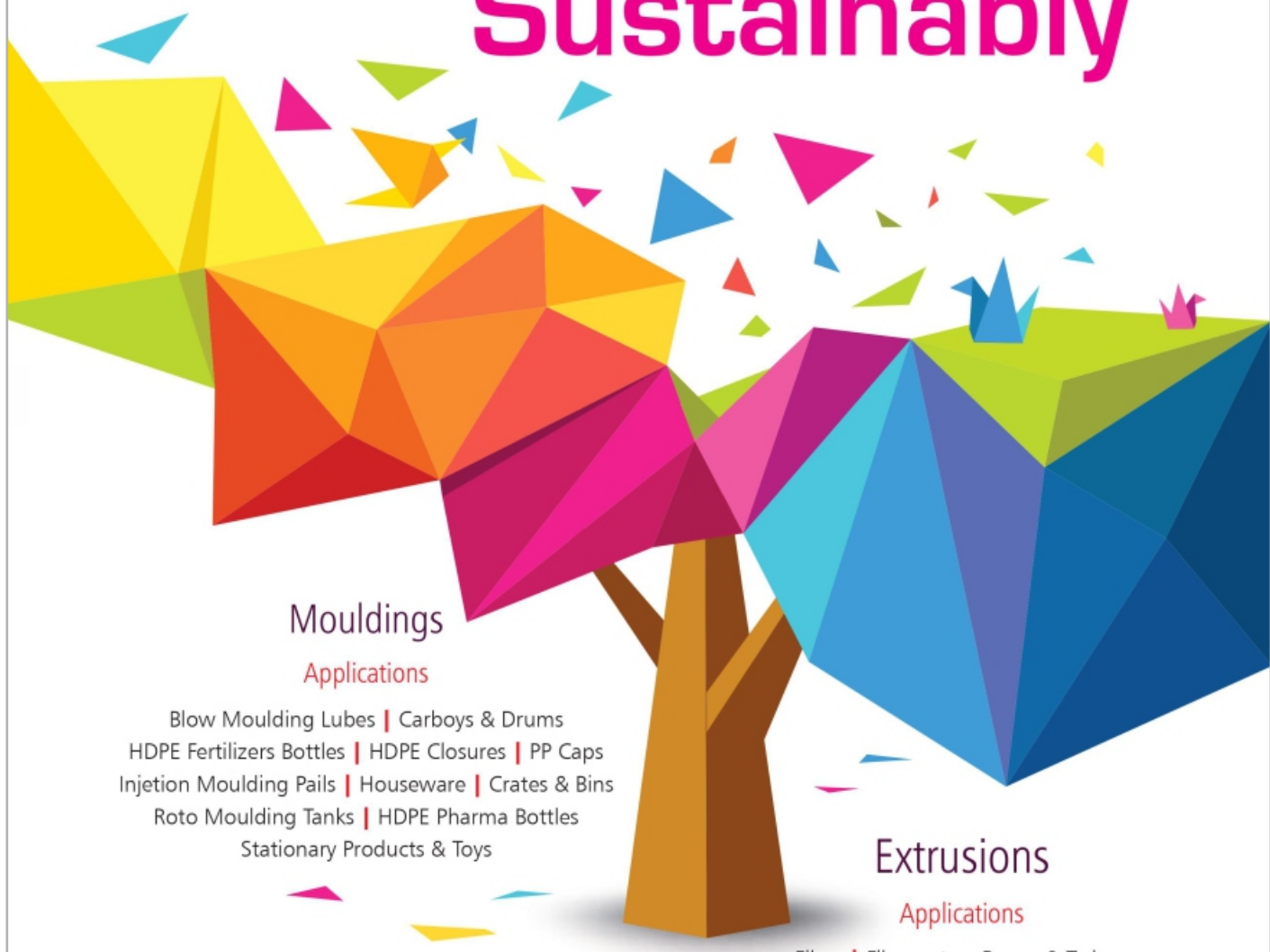


[www.ril.com](http://www.ril.com)



**Reliance**  
POLYMERS

# Meeting Your Needs of Colour Sustainably



## Mouldings

### Applications

Blow Moulding Lubes | Carboys & Drums  
HDPE Fertilizers Bottles | HDPE Closures | PP Caps  
Injection Moulding Pails | Houseware | Crates & Bins  
Roto Moulding Tanks | HDPE Pharma Bottles  
Stationary Products & Toys

## Extrusions

### Applications

Films | Filaments :- Ropes & Twines  
Shadenet & Fishing Nets | Leno Bags  
Wovensacks & Tarpaulins | Hdpe & PPR Pipes  
Wires & Cables

**Welset Plast Extrusions Pvt Ltd**  
Arvind Mehta Group Company

8, New Metalage Industrial Premises,  
Subhash Marg, Off Caves Road,  
Jogeshwari (E), Mumbai 400 060.  
INDIA

T : +91-22-2821 5734, 2838 7054  
F : +91-22-2838 1088  
E : info@welset.com  
W : www.welset.com





(An ISO 9001:2015 Certified Organization)

# Grind It For Better Recycling!

For better recycling, you need to cut the parts to optimum size with minimum dust and fines. Our granulators are designed to achieve these objectives while covering a wide range of applications such as sprues, runners, parts, preforms, bottles, jars, sheet and profile. Available in capacity ranges from 20 kg/hr to 300 kg/hr, these granulators can be used beside the machine for on-line or off-line installation.



- Minimum noise and dust
- Scissor like cutting
- Reversible counterknives
- The screen has a surface corresponding to 50% of the rotary diameter
- Hinged screen-holder
- "No-tools" access
- Compact construction
- Hopper suitable for manual and conveyor belt feeding
- Safety interlocks

### Nu-Vu Conair Pvt. Ltd.

Plot No. 147, 148 & 154, Devraj Industrial Park, Piplaj-Pirana Road, Piplaj, Ahmedabad - 382 405, Gujarat, INDIA.

E: [marketingindia@conairgroup.com](mailto:marketingindia@conairgroup.com) | W: [www.conairgroup.in](http://www.conairgroup.in)

+91 79 2970 8147 | +91 97129 28201 | +91 90990 76206



buildbrand - +91 9426051465

# Asia's No. 1 Promising Brand

## Rotational Moulding Machinery & Moulds Manufacturer



Visit us



Hall-12, D81



E-mail : [ria@naroto.com](mailto:ria@naroto.com), [marketing@naroto.com](mailto:marketing@naroto.com) | Url : [www.naroto.com](http://www.naroto.com)












Redefining the Future

# FUELLING INDIA'S POLYMER FUTURE

OPal is fuelling the next revolution in Petrochemicals as one of Asia's largest Greenfield petrochemical complexes. Through in-depth insight, latest technology and robust infrastructure, it is poised to become a key player in the growth of polymer industry and address its increasing global demand across a wide range of consumer goods from packaged foods to automobiles.



 HDPE Dedicated (340kTPA)	 HDPE / LLDPE Swing (720kTPA)	 Polypropylene (340 kTPA)	 Benzene (150 kTPA)	 Butadiene (115 kTPA)	 PyGas (165 kTPA)	 CBFS (70 kTPA)
--	--	--	--	--	--	--

## ONGC Petro additions Limited

Reg. Off.: 4<sup>th</sup> Floor, 35, Nutan Bharat Co-operative Housing Society Limited, R. C. Dutt Road, Alkapuri, Vadodara - 390007, Gujarat, India.

[www.opalindia.in](http://www.opalindia.in)



## CALENDAR FOR 2022- 2023



### Organization of Plastics Processors of India

#### **Vietnam Plas 2022**

23<sup>rd</sup> to 26<sup>th</sup> November 2022  
Saigon Exhibition Center,  
Vietnam

#### **Myanmar PlasPrintPack 2022**

9<sup>th</sup> to 12<sup>th</sup> December 2022 Yangon  
Convention Center (YCC)  
Myanmar

#### **IPF Bangladesh 2023**

22<sup>nd</sup> to 25<sup>th</sup> February 2023  
International Convention City  
Bashundhara

#### **OMAN PLAST 2023**

29<sup>th</sup> to 31<sup>st</sup> May 2023  
Oman Convention & Exhibition  
Center

#### **Hanoi Plas 2023**

8<sup>th</sup> to 11<sup>th</sup> June 2023  
ICE, HANOI VIETNAM

#### **Plexconnect 2023**

15<sup>th</sup> to 17<sup>th</sup> June 2023  
NESCO, Mumbai

**Contact: Deepak Lawale, Secretary General,  
Organization of Plastics Processors of India**

404/5, Golden Chambers, New Link Road, Andheri (West), Mumbai 400 053 INDIA,

Tel: +91-22- 66923131/ 6692 3132 Fax: +91-22-2673 6736.

E-mail [secretarygeneral@oppindia.org](mailto:secretarygeneral@oppindia.org); Website: [www.oppindia.org](http://www.oppindia.org)

**SERVICES OFFERED BY OPPI**





Organization Of  
Plastics Processors Of India



# ADVERTISEMENT IN OPPI DIRECTORY 2023



With the fast changing business environment and the growing competitive world, it becomes important for all those connected with the Plastics Industry to increase the visibility of their activities.

Organization of Plastics Processors of India will be publishing Membership Directory 2023. The directory will be distributed to all OPPI members, Plastic Associations in India, Major Chambers of Commerce and Industry/Industry Associations in India and abroad, Trade Promotion Organizations, Financial Institutions and Diplomatic Missions.



## Unique features associated with OPPI Directory 2023:-

- OPPI Directory distributed in all International exhibitions promoted by OPPI. Advertisers get noticed by the importers in various countries.
- Advertisement in OPPI Directory gives wide publicity to products and services of advertising company.
- MNCs setting shop in India refer to OPPI Directory for outsourcing their requirement of plastic products from India.
- Multi-national Retail Chains refer to OPPI Directory for outsourcing their requirements of plastics based goods; flexible packaging material etc.

Advertisement tariff, mechanical data pertaining to printing of the advertisements, terms and conditions and advertisement booking form are attached herewith.



Please fill up the advertisement booking form attached herewith and email its scanned copy to [secretarygeneral@oppindia.org](mailto:secretarygeneral@oppindia.org)

Please fill up the Registration Form attached herewith and send to:-

**Secretary General, ORGANIZATION OF PLASTICS PROCESSORS OF INDIA**

404/405, Golden Chambers, New Link Road, Andheri (West), Mumbai – 400053. INDIA  
Tel.: +91-22-66923131/32 | Email: [secretarygeneral@oppindia.org](mailto:secretarygeneral@oppindia.org) | Web: [www.oppindia.org](http://www.oppindia.org)



# ORGANIZATION OF PLASTICS PROCESSORS OF INDIA

## OPPI DIRECTORY - 2023

### TARIFF FOR ADVERTISEMENT

Sr. No.	Position	Indian Companies (Rs.)	Overseas Companies (US \$)
<b>(II)</b>	<b>REGULAR PAGES</b>		
1	Full Page Coloured	Rs.18,000/-	US\$ 400
2	Full Page B/W	Rs.12,000/-	US\$ 250
3	Book Marks (4. Nos.)	Rs. 30,000/-	US \$ 1000
4	Multi-Coloured Wrapper Strip (44 cms. length X 10 cms. Width)	Rs. 20,000/-	US\$ 640

**GST @ 18% will be applicable**

**GST Registration No. 27AAATO0364M1ZD**

#### Mechanical Data

##### PRINT AREA

Overall Size : 205 mm. (width) X 280 mm. (height)

Print Area : 185 mm. X 265 mm.

CD ROM HTML Format

##### For The Front Cover Only

Print Area:-205 mm. (width) X 235 mm. (height)

#### TERMS & CONDITIONS

1. Artwork for the advertisement should be in JPG/ Coral Draw/ Pdf format.
2. Art work should be sent to "Organization of Plastics Processors of India" at the earliest.
3. Advertisement charges once paid will not be refunded.
4. "Organization of Plastics Processors of India" reserves the right to accept or reject the advertisement.
5. All Government taxes as applicable are chargeable extra.
6. Advertisers in the Directory may please note that the advertisement can be incorporated in the CD Directory also, provided we get the matter on HTML FORMAT, or any other "Window Picture". Size of advertisement will be restricted to the size of the advertisement given in the paper Edition of directory.
7. The payment for Advertisement can be made directly in our Bank Account.  
Our Bank Details are as given below:-

<b>BENEFICIARY ACCOUNT NAME</b>	<b>ORGANIZATION OF PLASTICS PROCESSORS OF INDIA</b>
<b>Bank Name</b>	<b>AXIS BANK LTD.</b>
<b>Branch Name</b>	<b>SPRINGFIELDS BRANCH, FIRST FLOOR, GREENVILLE CHS LTD, OPP. SAMARTH VIBHA, LOKHANDWALA COMPLEX, ANDHERI (W), MUMBAI- 400053.</b>
<b>Account Number</b>	<b>415010100006330</b>
<b>I.F.S.C Code for the Branch</b>	<b>UTIB0000415</b>
<b>SWIFT Code</b>	<b>AXISINBB415</b>

## LEARNING PLATFORMS

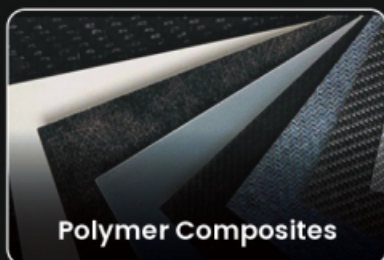
CLASSROOM  
ONLINE

CLASSROOM  
LIVE

CONFERENCE  
WORKSHOP

CORPORATE  
IN - HOUSE  
TRAINING

## COURSES OFFERED



## OUR FACULTY



**PROF. (DR.) D. D. KALE**  
B. Tech., M. Chem. Engg., Ph. D.

Chancellor,  
Polymerupdate Academy



**DR. SHREEKANT PATIL**  
B. Sc.(Chemistry), B. Sc.(Tech.), M. Sc.  
(Tech.), Ph. D.(Tech.), DBM, DIM, C. Engg.

Faculty  
Polymerupdate Academy



**DR. ANANT SARABHAI JHAVERI**  
Bachelor of Chemical Engineering  
(B. Chem. Engg.), Ph.D (Tech.)  
Chemical Engg

Faculty  
Polymerupdate Academy



**PROF. V. KANNAN**  
B.Sc. (Chemistry), M.Sc. (Applied Chemistry  
- Spec. in Polymer science & Technology),  
M.S (Chemical - High Polymer Engineering)

Faculty  
Polymerupdate Academy



**NISHIKANT SHANKAR PRADHAN**  
Bachelor of Science (B.Sc.)

Faculty  
Polymerupdate Academy



**PROF. V. N. RAJASEKHARAN PILLAI**  
M.Sc., Ph.D.

Faculty  
Polymerupdate Academy



Ms. Shreyal Dhume  
+91 8104 136 372



Mr. Fabin John  
+91 9987 270 570



Mr. Vaibhav Kamble  
+91 8898 660 692

## Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.

Seminar on – “**Crucial Role of Maintenance in Plastics Processing Industry**” was held on 29th September 2022 at The Club, Mumbai.

At the inaugural session, Mr. Hemant Minocha, Chairman, Plexconcil and Director Rajiv Plastic Industries Ltd. was the Guest of Honour.

Mr. Deepak Lawale while welcoming the delegates mentioned that the earlier editions of the Seminar on -“Crucial Role of Maintenance in Plastic Processing Industry” were held in Mumbai, Daman, Chennai, Hyderabad, Ahmedabad, Kolkata & Bengaluru. This is a certificate of the usefulness of the Seminar.

Mr. Hemant Minocha in his address gave details of the exports of Plastic Products and also potential to boost exports of the value added Plastic Products from India. He also gave details of PLEXCONNECT 2023.

During the Seminar the following Presentations were made;

**Mr. C.K. Vijayan, Shibaura Machine India Private Limited** made a Presentation on “Best maintenance practices to improve productivity & reliability of injection molding machines”

### **Synopsis of the Presentation**

- Everywhere manufacturing industry struggles with the challenge of providing operational capacity to their organization.
- Maintenance strives to accomplish this by increasing the reliability of the equipment through effective Maintenance practices.
- Upon successful implementation & practice , the user can reap the benefit of reduced down time of machine leading for increased productivity in the manufacturing organization.

**Mr. Abhinav Shah, Madhu Machines & Systems Pvt. Ltd.** made a Presentation on “Innovative Processing Solutions for improving efficiency with cost optimization”

**Mr. Avinash Anand, Thingstel Tech Solutions India Pvt. Ltd.** made a Presentation on “IoT enabled Asset Management”



# Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.



**Mr. Deepak Lawale,  
Secretary General, OPPI commencing  
the Seminar proceedings.**



**Mr. Hemant Minocha,  
Chairman Plexconcil was the Guest  
of Honour at the inaugural session.**



**A section of the Delegates.**



**Lighting of the Traditional Lamp by  
Mr. Manu Bhargava,  
Chief Engineer, ExxonMobil Lubricants  
Private Limited.**



**Mr. C.K. Vijayan,  
Export Customer Service Team-  
Shibaura Machine India Private Limited  
Making His Presentation.**



**Mr. Abhinav Shah,  
Senior Manager Application And  
Customer Support- Madhu Machines  
& Systems Pvt. Ltd.**

# Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.



**Mr. Deepak Lawale,  
Secretary General, OPPI presenting a  
memento to Mr. Hemant Minocha.**



**(Centre) Mr. T.S. Rajan, Session Chairman  
with Speaker (Left) Mr. Surendra Lavate,  
Mr. Manu Bhargava , and (Right)  
Mr. Viral Patel , Mr. Avinash Anand**



**Banner of The Shakti  
Plastics Industries**



**Mr. M. Srinivasan,  
Senior Manager –Technical,  
Wittmann Battenfield India making  
his presentation**



**Mr. Avinash Anand,  
Production Engineer, Thingstel  
Tech Solutions India Pvt. Ltd.  
making his presentation.**



**Delegates in full attention.**

**Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.**



**Mr. Nilesh Jadhav,  
Senior Manager- Customer Support,  
Milacron India Private Limited  
making his presentation.**



**Delegates putting their Lucky  
Draw Coupons in the box.**



**Mr. Gajendra Singh Negi,  
General Manager Operations,  
Nu Vu Conair India Pvt. Ltd.  
making his presentation.**



**Mr. Paresh Rathi,  
Regional Manager, Milacron India Pvt.  
Ltd. reading out the name of  
Lucky Draw Winner.**



**(From Left to Right) Mr. Gajendra Singh Negi,  
General Manager Operations, Nu Vu Conair India Pvt. Ltd.,  
Mr. Jayesh Mehta, Regional Manager, Prasad Gwk Cooltech  
Pvt. Ltd and Mr. Aniket Gavas, Business Development  
Manager And Sustainability Head- The Shakti  
Plastic Industries.**



**Mr.Arvind Kumar Chaudhary,  
Windsor Machines Ltd.  
receiving a gift from Mr. Paresh Rathi,  
Regional Manager, Milacron India Pvt. Ltd.**



## Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.

### Synopsis of the Presentation

- Digitization is the order of the day and a combination of IoT (Internet of Things) devices and cloud computing solutions offers a number of possibilities to the manufacturing sector to become more efficient. For the maintenance division, keeping their assets running is crucial and our solution offers a number of advantages to improve the availability of machines.

**Mr. Surendra Lavate, B&R Industrial Automation Pvt. Ltd.** made a Presentation on "Product Life Cycle Management & Efficient Working of your Machine Asset"

### Synopsis of the Presentation

- What is Product Life Cycle?
- What is Obsolescence and why?
- How to Manage Product life cycle – Spare Parts and Upgradation?
- Periodic Plant Audits to assess install base health?
- Remote diagnostics and Fault finding
- B&R support and services

**Mr. Viral Patel, Bosch Rexroth (India) Private Limited** made a Presentation on "Selection of Efficient & Reliable Drive System for Injection Molding Machine – Futuristic Digital Technology for IMM with Predictive Analytics"

### Synopsis of the Presentation

- Selection Criteria for Efficient & Reliable system for Injection Molding machine (IMM).
- Energy efficient and connected Drive solution for IMM.
  - a. Pump Based control – SYDFEE, A10VZO etc.
  - b. Drive based control – Servo Motor & Drive Package.
- Basic functionality of Sytronix solution (Servo solution)
- Application based selection of Drive Package to improve the Reliability, Energy efficiency & Machine Productivity.
- Digital solution and Components – Like Prop. valve (Field Bus IFB/IAC), CytroBox, CytroPac, - IoT ready, Predictive Analytics solution for Plastics & Rubber machine

## Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.

**Mr. Manu Bhargava, ExxonMobil Lubricants Private Limited** made a Presentation on "Advancing Productivity through MobilServ suite of services in Plastics sector"

### Synopsis of the Presentation

- Mobil Serv<sup>SM</sup> provides the lubrication solutions needed to enhance equipment life and reliability while minimizing maintenance downtime and costs.
- Mobil offer a full suite of lubricants for plastic industry, from hydraulic oils, gear oil, compressors to greases. We also offer a comprehensive range of analytic support programs as our MOBIL SERV suite of services.
- Mobil expert engineers inspect critical equipment systems for abnormal operating conditions, evaluate on - site conditions, and provide recommendations and corrective actions. Mobil Field Engineering Service (FES) team provides a thorough system inspection and lubricant purification to help you reduce operational costs and maximize equipment productivity.

**Mr. Manu Bhargava , ExxonMobil Lubricants Private Limited** made a Presentation on

### Synopsis of the Presentation

- Professional advice on sound lubrication practices, optimizing lubricant performance, and equipment troubleshooting; plus systems inspections and proactive monitoring through state of art Mobil Serv Lubricant Analysis (MSLA) which is specifically tailored for the plastics industry to gauge critical indicators in used oil, the MSLA program delivers the knowledge you need to better understand your company's lubricants and equipment.

**Mr. M. Srinivasan, Wittmann Battenfeld India** made a Presentation on "Advancements in the Ease of Robot Programming for Injection Molding Machines".

### Synopsis of the Presentation

- "Need of the Automation in several Industries has given a way to develop innovative & User -friendly flexible programming on Automation. This presentation throws an insight of Programming possibilities, Integration of Peripheral equipment's, associated sub - assemblies together with part programming & Insert placing programs, Wittmann Robots programming has advanced features which are future ready, User friendly, Intelligent features to handle complex parts, critical applications in ease."

## Seminar on – "Crucial Role of Maintenance in Plastics Processing Industry" held on 29th September 2022 at Mumbai.

**Mr. Nilesh Jadhav, Milacron India Private Limited** made a Presentation on "Managing of Ageing Plants"

### **Synopsis of the Presentation**

- Definition of Ageing Plant
- Assets of Organization
- Handicaps of Ageing plants
- Managing the Ageing Plants: Where to begin
- Eliminate inefficiency
- Improving OEE
- Key indicators
- Management of Ageing

**Mr. Gajendra Singh, NU-VU CONAIR PVT. LTD** made a Presentation on "Shop Floor Leadership"

**Mr. Aniket Gavas, THE SHAKTI PLASTIC INDUSTRIES** made a Presentation on "Plastic Recycling / Notification for PWM / EPR Services Under Plastic Waste Management"

### **Synopsis of the Presentation**

- Current scenario of Stakeholders involved in the Plastic Packaging supply chain.
- The EPR amendments and the way forward making the policy more stringent.
- Accountability and impact verifiability : integral to the creation and use of EPR credits
- Standardization : on the functional aspects in the whole operation for this framework
- Nuances of reaching a robust mechanism for collection, recycling, reuse credits, especially in light of categories listed in EPR?
- Involvement of the PIBO/ 3rd party Auditors from their part to verify the traceability and chain-of-custody documentation
- Sustainability on paper is a green washed business but deriving the practices is the whole concern about - from the policymakers and the stakeholder's point of view.





## NEWS FROM INDIA

### Deepak Mishra Takes Over As Joint Secretary- Department of Chemicals & Petrochemicals



Shri Deepak Mishra, Indian Forest Service (IFS), 1996 batch Kerala Cadre has taken over as Joint Secretary- Department of Chemicals & Petrochemicals. He worked in Kerala State Forest Department in various field postings.

Shri Mishra also worked as Faculty Member in Indira Gandhi National Forest Academy (IGNFA). Before joining Department of Chemicals and Petro-Chemicals as Joint Secretary, he was working as Secretary, Indian Council of Forest Research and Education in Dehradun. The Academic background is Master of Science in Physics from IIT, Kanpur.

### Reliance Industries Develops Compostable and Bio - Degradable Polymer – Polybutylene Adipate Terephthalate

Reliance Industries Ltd (RIL) has developed a bio - degradable and compostable polymer – Polybutylene Adipate Terephthalate (PBAT), to replace fossil fuel - based raw materials with a sustainable substitute, in the wake of the ban on single-use plastic (SUP) in India.



Developed for a niche application, RIL is producing PBAT currently on a pilot basis and expects to commercialize it soon. The development of PBAT has attracted a paltry investment. According to a company official, its capacity can be ramped up without any significant fresh investment. “The pilot project is expected to complete soon. After that, the commercial sales of PBAT would begin. PBAT capacity can be expanded any time

depending upon the actual demand from the user industries,” said the official.

RIL has developed and scaled up to pilot a novel process of PBAT. Different grades and varied melt viscosities of PBAT showed good performance in terms of physical and mechanical properties. The developed grades were also compounded with various fillers for ease of downstream processing and enhancing product properties required for applications in flexible as well as rigid packaging, and agriculture mulch films, among others.

RIL said in its Annual Report 2021 - 22 ----- “Novel bio - compostable net - bags have been developed through a net-extrusion process using PBAT polymer blends / compostable. The process optimization and development have been carried out on conventional downstream machines with high output and minimal loss of material in processing. It offered a cost - competitive product for a green packaging solution for the fruit and vegetable (F&V) sector. The developed net-bags are easy and convenient to use and have good weight carrying capacity.”

According to RIL, these net-bags are ideal for leafy vegetables, as they maintain freshness for a longer time. This development is important in view of the replacement of SUP with sustainable materials. Further, the R&D team is working on different variants of net bags for different weight carrying capacities to target applications other than the F&V sector.

“Global downstream demand of polymers is likely to improve amidst easing of Covid - 19 restrictions, improvement in mobility, consumer sentiments, and large economic stimulus programmes worldwide. The momentum in transportation fuel is also likely to pick up pace as the global economy returns to the pre - Covid level. Polymer demand is expected to be strong, driven mainly by the growth in healthcare, e-commerce, packaging, durables, auto and infrastructure segments,” said the annual report..

The annual report further added, “Growth in the downstream polyester chain market is also expected to remain steady, making it possible to achieve higher operating rates. Although post-pandemic re-opening of the global economy is expected to provide further demand growth, however rising inflationary pressures on account of the ongoing geopolitical events and fears around economic slowdown could impact near-term demand outlook.”

Additionally, RIL has also developed green polyolefin products – EcoRepol (green polypropylene) and EcoRelene (green polyethylene). Trial runs are currently on for various applications of these products. RIL's recently developed new generation air impermeable functional polymer can be used as puncture-proof inner lines for automotive tyres. By preventing tyre punctures, it will ensure more safety for vehicles on the move. The product will add value to next-generation electrical vehicle (EV) vehicles and contribute to net carbon zero economies.

These developments assume significance in terms of the ban on SUP items. After phasing out ultra - thin SUP items from October 1, 2021, the government of India enforced the Plastic Waste Management Rules 2021 under which the manufacture, import, stocking, distribution, sale, and use of several items categorized as SUP products have been banned with effect from July 1, 2022. The list of banned products also includes earbuds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice cream sticks, polystyrene (thermocool) for decoration, plates, cups, and glass, among others.

For effective implementation of the ban, the government has decided to impose a penal action on violators with a fine of up to Rs 100,000 and a jail term of up to 2 years or both. Also, the government has mandated Extended Producers'

Responsibility (EPR) for identifying producers of plastic products and fixing their roles in the entire value chain until circularity.

---

### Thermochromic Masterbatches From Kandui

Kandui has developed Thermochromic masterbatch, a kind of additive masterbatch which brings reversible colour changing properties to the fiber or moulded items. These masterbatches have an activation temperature. The end product will be in a bright color at room temperatures & turns colourless or white above the activation temperature. This property is utilised in the unique coding of fabrics and other moulding items, adding a security feature for the original branding.

In addition to this it is also used in various toys & stationary products.

---

### Acquisition of Palvi Masterbatches by PI Polyblendz Pvt. Ltd.

PI Polyblendz Pvt. Ltd. is a specialized producer of custom engineering plastics compounds of PA, PBT, PC, ABS, PP, PPO etc. used in many industrial applications. It is 100% privately owned with a capacity of 12,000 MTPA for engineering plastics, in its state-of-the-art facility in Vadodara, Gujarat.



As a part of its business growth plan to cater to the masterbatches industry, we are happy to announce 100% slump acquisition of Palvi Masterbatches of black white filler and additive masterbatches for the packaging, pipe and automobile industries.

The acquisition will boost the product portfolio, manufacturing capabilities and PI Polyblendz will be able to serve its customers with a wide range of products.

### Ground - Breaking Ceremony for New Manufacturing Facility of Nu-Vu Conair Pvt. Ltd.

Nu-Vu Conair Pvt. Ltd., one of the leading manufacturers of Plastic Auxiliary Equipment in India organized a ground - breaking ceremony for its new manufacturing facility in Ahmedabad (Gujarat). The ceremony took place on 27 th Sep and the event was graced by Mr. Filippo Zuppichin (CEO, Piovan Group), Mr. Kirk Winstead (CEO, IPEG Inc), Mr. Davide Cappellini (CTO, Piovan Group) and the Indian Management Team of Nu-Vu Conair.

This will be the third greenfield facility of the company that will come up on the recently acquired 75,000 sq. ft. land adjacent to the current factory in Ahmedabad. Post this new plant which is expected to be completed in Dec - 23, the overall manufacturing set - up will reach to more than 2,00,000 sq. ft. The new plant will help augment company's manufacturing capabilities by almost 50% to meet growing demand as well as better serve the customers.



Officials of NU-VU Conair Pvt. Ltd. at the Ground-breaking ceremony.



Puja being performed at the Ground-breaking ceremony.

Nu - Vu Conair Pvt. Ltd. , Ahmedabad, India is a joint venture company between Nu-Vu Engineers, Ahmedabad, India and The Conair Group, Pennsylvania, USA. Conair has manufacturing facilities in the USA in addition to India and manufactures 450 different products. The company also owns two world - class R & amp; D (Research & amp; Development) labs.

### Radicigroup, Acquisition of Ester Industries Ltd. Completed

The acquisition closing is now completed. **Radicigroup High Performance Polymers** acquired the Engineering Plastics business of the Indian company **Ester Industries Ltd.**

Last May, RadiciGroup announced this important action aimed at strengthening its

internationalization strategy, with an investment of around 35 million euros: the transaction allows RadiciGroup - in India since 2006 - to further reinforce its local presence through the acquisition of one of the main and historic players on the Indian market.

For RadiciGroup this is a significant industrial investment in which Ester Industries Ltd sells its newly built production plant in the city of Halol (Gujarat), West of India: compound lines, R&D laboratories, customers / suppliers contracts as well as its leading brand ESTOPLAST which includes different types of compounds used primarily in the Electrical / Electronic and Telecommunications markets.

Ester Industries Ltd - one of the leading Indian producers of polyester films, engineering plastics and special polymers - has seen in RadiciGroup the ideal partner to follow up on its consolidated experience in the engineering polymers business, in order to focus on the packaging film sector, a business the Indian firm intends to continue and strengthen.

The new production site, under construction, will become operational at the beginning of 2023, following the various transfers of tangible and intangible assets. As a result of the acquisition, the Group aims to achieve total annual sales in the Indian market of more than EUR 50 million.



## Wall Thickness Control Units (Scanners) by Rollepaal

Controlling the dimensions of the pipe during production is an important factor in keeping the pipe to the required specifications. Rollepaal offers a wide range of scanners with various features covering pipe sizes from 10 to 1,600 mm diameter. Rollepaal scanners immediately identify any irregularities in the dimension.

Rollepaal offers two types of scanners:

- Rotating: Measures wall thickness.
- Compact (Static): Measures wall thickness and diameter

Features and benefits of the Rollepaal scanners include:

- Integrated software in the central controls.
- Usable in other production lines
- Continuous in-line wall thickness measurement.
- User-friendly operator interface.
- Self - adapting to the pipe diameter, no diameter - related parts.
- Manual and automatic calibration capabilities.
- Continuous in - line wall thickness and outside diameter measurement.
- Excellent return on investment.
- Reduced start-up time and scrap.
- Overweight reduction
- Minimum amount of space required with multiple lines.
- Suitable for solid wall PVC, PE, PP, CPVC and PVC-O pipes.

## SEP Joins Hands with ALTERO, Spain for Recycling Plants

Skills Engine Projects (SEP), located in Vadodara, Gujarat is a provider of plants for compounding, masterbatches, calendaring and customised materials handling solutions.

As a part of its vision and to support the industry, SEP ventures into the recycling business. SEP has joined hands with Aranow Altero, Spain for sales and services of recycling plants for various post - industrial and post - consumer applications.

ALTERO's specially designed, optimized infrared heating solution will benefit the industry with lower running cost of production. It will support stakeholders for their EPR initiative.

To end the environmental problems associated with the misuse of plastics waste, it is key to bet on innovation from different perspectives, providing a comprehensive and integrated vision. The European strategy emphasizes the prevention of the generation of plastics waste and the increase in recycling rates, as well as stimulating new business, production and consumption models that cover the entire value chain.

## Clariant Chemicals India to Change Name as Heubach Colorants India

The Board of Directors of the company have granted their approval for the change of name

of the company from 'Clariant Chemicals (India) Limited' to 'Heubach Colorants India Limited'.

## Uflex Partners with CREDUCE to Achieve Carbon Neutrality

India's Prime Minister Shri Narendra Modi's pledge to make India Net Zero by 2070 has buoyed up the country's corporate leadership in the carbon market.

Taking the pledge forward, UFlex signed an MOU and on-boarded CREDUCE – India's fastest growing Carbon Credits Consultancy as their consulting partners to achieve end-to-end 'carbon neutrality'. The scope would encompass an analysis on carbon footprint & neutrality, creating and formalizing carbon & plastic credit balances on an internationally accepted and recognized platform as a part of sustainable development goal, carving out sustainability roadmap and more.

Uflex has been leading the way in creating future - ready, innovation - led, and technology driven sustainable solutions, towards securing a brighter and healthier tomorrow. In their quest towards a cleaner and greener environment, the company has announced an understanding with CREDUCE Technologies Limited. With this commitment, Uflex stands to become the largest firm in this category, to take effective steps to meet its Environment, Social and Governance (ESG) goals.



# PLASTIC PRODUCTS

## Anti - Yellowing Effects in PCR Polymers Obtained with Ampacet Additives

### Innovative Sustainable Packaging from Ampacet and EMD Electronics Nominated for Luxe Pack 2022 "In Green" Award

Circular Aesthetics, a sustainable packaging collaboration between Ampacet, a global masterbatch leader and EMD Electronics, experts in special effects pigments for printing and plastics applications, has been nominated for an "In Green 2022" Award by Luxe Pack 2022, the premier trade show for luxury packaging.

The display box features two blow - molded bottles; the first is made of 100% recycled PET polymer and contains Ampacet's BlueEdge™ additive, which reduces the yellow or brown dingy appearance of post - consumer recycled plastic. Both the bottle and cap feature EMD's Iriotec pigment, which allows inkless marking for identification, labeling or identification and Ampacet's LaserEtch, to sharpen marking and readability on transparent and light-colored bottles.



The second bottle in the display is made of 100% PCR HDPE polymer, with Ampacet's Anti - Yellowing Pearl special effects masterbatch used on the bottle and cap and with EMD's Iriodin WAY pigments for weather resistance, anti - yellowing and light stability.

"Our successful "Circular Aesthetics" collaboration with EMD Electronics has resulted in sustainable bottle designs for 100% recycled polymers that feature excellent polymer performance as well as exceptional consumer appeal," says Doreen Becker, Corporate Director of Sustainability, Ampacet. "We look forward to sustainable packaging collaborations in the future."

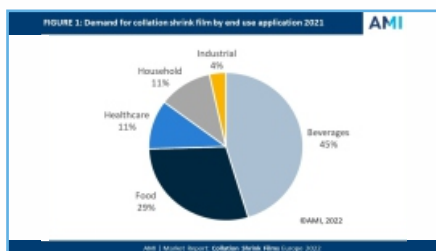
## Collation Shrink Film Market Boosted by Emerging Use of Post - Consumer Recycled Resins

A new report from AMI Consulting provides critical insight and analysis of the

current state of play and future outlook for the collation shrink film market in Europe. The report reviews the supply and demand picture by country and gives an in-depth update on end use application trends, resin developments and their influence on growth dynamics.

Traditionally utilised to fulfil a secondary transit packaging role, recent years have seen collation shrink develop a strong point of sale presence to provide customer convenience when buying multiple items as well enhancing on - shelf appeal with full face printing opportunities.

Packaging for alcoholic and non-alcoholic beverages is by far the largest end use application for collation shrink film, followed by food. However, film suppliers to these categories are facing growing competition from cartonboard alternatives for point of sale packs which several major brand owners have switched to in the face of continuing consumer anti-plastic sentiment. For the same reason, for some products collation shrink films are being removed entirely, with a multi - buy discount applied at the till point. The report explores how these factors and others are influencing market demand by application.



The European market is facing a tumultuous period. Challenges include the aftermath of the Covid - 19 pandemic, new sustainability - driven regulations, polymer shortages, logistics challenges and changes to retail channels. The war in Ukraine is adding further complications and inflationary pressure. These soaring costs are likely to reduce discretionary consumer spending across many categories, although it may benefit cheaper, staple products such as canned foods which in turn could drive collation shrink usage.

In the past decade, demand for collation film has been heavily influenced by the continuing shift from monoextrusion to 3 - layer coextrusion and further product enhancement by moving from 3 - layer to 5 - layer coextrusion. This has permitted tailor - made use of enhanced metallocene resins in combination with other more established raw materials in order to maximise gauge reduction. Downgauging of virgin resin film has reached its limits in many applications, with future innovation expected to be focused on achieving thinner films whilst maintaining 30 - 50% post - consumer recycled (PCR) resin content.

Collation shrink films are an ideal candidate for the incorporation of PCR as they are non - food contact. Recyclate

should continue to take share from virgin LDPE, although at a lower pace than the industry may anticipate. Whilst brand owners will increasingly seek to use recyclate to satisfy internal mandates and country legislation, limited availability of high - grade PCR resin will constrain usage and subsequent volume growth over the forecast period.

AMI's Collation Shrink Film in Europe 2022 report is the result of an extensive research programme, providing a comprehensive independent assessment of this industry in times of uncertainty. The authoritative report quantifies capacity, production and demand for collation films by country and end use applications, with a historical context and a five-year forecast.

### Collins Aerospace Selected by Aflr to Build Thermoplastic Fin for F - 16



Collins Aerospace was selected by Air Force Research Laboratory to receive a contract award to build an advanced high - impact resistant, F-16 ventral fin using Collins' thermoplastic welding technology, which will significantly reduce w Collins Aerospace was selected by Air Force Research Laboratory to receive a contract award to build an advanced high - impact resistant, F-16 ventral fin using

Collins' thermoplastic welding technology, which will significantly reduce weight and cost of the current design.

Collins is investing approximately \$100 million dollars over the next five years toward the advancement of its thermoplastic technology and plans to qualify and process thermoplastic materials for both military and commercial use. Under the three-year contract, the proposed work includes application of a specialized welding process, component design and prototype fabrication for the F-16 ventral fin. The effort will leverage best practices from similar programs including the recent composite-based F-16 horizontal stabilator.

"We are seeing an increased demand and opportunity to replace legacy aircraft components with thermoplastics," said Stan Kottke, vice president and general manager of Aerostructures for Collins Aerospace. "The trend is using advanced thermoplastic materials to lower the cost and weight while reducing our overall environmental footprint, and those benefits are directly passed on to our customer."

Through automation processes on the manufacturing floor, the cost savings are expected to be upward of 30% where Collins can use thermoplastic composite materials. Thermoplastic resin is inherently tougher than thermoset resins typically used in production. Tougher materials reduce the overall weight allowing for thinner design and increased range of the payload. Thermoplastic materials have an indefinite shelf life, can be stored at room temperature, and can be reused or recycled.





# PLASTIC RAW MATERIALS

## Orbia Polymer Solutions' Alphagary Business Launches PVC Compounds With Recycled Content

The new Infinitude PVC compounds are formulated with up to 70% recycled content.

The first of a new series of PVC compounds with recycled content was launched by Orbia Polymer Solutions business Alphagary, manufacturer of PVC and TPE compounds, stabilizers and plasticizers. Sold under the Infinitude brand name, these compounds are available in natural base or pre-colored, and designed for both molding and extrusion applications.

Grades formulated with up to 70% recycled content have been successfully processed by Alphagary's customers into footwear soles, irrigation and garden hoses, floor mats, accessories and floor mats for the automotive industry, and wire jacketing and insulation, providing customers with eco-friendly options that reuse waste originally intended for landfills. Said head of quality assurance Angelica Fram, "Based on our lab analysis and customer feedback, we are happy to

report that Infinitude compounds function similarly to compounds formulated with all prime materials in how they process and perform in the end applications."

As part of the larger PVC-In-Motion project pioneered by sister company, Vestolit, the Infinitude vinyl compound series formulated and manufactured by Alphagary offers a second life for plastics that have been discarded. Said John Jaddou, Alphagary's global business development director, "Living our sustainability goals led us to partnering with customers who were looking for ways to recycle their discarded product. The PVC - In - Motion venture helps to find avenues where local processing companies separate and clean the material, and then process and ship to Alphagary so we can incorporate into our compounds. We perform quality inspection just like we would for in - coming prime materials.... Together with our TPE compound Evoprene Eco formulated with biobased ingredients, the Infinitude PVC compound series, formulated with recycled content, demonstrates our commitment to sustainable development." Both Infinitude PVC compounds and Evoprene Eco TPE compounds are available for trials.

## Green Dot Bioplastics Launches Expanded Line of Compostable Resins For Packaging and Single - Use Applications



Green Dot Bioplastics, a leading developer and supplier of bioplastic materials for innovative, sustainable end-uses, has expanded its Terratek® BD line with nine new compostable grades that are targeted for single - use and packaging applications. The expanded offering for film extrusion, thermoforming, and injection molding is in line with Green Dot Bioplastics' goal to achieve faster rates of biodegradability, in ambient conditions, while meeting the growing sustainability demands of brand owners and consumers.

These new compostable materials are an integral part of the company's extensive bioplastics portfolio which includes bio - composites, elastomers, and natural fiber - reinforced resins

all produced at the company's newly expanded manufacturing facility in Onaga, Kan.

"This launch culminates our extensive development of a new category of compostable materials for single - use applications and packaging markets," said Mark Remmert, Green Dot Bioplastics CEO. "We've successfully developed unique materials that have a faster rate of biodegradation in ambient composting conditions and the functional performance that the market demands."

The five new film grades are compostable starch blends that require no tooling or process modifications when run on traditional blown or cast film equipment. Among them are Terratek® BD3003 which exhibits high puncture resistance and tear strength and is heat sealable like linear low - density polyethylene (LDPE) film. Meanwhile, Terratek® BD3300 is a stiff, high - modulus material with high heat resistance and overall properties similar to HDPE film.

The film grades deliver faster rates of biodegradability for home composting, industrial composting, and soil biodegradability. They are targeted for a range of applications including produce bags, bubble wrap, agricultural films, and other lawn and garden packaging. The film materials are completing third - party certification by TÜV Austria, a leading European certifying agency.

Green Dot's new compostable offering also includes three new thermoforming grades which

provide a range of properties including clarity. Other grades provide higher heat performance and greater flexibility for applications such as food service packaging, takeout containers, deli packages, and straws. The thermoforming grades are also completing final certification by TÜV Austria.

Two injection molding grades round out the new compostable offering. They deliver higher heat performance and enhanced processability (lower cycle times) for caps / closures, food service ware, and takeout containers. In a breakthrough application development effort, Green Dot worked with a customer to commercialize a living hinge design for an injection molded package. Physical and mechanical properties of typical bioplastic resins have not previously allowed the molding of a living hinge capable of hundreds of flexural openings and closures while delivering mechanical properties necessary for a polypropylene-type enclosure.

#### About Green Dot Bioplastics, Inc.

Green Dot Bioplastics, Inc is a bioscience social enterprise headquartered in Emporia, Kansas. Celebrating a decade of sustainability, Green Dot is a full-service bioplastics company dedicated to delivering the very best of sustainable materials to our customers. That's the thinking behind the Terratek® line of bioplastics, developed to meet the growing demand for biobased and compostable materials with fewer of the drawbacks associated with traditional plastics.

## Brazil's Petrobras Aims to Produce 1 Million Tonnes of Additional Naphtha Output to Supply Global Markets

With the world looking at the Latin American markets for potential sourcing of energy and petrochemicals, the region's largest country - Brazil - plans to bring in 1 million tonnes of additional naphtha output in the coming years. The move comes after Rio de Janeiro - headquartered Brazil's state - owned multinational petroleum corporation Petrobras announced the addition of 1 million MT of naphtha output after the disinvestment of various assets.

A study conducted by OHXIDE Consulting, a business consultancy focused on the petrochemical and oil & gas sector in Brazil and Latin America, Petrobras' disinvestment process in the refining sector promises to change the profile of naphtha supply in Brazil, with a potential increase of more than 1 million tonnes per year.

Brazil is the largest petrochemical market in Latin America and is on the brink of significant changes in its feedstock supply base. Interestingly, India's state-owned Bharat Petroleum Corporation Ltd (BPCL) signed a pact with Petrobras in September this year to procure crude oil from there. BPCL's aim was to diversify its crude oil sourcing needs.

The petrochemical industry relies on the refining sector as an essential source of supply for its

raw materials, with naphtha responsible for half of the production of petrochemicals in the world. This participation in Brazil is even more relevant because nearly 75 percent of petrochemical complexes in Brazil were built to consume naphtha from Petrobras' refineries.

In addition to its use in the petrochemical sector, refineries also use a significant volume of naphtha as a blendstock to increase gasoline production up to the octane limit. Earlier, refineries in Brazil were directed the maximum amount of naphtha to supply the gasoline market, which grew on average by more than 10 percent per annum between 2010 and 2014. Consequently, the supply of naphtha to the petrochemical industries fell from 6 million tonnes per annum to 2 million tonnes per annum in 2016, its lowest historical value.

According to the OHXIDE Consulting report, the United States, Spain, and Russia imported up to 70 percent of naphtha exported from Brazil between 2020 and 2022.

Petrobras has chalked out an ambitious divestment plan, which includes the sale of half of its refinery capacity in Brazil. The sale of REMAN (Isaac Sabba Refinery) in Amazonas, RLAM (Landulpho Alves Refinery) in Bahia, SIX (Shale industrialization Unit) in Parana, and RPCC (Refinery Potiguar Clara Camarao) in Rio Grande do Norte, have been completed.

Also, Petrobras is selling other units, including REGAP (Gabriel Passos Refinery) in Minas Gerais, LUBNOR (Northeast

Lubricants and Derivatives Refinery) in Ceara, REPAR (President Getulio Vargas Refinery) in Parana, REFAP (Alberto Pasqualini Refinery) in the Rio Grande do Sul, and RNEST (Abreu Lima Refinery) in Pernambuco. Petrobras intends to keep under its control the remaining refineries in the country, all located in the Southeast region of Brazil.

Considering, only the refineries in the divestment plan, they are responsible for around 37 percent of Brazil's naphtha supply. From a utilization rate point of view, these refineries have operated with an average of 73 percent of the total capacity, representing a gap of 53 thousand cubic meters per day (approx. 333 kbpd).

These divestments would certainly see the entry of new players which will change market dynamics in Brazil's refining sector. While Petrobras was focusing on the domestic market, the new entrants may choose to penetrate the world market. In order to maximize production and profit, the new players might focus on creating market competition with an increase in naphtha output especially from RLAM (currently Martaripe) and REFAP refineries, through higher operating rates.

Increasing domestic supplies of naphtha in Brazil are poised to change the supply and demand dynamics in the country's petrochemical industry. Increased self-sufficiency can be an increasingly important asset, particularly in today's complex global energy and geo-political environment.

**(Source: Polymer Update)**

## New materials create safer, quieter EVS

Ascend Performance Materials has developed two materials for electric vehicles that improve safety and passenger comfort. The company's Starflam® X - Protect and Vdyne® AVS tackle two unique challenges automakers face when developing their EV platforms.

### Unrivalled safety



The Cadillac LYRIQ sports an electric AC compressor mounting bracket made of Vdyne AVS, which effectively helps damp that component's vibrations at the source while also providing structural support.

Starflam X-Protect is an industry-leading flame-retardant nylon 66 that withstands exposure to 1,100°C direct flame for 15 minutes, surpassing standard flame-retardant materials and aluminum tested in accordance with SAE As5127 (a test originally designed for aerospace applications).

Ascend's team of e-mobility application development engineers and polymer scientists created a novel solution to dampen noise, vibration and harshness in EVs, which produce vibrations at 10 times the frequency of internal combustion engine vehicles.





# PLASTIC MACHINERY

## Bulk - Out® Bulk Bag Dischargers



**Provide dust - free loading, untying, retying and removal of bulk bags**

Flexicon BULK-OUT® Bulk Bag Dischargers (also known as FIBC, Big Bag and Jumbo Bag unloaders) are offered in numerous frame configurations. The two most popular are BFF Series dischargers with bag lifting frame for forklift loading and unloading of bulk bags, and BFC Series dischargers with cantilevered I - beam, electric hoist and trolley for loading and unloading of bulk bags without the use of a forklift.

Other bulk bag unloader configurations include split frames for forklift loading of bags in low headroom areas, half frames for suspending bags during discharge using a forklift, continuous loss - of - weight dischargers for uninterrupted

feeding directly from bulk bags, and other designs satisfying highly specialized requirements.

All BULK - OUT® Bulk Bag Dischargers are offered with a broad range of innovative accessories (many patented), delivering an unprecedented level of efficiency, cleanliness and economy. A range of integral flow promotion devices is available, as are dedicated bulk bag conditioners that loosen bulk solid materials that have solidified during storage and shipment, enabling bulk bag unloaders to discharge the material through bag spouts.

### Revolutionary advances overcome limitations of outdated designs

Just as bulk bags changed the way bulk material was stored and shipped over the last decade, so will these bulk bag dischargers revolutionize the way you load, untie, retie, remove and collapse bulk bags in the future.

No longer must your operators reach through cramped access doors and awkward glove boxes, struggle to retie partially empty bags, clean up spillage after disconnections, dislodge products from dead spots or flatten bags manually.

### Performance never before possible

Flexicon's latest generation of bulk bag dischargers can eliminate the drawbacks of outdated designs while dramatically improving convenience, safety and cleanliness. The heart of the new design is a bag spout interface that not only creates a dust - tight seal, but promotes material flow and total evacuation. It also allows easy retying of partially empty bags, and can collapse empty bags— free of spillage and dust.

### Netstal Adds New Model for Preforms

The PET - Line 3000 side - entry IMM is energy - efficient and requires little training for operators.



PET - Line Netstal, a division of KraussMaffei, introduced this portfolio of side - entry preform

injection molding machines (IMMs) with the PET - Line 4000-6000-135. The machines save space and have been optimized to process PET with up to 100 percent recycled content.

Netstal's PET - Line 3000, the newest press in the PET - Line portfolio. With about 337 tons of clamping force, it is smaller than the original machine in the line, and it offers a fast lock-to-lock time of just 1.9 seconds. It is suitable for molds with up to 96 cavities.

The IMM's standard Smart Operation feature allows all sequences to be stored, and optimizes many production steps automatically. Very little training is needed for new operators, and the entire system can be run using just four keys. The company said that tests against similar machines from other manufacturers show PET - Line machines use 20 to 25 percent less energy, cutting production costs. The IMM's integrated Pecolux inspection system monitors preform quality in real time, and documents results for each batch. The optional Cycle Guard monitors power supply to the IMM and can provide enough energy to bridge momentary power failures, or in the case of a prolonged failure, allow the machine to complete its current cycle and eject finished preforms.

### Absolute Haitian Rolls Out Second - Injection - Unit Versions of Hybrid IMMS

The servo - hydraulic Mars III and Jupiter III injection molding machines now come in Multi

versions, with clamping forces ranging from 135 tons to 2,709 tons.



Absolute Haitian is responding to demand for parts that require more than one material or color by once again expanding its Multi portfolio.

The company, which last year began offering multiple - injection - unit versions of its all - electric Zhafir injection molding machines (IMMs), is rolling out the same capability for its Mars III and Jupiter III servo - hydraulic machines.

“We are responding to the market's demand for a cost-effective and flexible solution to multi - component applications. In the past, multi - component machines have been expensive and often [required] 'special' machines with long lead times. The Mars III M and Jupiter III M take a different approach — affordable, not expensive; standard lead times, not 'special - order' long lead times,” said Glenn Frohring, co-owner of Absolute Haitian.

The new Multi versions range from 135 tons to 596 tons for the Mars III line, and from 843 tons to 2,709 tons for the Jupiter III line, a series of two - platen machines. Shot sizes range from 0.67 ounce to 45.7 ounces on Mars III Multi machines, and from 43.3 ounces to 89.8 ounces on the Jupiter III Multi machines.

The new IMMs leverage Absolute Haitian's experience not only with the Zhafir Multis but with a previous series of multi-component IMMs, the Iapetus. According to the company, the Multi versions of the Mars III and Jupiter III IMMs — known by their shorthand designations as MA III Multi and JU III Multi — are more efficient and offer more configurations and flexibility than the earlier Iapetus IMMs.

Offering general - purpose machines with multi - component capabilities as standard, rather than as custom options, helps customers, according to Frohring.

“It's not so much higher demand than it is a better way to do it,” he said.

“Our goal is to advance Haitian's long - standing and highly successful strategy of extending their product line and leverage their manufacturing scale to deliver more machine configurations at competitive price points, thereby helping customers realize cost reduction,” said Sherman McGinnis, VP of sales for Absolute Haitian.

Among molders with the greatest need for the capability are makers of automotive parts, Frohring said.

The MA III Multi and JU III Multi machines can be configured in a variety of ways, with the second injection unit in parallel, vertical, horizontal or piggyback positions, or switched off or removed for single - shot applications. The IMMs have Keba controls featuring a user-

friendly arrangement of key buttons for the injection process of the additional unit.

They boast generous tie - bar spacing.

The rotating mold half maintains accurate and repeatable positioning during rotation, and to accommodate large molds, the rotary table on the machines' movable platen is strong, the company said.

**(Source: Popular Plastics & Packaging - September 2022)**

### Energy - Efficient Bottle Blowing with PCR

At K 2022 W. Müller is presenting a system for PCR processing in a three - layer coextrusion, using an energy - saving barrel - heating system.



In line with the show's emphasis on sustainability and the circular economy, W. Müller be highlighting its experience with processing post - consumer recycle (PCR) at K 2022 this month in Düsseldorf. The company will present a ReCo3 system designed specifically for processing PCR in the core of a three - layer coextrusion sandwiched between thin layers of virgin resin.

An interesting feature of this system is a energy - saving barrel heating / cooling system supplied by Austrian heating specialist Keller, Ihne & Tesch (also exhibiting at K). The system uses standard air - cooling fans plus special heating tapes made of aluminum instead of the usual ceramic. The metal tapes are said to be more stable, and to distribute heat energy more quickly. This modified heating /cooling combination saves around 2000 W in this application, according to W. Müller, and the energy is distributed over the entire area, but the unit does not get hot on the outside, enhancing worker safety. What's more, it is considerably more compact than conventional heating tapes, the company states.

### Next - Generation Pelletizers



Bay Plastics Machinery Inc. (BPM) unveiled what it calls the next generation of pelletizing technology at K 2022 in Düsseldorf, Germany. Two new products were on display.

First is BPM's new AXP (HD) system, designed for heavy - duty pelletizing applications.

Offered in 12-in. and 16-in. cutting widths, the HD series features:

- Larger motors to provide more robust cutting for today's engineered resins, including heavy glass - filled materials. The push-pull bed knife holder enables users to easily adjust the bed knife gap so that the cutter is consistent from end to end.
- The AXP (HD) features larger diameter rolls and bearings to reduce deflection across the cutting width.
- An optional gearbox lets HD series users engage both upper and lower feed rolls.
- Feed roll air cylinders are larger than the standard design so users can apply more clamping force as needed.
- The AXP (HD) pelletizer also offers an optional rotor coupling drive so that the rotor can remain free of belt load with higher horsepower options.

BPM also introduced the BT25X bench - top pelletizer for lab applications. The BT25X now uses industry standard AC motors and drives — the same as BPM's full production models. In addition, new drives come in a wide range of voltages, making the BT25X accessible to companies across the globe.

- The BT25X's safety circuit features a streamlined version of the Safe Torque Off (STO) function found in full production models, so it is even safer to operate.



- A wider speed range enables slower or faster production than previously available, plus the BT25X now offers the option of running in both batch or continuous modes.
- The addition of a control cabinet to house the drives means BPM's BT25X has an increased environmental rating from its predecessor. A lockable rotary disconnect has also been added as a safeguard when performing maintenance procedures.
- Compounders face a number of processing challenges when incorporating a high loading of low - bulk - density mineral filler into polyolefins. Here are some possible solutions.
- Pre - Engineered Vs. Custom Vacuum Conveying Systems for Compounding and Extrusion When it comes to vacuum conveying systems for plastics processing, custom powder handling solutions are not always required. Pre - engineered, turnkey solutions can be a perfect option for powders and bulk solids in a wide range of industries.
- Newer specialty slip masterbatches go beyond traditional capabilities to provide greater thermal stability, reliability, and ability to hold COF steady during laminating.

## Classy Ai by Sacmi, The Artificial Intelligence That Revolutionizes The Approach to Vision System Management

Integrated on new PVS units for preforms, this system is setting the global benchmark for visual process control in Rigid Packaging. Key innovations include an interface that uses AI to associate faults with 'families' of defects, thus streamlining data interpretation and helping the operator take action.

Classy AI is a new SACMI-developed tool that simplifies yet revolutionizes visual process control in the Rigid Packaging field. That revolution begins with making these systems pivotal to modern production processes in order to monitor quality and efficiency and guide direct corrective / maintenance action on the lines.

Classy AI can be applied on the SACMI vision system range, the market standard - setter for specificity, accuracy, reliability and precision. This latest tool doesn't improve the already state - of - the - art control but, rather, changes the way the system is managed. With Classy AI, in fact, the operator has a user - friendly dashboard that allows immediate classification of defect types, from the most common to those that even an expert might have trouble interpreting.

So how does it work? Alongside the technical interface featured on all SACMI vision systems, Classy AI provides an innovative dashboard. The left-hand side of the screen shows the detectable

defects, grouped into 'families' (accidental, technological, decoration - OCR, measures, specific). In the middle, an image highlights the area of the object where the defect has occurred. On the right, instead, analysis results are logged in the form of quality statistics so users can immediately identify any process drifts.

The main advantage of the system lies in being able to recognize not just individual defects but also their origins and where they belong among the various detectable 'families'. For example, with Classy AI impurities in a preform body can reliably be linked to the problem that caused them (distinguishing, for example, between the classic black spot, which stems from degradation of the plastic, to a defect caused by an insect dropping into the mix).

The operator - not always or necessarily an experienced vision system technician - continues to play a key role in this advanced system: in the event of an anomaly, a specific warning icon appears on the dashboard. This means that even inexperienced operators are perfectly able to identify the type of problem, take direct action to solve it or, in any case, filter the alarms that might require the intervention of a specialized technician.

The underlying technology is impressive to say the least: the algorithms needed to run the classification process took the SACMI Rigid Packaging BU Computer Vision R&D team months to develop. The result: a unique solution, quite unlike any other supplied by the world's leading manufacturers of industrial vision systems.



## M&As/TIE-UPS/INVESTMENTS

- Thai conglomerate **Siam Cement Group (SCG)** is to invest in a US\$22.7 million project to produce BOPET in Vietnam. The project will be undertaken by flexible packaging producer **AJ Plast (Vietnam)** and is expected to start commercial production in 2024.
- Swiss firm **Clariant's** German subsidiary in Frankfurt is to sell the former Clariant pilot plant to **APK AG**. It will be operated by the newly founded APK Newcycling Competence Centre, which will focus on recycling.
- **BASF Venture Capital**, the corporate venture arm of German chemical firm **BASF**, has invested in **Climentum Capital's** first EUR150 million venture fund. Other investors also include Danish growth fund **Vækstfonden** and **Arbejdernes Landsbank**.
- Sustainable materials firm **Neste** has received a grant of up to EUR135 million from the EU Innovation Fund for its chemical recycling facility at its Porvoo refinery in Finland. Also, Neste has purchased the European rights to US firm **Alterra**.
- **Energy's** liquefaction technology, to advance its chemical recycling.
- US - based industrial group **Hillenbrand**, which owns **Coperion, Milacron Injection Molding & Extrusion**, and **Mold - Masters**, is to acquire **Linxis Group** from **Iberis International**, an affiliate of **IK Partners**, for EUR572 million. Linxis is a provider of mixing, ingredient automation, and portioning solution for food and other end markets.
- Material supplier **Chase Corp.** is acquiring US specialty polymer maker **NuCera Solutions** from private equity firm **SK Capital** for US\$250 million. NuCera makes specialty resins and waxes.
- Packaging company **Alpla** is boosting the presence of its pharma division in Europe with the acquisition of Polish company **Apon**, which produces packaging for the pharma industry in Warsaw.
- Thailand - based integrated chemicals maker **Indorama Ventures Public Company Limited (IVL)** has completed the acquisition of the wool spinning businesses in Italy and Poland of **Tollegno 1900**.
- Materials supplier **Avient Corporation** is to sell its Distribution business to an affiliate of private equity firm **HIG Capital** for US\$950 million in cash, subject to regulatory approval. It had in April announced it was exploring the sale in connection with acquiring the Protective Materials business of Dutch materials firm **DSM** for US\$ 1.5 billion.
- UK-based testing services firm **Element Materials Technology** has acquired testing, inspection, calibration and certification provider, **Singapore Test Services (STS)**, a subsidiary of **ST Engineering**.
- Styrenics maker **Ineos Styrolution** is to sell its entire shareholding in **Ineos Styrolution India** to **Shiva Performance Materials**, which has businesses in specialty chemicals for pharmaceuticals, agrochemicals and other intermediates.
- Swedish engineered polymers firm **Trelleborg Group** is to buy US elastomers maker **Minnesota**.
- **Rubber and Plastics (MRP)**, which is owned by investment firm **KKR**, for

- US\$950 million. KKR bought MRP from Minneapolis-based **Norwest Equity Partners** in 2018.
- Finnish packaging maker **Walki Group** is to acquire family-owned **Westpak** and **Flexipack**, which provide flexible packaging solutions to Nordic food brands.
  - Family - owned German additives supplier **Brüggemann** has acquired Italy - based manufacturer of functionalised polymers **Auserpolimeri**, a part of the **Eigenmann & Veronelli Group**.
  - Speciality materials supplier **Trinseo** has decided to put a pause on the sale of its styrenics business.
  - **Saudi Arabian Oil Company (Aramco)** has acquired US firm **Valvoline Inc.**'s global products business for US\$2.65 billion.
  - Technology firm **Merck** has acquired the chemical business of **Mecaro Co.**, a South Korea-based and publicly - listed manufacturer of heater blocks and chemical precursors for semiconductors.
  - The deal comprises an upfront cash payment of EUR75 million, plus contingent payments of up to EUR35 million, totalling EUR110 million.
  - Speciality chemicals firm **Azelis** is to acquire **Dagaltı Kauçuk San**, a speciality chemicals distributor active in the Turkish rubber and plastics additives market.
  - Distributor of speciality chemicals and ingredients **IMCD** is to acquire Mexican masterbatch suppliers **PromaPlast Resinas** and **PromaPlast USA**, both of which serve the Mexican and US markets.
  - **PVC Europe Group**, an independently managed investment subsidiary of **Investindustrial Growth**, is to sell the compounds business of France-based **Benvic Group** to privately - owned German industrial group **International Chemical Investors Group**.
  - Dutch firms Koch **Technology Solutions (KTS)** and **Ioniqa Technologies** have entered into a partnership to scale up and commercialise Ioniqa's PET recycling technology, with KTS to invest up to EUR30 million in Ioniqa.
  - The acquisition of recycling company **Herbold Meckesheim** has been completed and it will be integrated with German machinery firm **Coperion**'s recycling product lines into its new Recycling business unit that plans to offer complete solutions for plastics recycling processing.
  - An affiliate of funds advised by private equity firm SK Capital Partners has sold **Techmer** to **Gryphon Investors**, a middlemarket private equity firm. Also, SK Capital Partners and **Edgewater Capital Partners** are in a binding offer to acquire the scintillation and photonic crystals business of **Saint-Gobain**. SK Capital will lead the investment with Edgewater acting as a minority shareholder.
  - French chemical firm **Arkema** has finalized the acquisition of Mexico's **Polimeros Especiales**, strengthening the group's offering insolvent-free solutions.
  - Technology firm **Technip Energies** has purchased the Biosuccinium technology from DSM, adding a technology solution to its Sustainable Chemicals portfolio.
  - **Pexco**, a North American specialtyplastics extruder, has acquired Enflo, a manufacturer of PTFE products in North America.
  - US specialty and intermediate chemicalssupplier **Stepan Company** is to acquire the surfactant business of **PerformanX Specialty Chemicals**, adding on US\$20 million to Stephan's revenue.
  - German chemical / consumer goods company Henkel is to acquire US - based start - up NBD Nanotechnologies Inc, which develops coatings for the electronics and accessories market.
  - Indian petrochemical major Reliance Industries Ltd (RIL)'s subsidiary Reliance Petroleum Retail (under name change to Reliance Polyester), has acquired two Indian polyester companies for US\$200 million. The two companies are polyester chips and yarn manufacturers Shubhalakshmi Polyesters and Shubhlaxmi Polytex.
  - Japan's Toyota Tsusho Corporation, together with Nippon Shokubai, will participate in a joint capital venture in Hunan Fluopont



New Materials, which makes electrolytic lithium salt for lithium-ion batteries.

German speciality chemicals firm Altana has sold its stake in the 3D printing systems manufacturer dp polar to 3D Systems, an additive manufacturing solutions partner.

Packaging firm Constantia Flexibles has acquired UK flexible packaging firm FFP Packaging Solutions, for its first consumer plant in the UK.

German materials firm Covestro is to sell its Additive Manufacturing Business to 3D printing solutions provider Stratasys for EUR43 million.

US diagnostics equipment firm Agilent Technologies Inc has acquired Polymer Standards Service, a German provider of hardware and software solutions used in defining the make-up and creation of molecular structures.

Austrian packaging firm Greiner Packaging has purchased Serbian PET flake producer Alwag, marking its first foray into recycling.

US infrastructure solutions provider Atkore has made two acquisitions of separate but related Oregon-based companies: Cascade Poly Pipe & Conduit and Northwest Polymers. With the addition of these two, the company now has deployed more than US\$310 million to complete six acquisitions in fiscal year 2022.

**(Source: PRA Magazine - September / October 2022 Volume 37 Issue)**

### Collaboration Will Bring Recycled Plastic to Medical Device Packaging

Agreement between Eastman and Ethicon will put copolyester derived from recycled materials in sterile barrier applications.

Eastman has announced an agreement with Ethicon, a Johnson & Johnson company, to source Eastman Renew materials for its sterile-barrier medical device packaging.

Eastman Renew 6763 is a copolyester made with Eastman's molecular recycling technology, which uses plastic waste as feedstock but produces a resin with properties indistinguishable from those of Eastman's regular version of the 6763 copolyester.

The goal of the collaboration is to divert waste from landfills equivalent to 25% of the total packing produced. A future goal is to increase this ratio to 50% by 2023.

Mechanically recycled plastics are not used in medical applications due to purity and clarity requirements. Molecular or chemical recycling allow brands to circumvent this problem, by providing a plastics feedstock that is virtually identical to resin created with fossil fuels.

Eastman's business model includes using both postconsumer and postindustrial plastic waste for its recycling process, according to a company spokesperson. In September, Eastman announced an agreement with Interzero for the purchase of up to 20,000 ton/yr of PET household packaging waste.



Eastman's molecular recycling facility in Normandy, France, is planned to be operational by 2025 and have a capacity of 160,000 ton/yr.

**(Source: Plastics Technology- 10th October, 2022)**

### Milliken and Huhtamaki Partner to Design for Circularity

Milliken & Company, a trusted expert in plastics additive and colorant technology, is partnering with Finnish flexible packaging giant Huhtamaki Group to develop a more sustainable, mono-material laminate for use in tubes targeting cosmetics, toothpaste and other personal-care applications.

The results of this joint effort, designed to create a healthier future, were on display at the K 2022 trade fair in Dusseldorf from October 19 - 26. Milliken displayed high-density polyethylene (HDPE) tubes produced using Huhtamaki laminates optimized with Milliken UltraGuard™ Solutions technology.



## PLANT EXPANSIONS/ SET-UPS

- The petrochemical arm of SK Innovation, SK Geo Centric, has teamed up with Paris-based Veolia Environment to carry out a joint study on PET, PP, and waste plastics as raw materials for pyrolysis, or thermal decomposition, in Asia. In addition, the two companies will establish a chemical recycling cluster in Ulsan, where SK Innovation's other subsidiary SK Global Chemical will invest US\$522 million to construct South Korea's largest plastic waste recycling factory by 2025. Also, SK Chemicals with Shuye, a Chinese green material company, will establish two joint venture chemical plants in Shantou, China, following SK's US\$18 million investment of a 10% stake in Shuye last year. SK Geo Centric is also tying up with Zhejiang Satellite Petrochemical Co to build a US\$222 million ethylene acrylic acid (EAA) plant in China, with a capacity of 40,000 tonnes/year and completion in 2025.
- Ineos Oligomers has started up its new 120,000-tonne/year Low Viscosity Polyalphaolefin (LVPAO) unit at Texas, US, said to be the world's largest single PAO train and complementing existing units in La Porte and Feluy, Belgium. Also, it has launched a phased 50% expansion of its LaPorte, High Viscosity (HV) PAO unit, fully effective by mid-2025.
- Process technology provider Lummus Technology has been awarded a contract award from Numaligarh Refinery Ltd (NRL) for a new 360 kilotonnes/year PP unit using Novolen technology at NRL's refinery in Assam, India. Also, Lummus Technology and its catalyst partner Clariant, have announced the startup and acceptance of Qingdao Jinneng New Material Co.'s 900,000 tonnes/year Catofin propane dehydrogenation (PDH) plant in Qingdao, China.
- BASF has started up an acrylic dispersions production line in Dahej, India, serving the coatings, construction, adhesives, and paper industries for the South Asian markets. Also, BASF is moving forward with the final phase of the expansion project, to increase production capacity to 600,000 tonnes/year, for the MDI plant in Louisiana, US. The investment in the final expansion phase from 2022 to 2025 amounts to US\$780 million. Meanwhile, BASF has inaugurated the first plant of its new Zhanjiang site in South China, with a capacity of 60,000 tonnes/year of engineering plastics compounds, raising its total production of engineering plastic compounds in the Asia-Pacific region to 420,000 tonnes/year.
- Chemical firm Huntsman Corporation has started up commercial operation of a US\$180 million MDI splitter at its Geismar site in Louisiana, US.
- Thailand-based PTT Global Chemical Public's subsidiary in the US, PTTGC America (GCA) has decided to locate a plastic recycling facility in central Ohio, US.
- Shandong Ruize Chemical Technology has commissioned a new PDH unit at its refining complex in Zibo City, Shandong Province, China, with the capacity to produce 300,000 tonnes/year of polymer-grade propylene.
- Covestro has broken ground on two new plants in Shanghai for polyurethane dispersions (PUDs) and elastomers, with a

combined investment of a mid-double - digit million euro amount. The new plant for PUDs, as well as a further line for polyester resins, from which PUDs are produced, will be completed in 2024.

- Wanhua Chemical Group will build a 200 kilotons / year maleic anhydride plant, which will be one of the largest in the world, located in Yantai city, Shandong province, and scheduled to commence operation in 2023.
- Speciality materials firm Trinseo and GMP Group (GMP), a circular business innovations company in the Netherlands, are to set up a 25,000 tonnes / year PS recycling plant in the Netherlands.
- Bayport Polymers (Baystar), a 50/50 joint venture between Austrian chemical firm Borealis and TotalEnergies, has started up commercial operations of a US\$2 billion ethane cracker with a production capacity of 1 million tonnes / year of ethylene, in Port Arthur, Texas.
- China's second largest refiner PetroChina is investing US\$4 billion to expand a subsidiary refinery in southern China into an integrated petrochemicals complex, to build ethylene, aromatics, polyolefin units for completion in 2025.
- US technology provider Honeywell says that China Tianying Inc will apply Honeywell's UpCycle technology in its planned plastics recycling factory in Jiangsu Province.
- South Korean chemical firm LG Chem and partner GS Caltex have broken ground at GS's Yeosu plant to produce 3 - Hydroxypropionic acid prototype, a key raw material in the production of biodegradable plastics. The construction will be completed by 2023.
- Sabic SK Nexlene Company (SSNC), a joint venture with SK Geo Centric (formerly SK Global Chemicals), in South Korea will expand the capacity of its Ulsan plant for the production of Sabic's portfolio of Cohere metallocene polyolefin plastomers (POP), Supeer mLLDPE and Fortify polyolefin elastomers (POE).
- Fujian Eversun New Material Co. has selected Lummus' Catofin technology for a new 900 kilotonnes / year PDH unit and Lummus' Novolen technology for a new 800 kilotonnes / year PP unit at its complex in Fujian Province, China.
- UK's PX Group, the owner of Saltend Chemicals Park and operator of several energy infrastructure sites in the UK and Europe, has been awarded a tenyear Operations & Maintenance contract by ReNew ELP, a subsidiary of Mura Technology, at what it says is the world's first commercial - scale plastic recycling plant, to process over 20,000 tonnes / year of waste plastic, during phase 1 of operations.
- Materials firm LyondellBasell says that Hanwha Solutions Corporation (Hanwha) will use its Lupotech T high - pressure PE technology for a 300 kilotonnes / year vinyl acetate copolymer (EVA) line in Yeosu, South Korea.
- Japan's Toyobo Co. will open another facility in Indonesia to manufacture polyester films for packaging at Trias Toyobo Astria (TTA), a joint venture company that Toyobo established with Indonesian film maker Trias Sentosa. Toyobo plans to start construction in 2024 and start-up in 2025.
- US masterbatch maker Ampacet has opened a new production plant in Brembate, Italy in response to increased product demand. The new site doubles additive capacity and all lines are up and running.
- Henkel Korea has completed its EUR35 million Songdo plant within the Songdo High-tech Industrial Cluster in Incheon, which will become the Asia - Pacific production hub for high - impact electronics solutions of the Adhesive Technologies business unit.
- Japanese chemical firm Mitsui Chemicals is bolstering capacity in Singapore by building a new plant to produce high - performance elastomer Tafmer in Jurong Island. It will have a capacity of 120,000 tonnes / year and be scheduled for running in 2024. The capacity of the existing facility is 225,000 tonnes / year.
- South Korea's LG Chem is expanding its investment in carbon nanotubes (CNTs) with the construction of its fourth CNT plant, following Plant 3,



which started construction early this year, and Plant 2, which has been operational since last year.

- Auto Company Honda Motor Co. and LG Energy Solution will invest US\$4.4 billion through a joint venture to establish a new lithium - ion battery factory in the US to power Honda and Acura electric vehicle models.
- US styrenic block copolymers maker Kraton Corporation and Formosa Petrochemical Corporation are to expand their HSBC joint venture manufacturing facility in Mailiao, Taiwan, by 30%.
- Germany's Evonik's Coating Additives business line is expanding the production capacity of its Acematt precipitated matting agents at its facility in Taiwan, scheduled for completion by 2023.
- Indorama Ventures and Capchem Technology USA, a subsidiary of Shenzhen Capchem Technology, are to study the building of a world-class lithium - ion battery solvents plant at one of Indorama's petrochemical facilities in the US Gulf Coast.
- Chinese chemical firm Sinochem International, Elix Polymers' parent company, is to build a compounding factory in the Yizheng Chemical Industrial Park, Yangzhou, with capacity of 56,000 tonnes/year of ABS and PC modified materials in two phases.
- Sumitomo Chemical's Sumika Semiconductor Materials Texas subsidiary intends to build a

plant to produce high - purity semiconductor process chemicals in the US, to commence operations in 2024.

- Japan's UBE Corporation will build a new compounding facility for special grades at one of its local subsidiaries in Thailand by 2024. Also, Ube is to expand the capacity for polycarbonate diol (PCD) in Thailand, to start operations in 2023. It will make one of Ube's core products, used as a polyol component to make high - grade polyurethane. The production capacity is planned to be increased from 8,000 - 12,000 tonnes / year.

**(Source: PRA Magazine - September / October 2022 Volume 37 Issue)**

---

### 2022 Top Shops Benchmarking Survey: Cost Conquerors

Higher costs for materials, wages, utilities and more, coupled with delivery difficulties for both incoming supplies and outgoing production, A posed unique challenges to 2022's class of Top Shops.

Precision Tool Technologies' routine order for labels laid bare the vagaries of the global supply chain as it barely functioned in 2021. Instead of next day, next week or next month, Jim Goerges, president of the Brainerd, Minn., injection molder was informed that the labels his company applied to a marine part — which he was ordering one year in advance — were back - ordered for 18

months due to the lack of a component in their adhesive, which was itself back - ordered from China.

For Precision Tool and other participants in Plastics Technology's annual Top Shops benchmarking survey of injection molders, those supply - chain shocks and nightmares would give way to a grudging acceptance of the new post - COVID "normal" and a shift in how they conducted their businesses. Perhaps nowhere was this new normal felt more acutely than in the resin market.

"Some resins did not increase in price; some doubled; some resin lead times went to four months," explains Bruce Borstmayer, owner of Alberta-based custom molder Qualicase Ltd. "All our customers are businesses themselves, and they are aware of the current business climate, so nobody was surprised. Now, however, we have to requote every time we get a new order."

Standing orders and penciled - in quotes went by the wayside in 2021, as constant customer contact took over. "Our customers required weekly reports on our inventories — both for finished goods and resin," says Tom Moneta, owner and president of Bridgville Plastics in Stevensville, Mich. "We had to keep them posted continually if our resin suppliers were going to be late on shipments."

Amid these supremely challenging conditions, PT once again named its Top Shops honorees, including Qualicase, Bridgville and Precision Tool. These molders were able to exceed strict production

benchmarks in areas like on-time delivery when their own suppliers were most certainly not on time. The 24 Top Shops of 2022 hailed from three continents, four different countries and 11 different states, ranging south to Colombia, north to Canada and east to India, with three each from Michigan, Minnesota and Pennsylvania. In total, the survey, which is in its sixth year, drew responses from 19 different states — three Canadian provinces — and eight different countries.

The Top Shops benchmarking survey of injection molders queries participants on demographic data, performance indicators, and business and process strategies. A selection of those performance metrics are then scored, with the highest scoring companies named Top Shops for 2022 based on their 2021 operations.

### Rising Costs

Given the breadth of geographies and markets the survey participants serve and the materials they use, it is rare to see unanimity in a question response, but when asked if their average resin price increased, decreased or stayed the same in 2021, 100% of Top Shops reported paying more for material, while 92% of the other participants did as well. It wasn't just resin prices that marched higher, either.

"The wide - range impact of inflation throughout the past 12 to 18 months has definitely been a challenge," explains Philip Katen, general manager and president of Plastikos, Erie, Pa., who noted that Plastikos paid

more for packaging materials, utilities and people, along with, at times, monthly resin - price increases.

When it came to bearing the burden of higher resin costs, Top Shops reported a general ability to pass along higher prices to their customers. "Our customers across the board have been quite understanding, supportive and overall agreeable to production price increases," Katen says.

"For almost all of our customers, Accudyn was able to pass resin increases through to our clients," says Don Stolarski, v.p. sales and business development of Accudyn Products in Erie, Pa. "It was not always easy, but we engaged our customers, providing the data they needed to approve the increases."

"Guttenberg Industries sought to mitigate some of the inflationary pressure by focusing on efficiency and waste elimination," says Dave Kreul, president of Guttenberg Industries in Prairie du Chien, Wis. "But ultimately, certain costs had to be passed on to customers."

In addition to carrying a bigger price tag, resins were often simply not available, forcing molders and their customers to rethink the material of choice for a given product. "We partnered closely with our customers to identify, sample and qualify alternative lower - cost raw materials," Katen says.

For Moneta at Bridgville Plastics, getting alternative resins approved by the customers became the new norm to keep production going. "In all of Bridgville Plastics' 35 years of

operations," Moneta explains, "we had more alternate resins used and approved during these past two years by our customers than in all of the other years combined."

### Warehouse Worries

Because of resin availability shortages and delivery delays, many survey respondents noted that 2021 forced them to take on more warehouse and inventory responsibilities, both for raw materials and molded parts. "The challenge for the past two years has been the need to warehouse additional inventory to account for delays in delivery so we could maintain production and revenue generation," Guttenberg's Kreul says.

"Our strategy to deal with inflationary pressure involved carrying more inventory to hedge any supply issues, combined with purchasing larger quantities to maintain pricing," says Jeff Ignatowski, director of sales and marketing at Champion Plastics, Auburn Hills, Mich.

### Skills Gap Meets Inflation

Against this backdrop of higher costs for utilities and materials, the ongoing labor difficulties felt across manufacturing could only exacerbate the financial challenge of 2021 for the molders surveyed. At Bridgville Plastics, Moneta says the company raised its wages to keep current employees and try to attract new ones. "Wages were our single largest inflationary challenge over the past two years," he says.

"Plastikos saw sizeable raises and increases in our hourly rates and entire compensation structure to support everyone on our team and position us as a leading employer in our local region," Katen notes.

"The shortage of people and high inflation is driving wages to unsustainable levels for businesses," states Rodney Davenport, v.p. at CH3 Solutions, Dalton, Ga. At Champion Plastics, Ignatowski says the company asked managers to wear additional "hats" to try to hold labor costs in check, but it also invested in existing employees. "We also stepped up our internal continuous - improvement activities to lower costs and invested in additional training for our employees." A tangible result: The lead process tech became a certified RJG Master Molder who went on to reduce cycle times and improve quality for the facility.

For 2021, Top Shops in the U.S. paid an average hourly wage of \$18.06, while other U.S. respondents paid \$19.74. Those figures were up from \$17 and \$16 per hour, respectively, in 2020. While hourly wages might have been lower, Top Shops benefits far exceeded those of other survey participants. Top Shops offered 401(k) plans (U.S. only), 401(k) matching, bonuses, education reimbursement and profit / revenue sharing at rates that were, respectively: 23%, 19%, 19%, 34% and 21% higher than other respondents.

Greater profitability is one metric that is used to determine Top Shops, and this year's survey

found that in 2021 fully 75% of Top Shops increased machine - hour rates while only 50% of other survey respondents did.

### Design Demand

Top Shops and other survey respondents were similar in one respect: providing product design as a value - added service. Some 67% of all survey respondents, Top Shops or otherwise, provided design services for their customers.

At Precision Tool, "Product design has increased for us, it's a big deal," Goerges says. When the company starts a new project with a customer they internally call the process "Struggle Street," as they work to understand the customer's struggles. Goerges adds, "When we know upfront all the issues and pain points, it gives us a new understanding, and many times we can creatively solve many potential issues to keep them from ever becoming a problem."

Borstmayer at Qualicase is more blunt about the need to help with design, particularly when it comes to manufacturability: "Most customers have no idea what is required to make an injection molded part. We will always have to modify their drawings to design a part that can actually be molded."

"We have seen some increase in the number of requests for design support for new projects with several customers," Accudyn's Stolarski says. "This has largely been caused by the lack of engineering resources at our customers' facilities."

Ignatowski at Champion Plastics says his company has seen huge demand for design - for - manufacturing (DFM) services. "Many of the young design engineers don't have the experience to properly apply the needed drafts, uniform wall thicknesses, etc., for injection molding." In Champion's case, the company typically revises part CAD files, modifying the design to enable easier molding before tool steel is cut.

### "Almost Normal"

Despite the myriad challenges posed by a molding sector emerging from the pandemic, many respondents said 2021 was a banner year in terms of business. "2020 was very challenging for Precision Tool," Goerges says, "yet we somehow pulled off our best in the the history of the company. And 2021 was even better — go figure."

"2021 was an extremely busy and challenging year with lingering COVID issues, numerous supply - chain difficulties, price increases, labor shortages, etc.," Katen at Plastikos says. "It was extremely busy with all our customers, whether due to pent - up COVID demand or just continued growth."

"I believe that successfully navigating all of the variables that hit us in 2021 actually made the business environment in 2022 almost normal," Accudyn's Stolarski concludes.

**(Source: Plastics Technology - Thursday 6th October, 2022)**



# CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING

## Recycling

### Keeping Marine Litter at Bay and Useful with Recycling

As the saga of marine plastic litter continues, the plastics industry is taking a serious look at recycling and to offer well-rounded solutions.

Of the marine litter found in the sea, plastics make up 90% of marine waste. Plastic waste's slow decay rates are impeding efforts to reduce marine litter quickly. Plastic waste production is also increasing, with estimates indicating that it could triple to 265 tonnes/year by 2060, up from 99 million tonnes in 2015.



Meanwhile, recycling, which has the potential to reduce plastic pollution in the environment, has been an under utilised solution. Only 9% of plastic waste is recycled globally, while 22% is mismanaged.

## New “socially responsible” feedstock

A truckload of plastic enters the ocean every minute, or 8 - 12 million tonnes / year of plastic, with the production of plastic set to quadruple by 2050, according to data by the **UN Environment Programme (UNEP)**.

The Canadian no-for-profit social enterprise **Plastic Bank**, which boasts 22,881 community members, has already stopped over 61 million kg of plastic, or an equivalent of over 3 billion of bottles, from entering the oceans, and engaging more than 615 recycling communities.

It builds recycling ecosystems in underdeveloped and developing communities to help counter both plastic pollution in the oceans and high poverty levels.

Ocean - bound plastics are then reprocessed into what Plastic Bank refers to as “social plastic” and reintroduced into the global supply chain. These include PET, LDPE, and HDPE materials, available in bale, flake, and pellet form.

In 2017, German multinational firm Henkel became the first major consumer goods company

to join forces with Plastic Bank. Henkel has assisted in the collection of over 5 million kg of plastic waste, equivalent to 265 million plastic bottles, since 2018. Henkel's consumer business units in Laundry and Home Care, as well as Beauty Care, have introduced product packaging made from social plastic feedstock.

Meanwhile, Italian packaging company Carton Pack is the first and only fruit and vegetable manufacturer in Europe to offer packaging made entirely of social plastic feedstock.

Carton Pack adds it has already prevented over 440,000 kg of plastic - the equivalent of more than 22 million plastic bottles, from entering the ocean since partnering with Plastic Bank in 2020.

Thus, interest of using recycled feedstock is gaining strong momentum.

## Bin there, done that: “bin” technologies to collect waste

Elsewhere, practical technologies are game changers in combating marine litter, such as the Trashboom from German start-up **Plastic Fischer**, whose

founders had the idea for their business when they saw a stream of waste plastic floating down the Mekong River.

Plastic Fischer, founded in 2019, is led by CEO / Founder Karsten Hirsch and describes itself as a "3L Initiative" - locally, low - tech, and low - cost. According to the company, it develops "very simple technology" in its location while boosting the local economy.

TrashBoom is a swimming barrier made of readily available materials such as PVC pipes and PET bottles that stops the vast majority of floating plastic in rivers. Trashboom has been tested in Bali, Indonesia, in 2019. The next stops will be in Bangalore, Varanasi, and Thiruvananthapuram, India; Bandung, Indonesia; and Ho Chi Minh, Vietnam.

Plastic Fischer claims to have collected, sorted, and processed river waste in a safe and "as good as possible" manner. All recyclables are sold to a local recycling company, while non - recyclables are incinerated with energy recovery (thermal recycling), in accordance with international best practices.

Another venture is the Seabin Project, created as a long - lasting floating garbage can capable of collecting water - borne plastics and trash 24 hours / day, by Andrew Turton and Pete Ceglinski, two avid water lovers. Turton and Ceglinski launched Australian company **Seabin Pty Ltd** in 2015 and the Seabin project.

The V5 Seabin unit, which features a sturdy and 100% recyclable plastic mesh, is a

floating debris "skimmer" designed to be installed in the water of marinas, yacht clubs, ports, and any other water body with a calm environment. The seabin's catchbag holds 20 kg of debris and acts as a filter for both macro and micro floating waste. It is installed in a specific problem area in the marina on a floating dock, enabling the wind and the currents to push the debris directly to the seabin.

The Seabin project team is now working on developing a recycling programme to reuse captured plastic waste and contribute to the circular economy.

### More ways to recycle difficult plastics

**One world Japan Corporation**, based in Osaka, has developed what it says is a one-of-a-kind device called Urban Rig, which uses pyrolysis to decompose marine waste and recover oil, charcoal, and metals for recycling.

By cooling down gases that have been distilled during the pyrolysis process, Urban Rig can separate light diesel oil and other oils, methane gas, carbonised ash, and other materials from plastic. From 200 cu m of waste containing 10% plastic, Urban Rig can recover approximately 10,000 l of light diesel oil and 50 cu m of charcoal.

In a similar vein, US - based materials company Eastman is building a US\$1 billion material - to - material molecular recycling facility in Port - Jérôme - sur - Seine, Normandy, France, that is expected to be operational by 2025. This location will provide

the company with easy access to waste polyester feedstock, the space needed for a large facility, and the infrastructure required for operations of this scale.

With the ability to recycle 160,000 tonnes/year of difficult - to - recycle polyester waste each, Eastman's operations at this plant will include on - site polymerisation, which will allow for sorting, depolymerisation, and recycling of PET in a single location.

Eastman adds that its polyester renewal technology (PRT) will complement mechanical recycling and achieve true circularity for difficult - to - recycle plastic waste in a linear economy. Like coloured or degraded PET or textiles, this material is typically incinerated because it cannot be mechanically recycled or must be downcycled.

On a similar mission, materials company Dow and advanced plastic recycling solution company Mura Technology are joining forces to build multiple 120 kilotonnes / year recycling facilities in the US and Europe, using Mura's HydroPRS (Hydrothermal Plastic Recycling Solution), adding as much as 600 kilotonnes of aggregate advanced recycling capacity by 2030.

In keeping with this, Mura intends to build a new facility at Dow's Böhlen site in Germany. The new Böhlen facility, which is expected to be operational by 2025, will provide approximately 120 KTA of advanced recycling capacity at full run - rate. This, along with



## CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING

other planned units in Europe and the US, would add up to 600KTA of advanced recycling capacity by 2030, propelling Dow to become the world's largest consumer of circular feedstock for polyethylene production.

The HydroPRS advanced recycling process can be used to recycle all forms of plastic, including flexible and multi-layer plastics, which have previously been deemed unrecyclable. The process uses supercritical steam to break down plastics (water at elevated pressure and temperature). In as little as 25 minutes, the steam acts like molecular scissors, cutting longer - chain hydrocarbon bonds in plastics to produce the valuable chemicals and oils from which the plastic was originally made.

Because supercritical steam is used, the technology is naturally scalable. Unlike other methods that heat waste from the outside, steam imparts energy from the inside, resulting in an efficient conversion of plastic waste that can be maintained at any scale.

### **It's complicated: Southeast Asia's recycling status**

According to a recent study, the top contributors of marine debris are from the Southeast Asia region. Six out of ten ASEAN member states alone generate more than 31 million tonnes/year of plastic waste. While many of them are engaged in efforts to combat plastic waste, these efforts tend to be policy - centric with ambiguous goals that are open for interpretation and often difficult to meet without proper directions.

To compound the problem, the sudden increase in volume of single use plastics and personal protective equipment (PPE) during the Covid - 19 pandemic is putting additional stress on these countries as they tackle marine pollution.

According to Joshua Tan, Analyst (Asia Pacific) at research firm ICIS, the distribution of recycling capacity in the region does not even correspond to the distribution of population in the region. Many countries lack the necessary infrastructure, such as recycling facilities, to combat plastic pollution. Furthermore, there are national and regional plans in place to combat marine litter, either directly or indirectly, but none of them, according to Tan, actively propose recycling as a solution.

Tan went on to say that the recycling industry's role in this transition is critical. However, incentivizing additional capacity investment and supporting infrastructure improvements in collection to deliver waste as feedstock to those plants are equally important and fall under the purview of the entire supply chain as well as governments.

A step in the right direction is the recent tie up between Malaysian chemical firm Petronas Chemicals Group Berhad (PCG) and US - based ExxonMobil to assess the potential for large - scale implementation of advanced plastic recycling technology to help create a circular economy for plastics in Malaysia. The companies will also evaluate opportunities to support improvements to plastic waste collection and sorting in the country.

However, Southeast Asia will remain as the top contributor of marine plastic debris without the development of recycling capacities beyond the status quo.

The many national and international developments focused on regulatory frameworks to shift markets up the waste hierarchy towards recycle / reuse and beyond are essential but just one part of the solution.

**(Source: PRA Magazine - September / October 2022 Volume 37 Issue)**

---

### **Renewable Raw Materials: Key to More Sustainable Plastics**

*by Jeroen Verhoeven, Vice President Value Chain Development, Renewable Polymers and Chemicals business unit at Neste*

With the clock ticking on the usage of fossil resources, the plastics industry has to quickly switch to new technologies and solutions to reduce its dependence on fossil raw materials. Renewable, bio - based materials offer a huge opportunity to bridge the gap and make plastics more sustainable - already today.

“You can't decarbonize polymers,” a chemist told me a few years ago. And it's true: considering carbon is the basis for organic chemistry and therefore also for the majority of polymers. And that's why at a time when everyone is talking about decarbonization to combat climate change, the plastics



industry seems to be facing a problem. The good news is, the problem isn't carbon itself, the problem is the source of the carbon. Hence, for polymers, the order of the day isn't decarbonizing, it's defossilizing and finding alternative, more sustainable carbon sources.



### Conventional plastics take their toll on the planet

As of today globally, the major source of carbon for plastics is fossil crude oil. Yet, every litre of fossil crude oil we use ultimately leads to additional carbon in the atmosphere in the form of CO<sub>2</sub>: when plastic products reach the end of their life and are incinerated, landfilled, or even worse, are littered in the environment where they slowly decay. The effect of this could be even similar to just burning the fossil crude oil right from the beginning. And that's why fossil carbon sources need to be replaced.

Luckily, there are other carbon sources we can tap into to replace virgin fossil carbon, namely biomass, which is part of the Earth's natural carbon cycle. There is a constant emission of CO<sub>2</sub> to the atmosphere via plants at the end of their life, but also a constant absorption of CO<sub>2</sub> from the atmosphere through plants' photosynthesis during their growth. Instead of using fossil resources, we can use the renewable carbon from biomass,

resulting in a significantly improved carbon footprint of plastic products from these bio-based sources over fossil plastics.

Before digging into the details of the technology to do so, some clarification might be helpful as there often is confusion about bioplastics, bio-based plastics and biodegradable plastics. While similar, these terms aren't synonymous. "Bio-based" refers to the verified use of renewable materials / biomass in the production of plastics. "Biodegradable" refers to the end-of-life properties of the plastics, which allow decomposition, but it doesn't say anything about the raw materials they are derived from. Finally, "bioplastics" is the most confusing of the three and often misused as an overarching term for both or it's used to describe one or the other.

### Bio-based plastics can be made from waste and residues without loss in quality

The raw materials that can be used for bio-based plastics are numerous. Looking at the raw materials we use at Neste for our renewable products, over time our raw material mix has evolved. We have shifted more and more to using waste and residue oils and fats, including used cooking oil or waste and residues from vegetable oil production. These materials are then processed in our proprietary NEXBTL refineries. In contrast to fossil raw material, the oils and fats we use contain oxygen, which is an undesired element for our customers and we therefore remove them with hydrogen atoms. What remains at the end of the refining process are pure hydrocarbons. This

means the NEXBTL technology allows us to turn renewable raw materials into fuels such as renewable diesel or renewable aviation fuel or into feedstocks for the chemicals and polymers industry. There, they can replace, for example, fossil naphtha.

The big advantage of our renewable feedstock for polymers and chemicals is that it's chemically hard to distinguish from the fossil version. In fact, it can replace fossil feedstock 1:1 and it can be used either in neat form or be mixed with fossil feedstock. This makes it rather easy to make the switch from fossil to bio-based plastics as there is no need to build up new facilities or make big changes or investments into the existing manufacturing infrastructure. At the same time, the plastics produced from the renewable feedstock come with the same properties and qualities as the conventional ones: they can be used in the same industries and for the same applications. Some examples of end-consumer products that are made out of our renewable feedstock include high-quality coffee capsules, plastic film for packaging, diapers and plastic cups. Any product that is made of fossil-based plastics could also be made from bio-based plastics. The big advantage is that these products have exactly the same look and feel, as well as (food) safety and mechanical properties as their fossil-based equivalents.

While chemically identical to their fossil counterparts, the big difference with the feedstock lies in the carbon footprint. Life cycle analysis for our renewable hydrocarbons, i.e. renewable feedstock for polymers and

chemicals, shows a decrease in greenhouse gas emissions of more than 85% over fossil feedstock. If emissions from transportation and energy use in the value chain leading to the feedstock produced were reduced further by increasing the use of renewable energy, the greenhouse gas emissions reduction could very well move even closer towards 100%. This is what we are currently working on at Neste.

### **The capacities are there already today**

Another advantage: in contrast to other sectors or technologies, bio-based plastics are not a future technology. They are available and used already today and there are industrial - scale capacities in place to produce the feedstock required. At Neste alone, we can currently produce 3.3 million tons of renewable products per year. This capacity will increase to 5.5 million tons by the end of 2023 and once more to 6.8 million tons by the end of 2026. Neste's facilities to produce the renewable solutions are located in Finland, the Netherlands and Singapore.

When using mainly waste and residues as raw materials, it could be argued that this raw material base has to be limited. While that's true, we estimate the current globally available waste and residues raw material pool that is fit for use in our refineries to be around 40 million tons - so there is quite some room left. Nevertheless, it will be necessary to diversify the raw material portfolio further if we want to significantly reduce the millions of barrels of crude oil the global petrochemical industry is processing every single day.

There are multiple raw materials that may become relevant for bio-based polymers in the future. At Neste, we are for example looking at lignocellulosics, biomass from forestry and agriculture that only has lower-value uses as of today. Other sources could be microalgae as well as novel vegetable oils, new and additional volumes of vegetable oils derived from existing agricultural land without replacing existing cultivation. With these technologies, the future raw material pool could easily reach hundreds of millions of tons per year.

### **Bio - based solutions as an enabler for the industry**

Wrapping it up, "enabling" strikes me as the best characteristic to describe bio - based raw materials when it comes to the sustainable transformation of the plastics industry: using such materials is an enabler to successfully manage this transformation. The technology is available today, it's available at scale and the hurdles to introduce it into existing value chains are low. Bio - based feedstock can do just what conventional feedstock can do. So the question we should ask ourselves isn't "if" we should use bio - based plastics. The question is, when do we start scaling up their usage to make sure that plastics also have their place in a more sustainable society? We should start using them today as every single drop of fossil we can replace is a win for the environment.

**(Source: PRA Magazine - September / October 2022 Volume 37 Issue)**

## **Recycling Specialist Lindner's New Plant Delivers on Automation, Robotics, Flow Manufacturing and Increased Depth of Production**

**The high global demand for Lindner's quality products made it necessary to expand the plant and the team. The motto in the new home of recycling, however, has not changed one bit: Make the most of waste.**

Recycling has been experiencing a strong upswing for many years – worldwide. From the very beginning Lindner Recyclingtech has been considered a pioneer, which is why shredding solutions from Spittal in Austrian Carinthia have been used internationally for decades and are considered a benchmark in many areas. A growing awareness of energy costs, the scarcity of resources and raw materials have increasingly highlighted the importance of the circular economy. In 2019, due to the associated higher demand for efficient recycling solutions and Lindner's endeavour to support its customers in the transformation of end - of - life materials into recyclables, the decision was made to build a new factory – the new home of recycling.

The new production area is not the only highlight; the three - storey office complex also impresses with its modern construction and facilities. All in all, a great deal of importance was attached to the use of environmentally friendly building materials and sustainability when building the new home of recycling. That's why a

photovoltaic system supplies the entire company with clean electricity from renewable sources. In keeping with the idea of an energy self-sufficient site, heating and cooling is also provided by groundwater and heat pumps. Laminated timber from the region, a renewable raw material, was used in the construction of the hall itself. And in the design of the employee car park, it was important to seal as little ground as possible, which is why special recycled plastic turf bricks made by a Lindner customer were used for the paving. Employees will get their own company canteen this autumn, which will take over the catering on site in line with employees' shifts.

### Sustainability Among The Many Niches at Niche Polymer

Founded in 1987, Niche Polymer continues to grow—both organically and through acquisition—by focusing its product - development efforts on ever - changing market needs. Adding value to both industrial and post - consumer scrap is a growing part of this effort.

Seems like Dr. Saurabh Naik was ahead of his time in this whole circular economy proposition. He started looking for markets for recycled post-industrial scrap back in the 1980s. In 1978, he had earned his PhD in Polymer Chemistry from U-Mass Lowell, then spent some time with Martin Marietta

and International Paper doing R&D work on incorporating mica as a filler in thermoplastic formulation.

Today, Naik is founder and CEO of Niche Polymer LLC, One of its product lines is called PoliPCR, made from post - consumer reclaim for applications that include automotive interior trim, under - hood components, lighting, window profiles, flooring, wall coverings, and consumer durables such as furniture and appliances. PoliPCR is based on PP, nylon 6, nylon 66, PC, ABS and PBT.

Says Sunny Naik, son of the founder and v.p. operations for Niche Polymer, ““We believe in proactive support for sustainability through collaboration with resin suppliers, molders and OEMs to divert plastic waste from the environment, increase recycling and incorporate post - consumer recycled content in value - added products. Ethical sourcing of our material streams is our social responsibility. Sustainability is our ability to repeat the process at a consistent rate.”

Niche Polymer operates plants in Ravenswood and Washington, W. Va., Nesquehoning, Pa., and Killen, Ala., and has distribution facilities in both Washington and Toronto. Schedule to open this year is an 80,000 ft<sup>2</sup> plant in Muscle Shoals, Ala., that will focus on soft polymers (TPEs and TPVs). The company plans on equipping the plant with up to three new twin - screw compounding lines. It will focus on supplying automotive OEMs

in the Southeast. Also, this year Niche opened a PCR - focused plant in Florence, S.C. Next year, Niche will open a compounding plant in Queretaro, Mexico, and a tech - service and distribution center in Texas. The plant in Nesquehoning came about as a result of Niche's 2021 purchase of Ametek / Westchester Plastics, which added grafting, reactive compounding and tolling services to the company's capabilities.

Dr. Naik spent much of his early career in polymers, focusing on reclaim. In 1987, when Niche was founded, he sold scrap from Black & Decker's manufacturing processes to China and India. As he secured more sources of supply, he opened a recycling plant in Baltimore to perform size reduction and baling. By the 1990s, he was shipping 20 million lb/yr of scrap

- Provide strength and safety in electric vehicle batteries and bumper systems.
- But car makers are also pushing their material suppliers for grades containing up to 30% PCR for instrument panels and other interior components. “The OEMs want to market PCR as value - added materials, and we work regularly with their development teams on programs to develop compounds that are fit for the purpose.”

(Source: **Plastics Technology - Thursday 6th October, 2022**)



### New German Joint Project “Biopolymers – Materials, Properties, Sustainability”

With the help of this project, the participants should be able to decide for themselves which materials can be used for their own products and whether they increase the sustainability of the product.



The Kunststoff - Institut Lüdenscheid (Germany) is planning a new joint project for autumn 2022 that will examine application possibilities of biopolymers. The topic of sustainability is the core issue of the current time, which the plastics industry in particular has to face. Every company is required to produce more sustainable and to minimise its Co2 footprint.

The material factor is the main aspect of component production, not only in terms of costs, but also in terms of energy. Therefore, the increase in sustainability must necessarily lead to the material input. The establishment of a circular economy is an option, but not the solution for every company or product.

The use of biobased and / or biodegradable polymers, possibly in combination with the circular economy, can be a solution.

But which materials and manufacturers are there? What properties do these materials

have and to what extent can they be modified and where are the limits? Which materials come into question at all? What are the recycling options? And one of the main questions in this context: Are these materials really more sustainable?

With the help of this project, the participants should be able to decide for themselves which materials can be used for their own products and whether they increase the sustainability of the product. Therefore, both basic and product - related questions concerning the applicability of biopolymers are to be answered.

At the beginning of the project, definitions of terms and current market developments will be presented. An overview of the different types of biopolymers, their properties, raw material source, biobased content, or biodegradability as well as processing characteristics and a cost - technical consideration is needed to get a better basis for decisions. Furthermore, different biobased additives, wood and natural fibres, and the advantages and disadvantages of different disposal routes will be highlighted.

In order to generate the greatest possible benefit for the project participants, 5 different kinds of biopolymers will be selected for a more in - depth examination and research. In this regard, the project wants to show which raw material manufacturers offer these materials and which portfolio of additivation possibilities they have. In addition, research will be carried out on the selected polymer sorts for information on the sustainability of the raw

material sources, the CO2 equivalents and the possible end - of - life options.

Most companies that are new to this group of materials will also have questions about how to communicate and promote a product made of bioplastics, as many have already heard more or less about problems in this field. With this in mind, various product examples are also searched for, on the basis of which a guideline for successful product promotion is drawn up.

And last, but not least: Since every company has different requirements for the properties of its products and thus the materials used, a material research for potentially suitable biopolymers for one product of each project participant is carried out within the project. Through networking and the cross-sectoral consideration of requirements, new impulses for the use of biopolymers can be made possible.

Although the project language will be German, it will also be possible for international participants to download the project results in English, if required.

The short project duration of 1 year offers a quick introduction into the topic of biopolymers. The project participants do not have to invest any active work in the project themselves, so that a low personnel and cost effort is generated for the development of a knowledge base. The results will be presented in 3 project meetings over the project duration. For project registration until 30 September 2022, there was an additional early bird discount of 5 %.

## New Bioplastics Research Centre in Australia

**A new University of Queensland-led training centre is set to become a hub for world-leading research in 'green' plastic.**

The USD13 million Australian Research Council (ARC) Industrial Transformation Training Centre for Bioplastics and Biocomposites, based at UQ's School of Chemical Engineering, aims to make large-scale plastic pollution a problem of the past.

Centre director, Steven Pratt said scientists will work toward developing bio-derived and bio-degradable plastics that have a minimal environmental impact.

According to Pratt, there was a rapidly growing local and international market for better bioplastics. "But we need to consider their full life cycle, from the sustainable resources to make them right up to their end of life", he said.

The training centre is a partnership between The University of Queensland and The Queensland University of Technology, alongside the Queensland Government, Kimberly - Clark Australia, Plastic Technologies, Australian Packaging Covenant Organisation, Minderoo Foundation and City of Gold Coast.

Kimberly - Clark Australia Managing Director Belinda Driscoll said the company had set an ambitious goal to halve its use of fossil fuel-based plastic in the next eight years.

The training centre will also focus on training to develop industry-ready researchers in chemical and materials engineering, polymer chemistry, environmental science, social science, policy, and business.

## Bio - Based Polymer Market Popular Trends & Technological Advancements, Forecast & Opportunities by 2025

The demand for bio-based polymers is increasing significantly due to the increase in stress on improving the use of eco-friendly materials.

According to a new report published by Allied Market Research, titled, "Bio - Based Polymer Market by Type and Application: Global Opportunity Analysis and Industry Forecast, 2018 - 2025," the global bio-based polymer market was valued at \$6,395.5 million in 2017, and is projected to reach \$9,905.9 million by 2025, growing at a CAGR of 5.3% from 2018 to 2025. The packaging application segment dominated the global market, accounting for a share of over 27% in 2017.

The term bio-based implies that the material or product is partly or wholly derived from biomass (plants). Feedstocks used for bio-based polymers are derived from corn, sugarcane, vegetable oil, soy beans or cellulose, and others. Bio-based content is defined by the amount of renewable carbon that ranges approximately from 20% to 100%. The bio-based polymer market accounted for revenue of \$6,395.5 million in

2017 and is anticipated to generate revenue of \$9,905.9 million by 2025. This market is poised to grow at a CAGR of 5.3% from 2018 to 2025.

Stringent government regulations in the developed regions, such as North America and Europe, for conservation of the environment and favorable government initiatives to promote bio-based products are expected to drive the growth of the global bio-based polymer market during the projected period. In addition, bio-based polymers are used as an alternative for petroleum-derived polymers, which is expected to act as an additional driver to this market. For instance, bio-based polyethylene was commercialized in 2010 and has been successfully displacing its oil-based counterparts. However, high cost to end user is the significant factor anticipated to hamper the growth of the bio-based polymer market during the forecast period. Conversely, consistent advancements in R&D to decrease the dependency on petroleum resource is providing lucrative growth opportunities for the global market.

The bio-based polymer market is segmented based on type, application, and region. Based on type, it is categorized into polyethylene (PE), polyamide (PA), polylactic acid (PLA), polyethylene terephthalate (PET), and others that include starch blends, polyhydroxyalkanoates, poly(butylene adipate-co-terephthalate), polybutylene succinate, and others. By application, the market is divided into textile, automotive, industrial, agriculture, packaging, and others that include paper &

paperboard, agriculture, consumer goods. By region, the market is analyzed across North America, Europe, Asia - Pacific, and LAMEA.

Based on type, polyamide had the largest share of over 17.8% in 2017. Rise in demand for polyamide in weight reduction among automobiles is expected to significantly fuel the growth in product demand, which in turn is estimated to boost the global bio - based polymer market during the projected period.

Based on application, the industrial application segment is predicted to dominate the global bio - based polymer market during the forecast period. The demand for engineered polymers is increasing in the industrial end uses, which is expected to replace traditional polymers. Due to the high chemical resistance offered by polyamides, they are widely preferred in the industrial end uses. This segment accounted for 17.9% share in 2017 and is further projected to reach \$1,728.9 million by the end of 2025, with a CAGR of 5.0% from 2018 to 2025.

**(Source: Popular Plastics & Packaging - September 2022)**

### **Teysha Technologies Has Been Issued a Certificate of Biodegradability for its Polymer Platform Aggiepol Following Successful Oecd 310 Testing.**

AggiePol, a novel bioplastic derived entirely from natural feedstocks, has been confirmed to be readily biodegradable,

meaning that it biodegrades to natural, non-harmful sugars. The material represents what Teysha Technologies names as a 'genuinely sustainable' plastic replacement, unlike partially petroleum - based conventional bioplastics.

Many additives are microplastics used in cosmetics products. For example, a shower gel containing microplastics can deposit microbeads in waterways. Globally, governments are implementing legislation, such as banning exfoliating plastic microbeads, and businesses are seeking sustainable alternative materials.

Matthew Stone, Chair of Teysha Technologies, said the AggiePol platform represents a solution: "The limitations of conventional bioplastics, in terms of biodegradation, are well known, but the argument in their favour was that, while they were not perfect, they were the best available alternative to traditional plastics. Now AggiePol has been officially certified as being biodegradable, we can provide a truly sustainable material solution to additives in cosmetics and pharmaceuticals that provides harmony with our waterways, ecology and food chain.

Stone added that the solution is a potential 'holy grail' in the search for plastic replacements and represents an opportunity for industry to switch.

Karen Wooley, CTO at Teysha Technologies, added: "AggiePol's tunability options mean it can be tailored to undergo slow or rapid biodegradation depending on the application. This makes it suitable for use in markets

like packaging, pharmaceuticals and cosmetics, where businesses still rely on either traditional plastics or partially petroleum - based bioplastics that contribute significantly to ongoing pollution."

Product testing, manufacturing and scale - up are all currently underway at the London - based company.

### **TotalEnergies to Use Chemically - Recycled Feedstocks from Indaver**

TotalEnergies, and Indaver, a specialist in sustainable waste management and advanced recycling in Europe, announced a commercial agreement for the supply of petrochemical feedstock generated from recycling of mixed polyolefins waste.



Under this agreement, TotalEnergies will purchase the petrochemical feedstock produced at Indaver's first Plastics2Chemicals plant (P2C). Indaver will supply and transform post - consumer mixed plastic waste into a petrochemical feedstock at its plant in Antwerp using its proprietary depolymerization technology. Currently under construction, the plant is expected to become operational by 2024.

TotalEnergies will process this petrochemical feedstock into high - quality circular polymers



at its plants in Antwerp. With properties and quality identical to virgin polymers, the recycled polymers will be suitable for a wide range of high demanding applications including food - grade packaging.

“We are delighted to support the development of advanced plastic recycling through this new offtake agreement. A collaboration throughout the value chain is critical to develop a more circular and sustainable economy. This partnership contributes to our ambition of producing 30% circular polymers by 2030,” said Valérie Goff, Senior Vice President Renewable Fuels & Chemicals.

**EPE Packaging Product Arplank MaDe its K Debut – with a Recycled Content Pledge**

ARPLANK, the sustainable expanded polyethylene packaging material from global foams specialist JSP, made debut at K Show.

With facilities around the world in Europe, Asia and the Americas, JSP is a specialist in the manufacture and development of expanded polypropylene (EPP) and expanded polyethylene (EPE) particle foam materials.

ARPRO, JSP's EPP foam is commonly used in the packaging, automotive and HVAC sectors, with ARPLANK, JSP's EPE material, an ideal choice for packaging applications requiring shock absorption, vibration dampening, insulation, or chemical resistance.



ARPLANK, JSP's innovative expanded polyethylene material, combines packaging performance with excellent environmental properties.

It was JSP's K Show debut in October, and the first time that its two innovative packaging materials, ARPLANK (EPE) and ARPRO (EPP), were on display for K Show attendees.

JSP announced three developments coming to its ARPLANK range of EPE packaging material.

From 1st January 2023, JSP says it can guarantee all ARPLANK manufactured in Europe will contain a minimum of 30% recycled content, sourced from end - of - life ARPLANK products. Considerable technical development was involved in delivering this improvement from the current level of 25% recycled content, without any compromise on material performance or function, according to the group. As with all ARPLANK grades, the material remains 100% recyclable, proving its credentials for the circular economy.

Secondly, and in response to market demand, the standard size of an ARPLANK block is increasing from 1800mm to 2000mm in length. This brings numerous benefits to the customer, including improved

efficiency, lower waste, and removal of timely secondary operations such as in - house lamination. This change now makes ARPLANK the largest EPE block available on the market at 2000mm x 1200mm x 150mm and will be much welcomed by JSP's regular customers.

The final announcement is that, for the first time, it is now possible to purchase ARPLANK directly from JSP for customers within the DACH Region (Germany, Austria and Switzerland).

What is ARPLANK?

ARPLANK is a highly resilient closed - cell bead foam packaging material, manufactured from EPE (expanded polyethylene). During the fusion process, ARPLANK's polyethylene shells are thermally bonded to create a three - dimensional bead that has excellent properties for absorbing and dissipating energy.

The EPE beads are then moulded into isotropic blocks to create ARPLANK, a highly protective packaging material. All ARPLANK manufactured in Europe contains a minimum of 30% recycled content, is 100% recyclable, and enables material savings of up to 50% whilst maintaining the same protective properties.

For packaging applications that require shock absorption, vibration dampening, insulation or chemical resistance, ARPLANK is a natural choice. It can withstand multiple impacts without damage, is non - abrasive for class A surfaces and is incredibly lightweight.

In contrast to conventional foam materials, which have different physical properties along the extrusion, vertical and horizontal axes, the properties of ARPLANK are the same regardless of material orientation.

---

### Artificial Intelligence Enables Smarter Sourcing

**Westfall Technik has adopted Arkestro's predictive procurement software to wring savings and more reliable deliveries from a historically challenging supply chain.**

Built through the acquisition of 17 companies over approximately a 4-year timespan, the company has seen continued solid organic growth from their customers in their target markets of healthcare and consumer packaged goods and continues on their new customer acquisition journey. Westfall's corporate methodologies backed by their "Stacked Integration Model" certainly delivers as it relates to their value proposition but also has magnified the need for continuous improvement in key areas given its growth. This has resulted in a corporate structure which poses unique and nuanced supply chain challenges. The company provides end - to - end manufacturing capabilities, including product design, moldmaking, injection molding, assembly and more to a broad range of customers, and as David Schultz, VP, Chief Supply Chain Executive puts it, Westfall Technik counts "all the biggest logos" amongst its customers.

Schultz, whose past experience includes several senior operating positions, more specifically, Chief

Procurement Officer/Chief Supply Chain Officer for both private and publicly traded companies. He has held key operating roles with GE Plastics, Boston Scientific and ConMed. He was also President and Founder of a packaging business in partnership with Nypro that was later sold following the acquisition of Nypro by Jabil. He began his tenure with Westfall in February 2022 specifically to help the company better steer its myriad of businesses in the same direction from an overall Supply Chain standpoint. After quickly assessing the opportunities to enhance value, he reached out to Edmund Zagorin, CEO of Arkestro (San Francisco), whom he had gotten to know over the years at various supply chain events and conferences. Over that time, Schultz got regular updates from Zagorin on his new company's capabilities in applying AI/ML to strategic sourcing. Westfall adopted that company's predictive procurement software in April, initially easing the platform into the company's sourcing activities.

"We began with a crawl, walk, run strategy," Schultz says. At first, Westfall tasked the predictive platform with sourcing so - called indirect materials—things like laptops and security cameras. After these early successes, Westfall and Arkestro transitioned to areas of significantly greater complexity.

"After [indirect materials], we said, 'Let's really test this out—work with us on resins, our largest purchases, and extremely complicated direct materials with a lot of moving parts,'" Schultz says. Westfall and Arkestro

collaborated to push the platform to where they needed it to be, helping not only with securing lower total costs but ensuring continuity of supply.

"It wasn't just prices," Schultz says. "It was capturing the overall value throughout the supply chain. If you look at historical surveys of chief procurement officers, price has always been the top concern. This past year was the first time that it's not price — it's Operational Efficiency as underscored in the Deloitte Global 2021 CPO survey. If you get a great price that's terrific, but if it doesn't show up, does it really matter?"

### Eliminating Human Time Spent Correcting Inevitable Errors

In a non-AI powered procurement process, the heavy lifting of gathering and comparing data falls to people, inviting the inherent possibility of human error and laborious corrective measures. "The classic way procurement teams interact with suppliers is to ask them for a ton of data that's copy and pasted from multiple systems into a single submission," Arkestro's Zagorin explains.

"Then on the procurement side of the cycle you create another spreadsheet and look at each row and each offer, side by side, using a pivot table. If there's an error; if a supplier mis-keys a value in the price; it's often discovered so late in the process that it can be challenging to catch or update. After all, the error can form part of what has been legally agreed to"

## CIRCULAR ECONOMY/ BIO-PLASTICS/ RECYCLING

Arkestro's system works inside of the systems and processes customers are already using by embedding recommendations on price and allocation into a company's sourcing and purchasing workflows. It does this by recommending predictive pricing suggestions to buyers at the item level for any market basket, Purchase Requisition or Bill of Materials, which can then be communicated directly to suppliers. Arkestro can also route purchases to preferred suppliers and automate buyer - supplier email correspondence, saving time, attention and resources. The company promises to unify a business's sourcing, purchasing, contracting and supplier management activities with real-time data benchmarks and "manage - by - exception" anomaly detection.

"Arkestro actually recommends price and terms in an offer to a supplier," Zagorin explains. "Instead of the supplier having to spend time coming up with an offer only to get pushback, not to mention, the procurement team having to screen and rank them all, Arkestro suggests an offer that it thinks is competitive, and the supplier can modify and submit. By proposing a price that's beneficial to both parties, it shortens the cycle time which gives the supplier greater predictability and the procurement team net - better economics."

Schultz says Westfall has benefited using the program from the buyer's perspective, but he has also seen how suppliers quickly gravitate to it as well. "Arkestro initially began the construction of this platform with suppliers in mind," Schultz says,

"and that's crucial for long - term success. If you don't have a supplier base that believes in the integrity and simplicity of the system, you've got nothing."

Founded in 2017, Arkestro's first customer was BASF, with Zagorin noting they've "worked on enterprise grade technology from day one," including the ability to handle data security, global currencies, and more. While those requirements have stayed the same, other aspects of its business have changed.

"Our initial vision was really focused on helping manufacturing and industrial companies nail the RFQ process, where they need to collect and compare quotes for a new product launch, a sourcing event, or approving a large and complex purchase," Zagorin says.

Early on, the company picked up on the issue of error prone manual data entry. "Web forms with manual text fields alone wouldn't help much," Zagorin says. "We realized that from a clean sheet of paper standpoint, you need to apply machine learning, behavioral science and game theory to make sure incentives are aligned. That's why predictive learning is key."



In the same way that Netflix or Amazon recommends to users what to watch or buy based on past behavior, Arkestro works to know and understand the

companies that deploy it. Where normally, sourcing can get siloed into different groups within the company, Arkestro hopes to open it up. "Traditionally, companies struggle to learn from their own purchasing and procurement transaction history," Zagorin says. "You buy a replacement part for a machine in one factory, and when you go to buy that same part, you essentially start from scratch. We wanted a recommendation system that learned from purchaser and supplier behavior and makes adaptive well - timed recommendations to suppliers and procurement teams. The fact that the recommendations learn and improve over time is a significant benefit for our customers."

**(Source: Plastics Technology, Friday, October 14th 2022)**

### Taipeiplas 2022 Carries on as an Online Exhibition

Taiwan's total exports of plastics & rubber machinery from January-August this year reached US\$704 million, an increase by 7.71% over the same period last year. And the total exports of shoe - making machinery were US\$70 million, up 18.9% compared with the same period last year. Taiwan is ranked as the world's sixth exporter of plastics & rubber machinery and world's second exporter of shoe-making machinery.

Taipeiplas, which was held in conjunction with ShoeTech Taipei from 27 September-1 October, will be back with a month-long online exhibition till 27 October. After a four - year absence, the physical Taipeiplas had 300 exhibitors in 1,300 booths under one roof.





For You. Right Through.

## Rajiv now offers Liquid Color Masterbatches for Commodity & Engineering Plastics

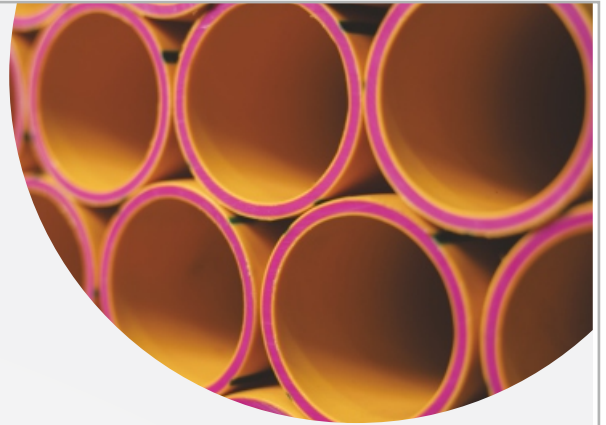
- Easily fed through liquid dosers
- Perfect dispersion & gloss each time
- Quick Clean Ups
- Economical option due to low dosages
- Small batch requirements easily met



**MASTERBATCHES • COMPOUNDS • TOLL COMPOUNDING • BIOPOLYMERS**

- Innovation
- Technology
- Precision
- Performance

+91-22-66929701 | [info@rajivplastics.com](mailto:info@rajivplastics.com) | [www.rajivplastics.com](http://www.rajivplastics.com)



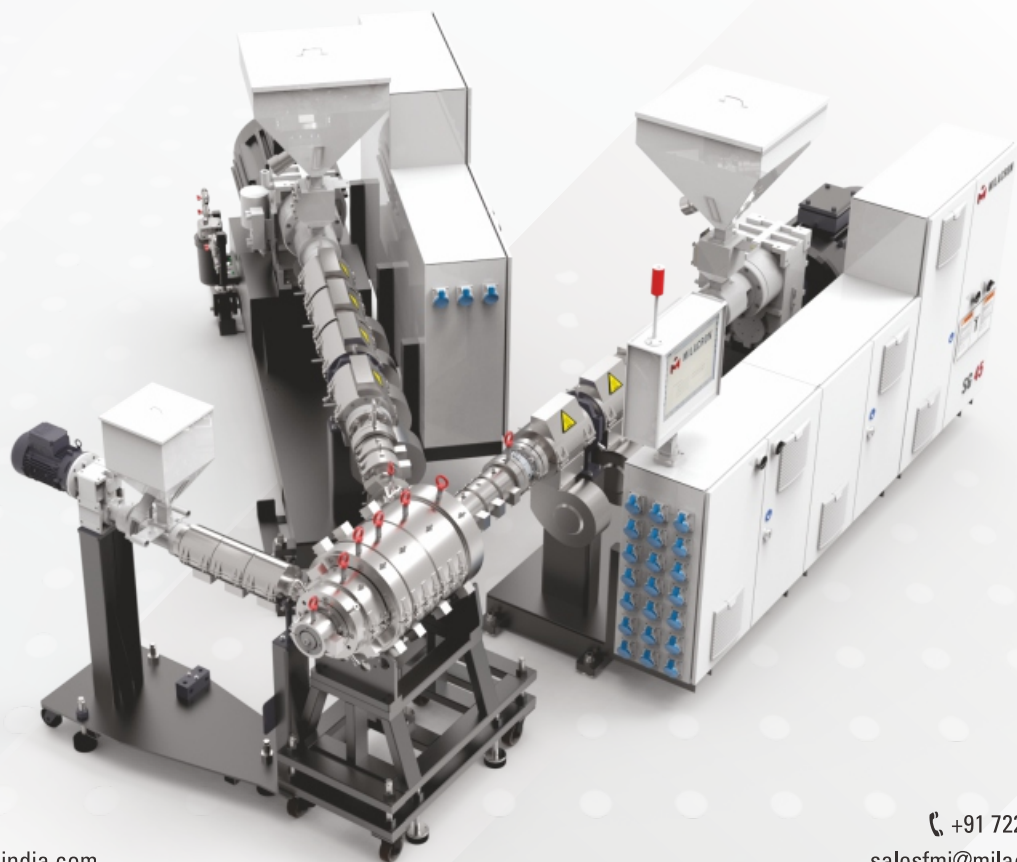
# PE/PP MULTILAYER EXTRUSION SOLUTIONS

## Single Screw Extruders

SG 45 | SG 60 | SG 75 | SG 90

Output  
Capacity  
up to  
**400 kg/hr**

Recyclate Sustainable Solution  
Uniform Layer Distribution  
Wide Variety of Layer Ratios



[milacronindia.com](http://milacronindia.com)

+91 72279 09818  
[salesfmi@milacron.com](mailto:salesfmi@milacron.com)

M10522