



Volume 1 ♦ ISSUE 9 ♦ October - 2019

₹. 100/-

www.rmwa.in

The RMWA Journal

GUJARAT'S FIRST RUBBER MAGAZINE

Participation to Growth

India
RUBBER
& TYRE Show

2019

20-21-22
DECEMBER-2019

Leading International Rubber Technology Exhibition

- Rubber Products
- Rubber Raw Materials
- Rubber Chemicals
- Rubber Machinery
- Tyres

Few weeks to go: "Book your Sponsorship, Stall & Advertisements"

In this issue :

India Rubber & Tyre Show

Polybutadiene Rubber [BR]

An Overview of Primary Accelerators
Used for Rubber Vulcanization

Importance of Ash Content in EPDM Rings
which are used in UPVC Pipes.

Polyamide Modified Thermoplastic
Elastomer: Automobile Application

Your experts in rubber and
silicone injection moulding

24/7

DESMA

STRATEGIES FOR SUCCESS IN RUBBER INJECTION MOULDING

- FIFO technology injection units
- 'Fully closed loop' controls -
with 'intel' processor
- 'Zero' loss transmission delivery pump
- Efficient hydraulics
- Automation systems
- Cold runner blocks & Moulds



Soul & Solutions for Global Success

Kloeckner DESMA Machinery Pvt Ltd
Plot No.10, Road No.1, G.I.D.C., Kathwada, AHMEDABAD 382430, India
Contact : +91-79-6619 0000 | sales@desmaindia.com | www.desma.biz

mag 09/2019

Bhavik Enterprise

We build relationships that build business

An ISO 9001:2015 Certified Company

Importer • Distributor • Indentor

Offer from Ready Stock • Highseas • Direct Import • Sampling & Trials
Application Development • Technical Support from our Principals

Our Product Range

- SILICONE RUBBER
- SILICONE GUM
- LIQUID SILICONE RUBBER (LSR) & RTV
- SILICONE ADDITIVES & MASTER BATCH
- FLUROSILICONE RUBBER (FVMQ)
- FLUOROELASTOMER (FKM)
- PERFLUOROELATOMERS (FFKM)
- SILICONE FOR AUTO ELECTRICALS
- ORGANIC PEROXIDES
- PEROXIDE MASTERBATCH WITH SILICONE POLYMER
- SPECIALITY CHEMICALS & ADDITIVES
- SILICONE FLUID / OIL / OH POLYMER
- PROCESSING ADDITIVES
- SYNTHETIC RUBBER
- EPDM RUBBER
- NITRILE RUBBER & PVC NBR
- RUBBER COMPOUNDS
- UHMW & PTFE (FILM)
- SPECIALITY FOAMS
- CARBON BLACK N990

We are ready for
Next Gen Raw Material
for EV Electrical Vehicles

Berubsil
Silicone

Contact us : **Bhavik Enterprise**

Neelkanth Business Park, Suite No. 720, 'D' Wing, 7th Floor,
Vidyavihar (West), Mumbai - 400 086. India.

📞 Inquiry - 9082849756 Tel.: +91-22-2509 2756 Ext. 206

E-mail: sales@berubber.com. Website: www.berubber.com



Automatic Batching Systems

The Automatic Batching system is useful for weighing the different ingredients of a batch process.

The system is useful for :

INDUSTRIES

- ◆ Rubber
- ◆ PVC / Plastic
- ◆ Paints
- ◆ Pharma
- ◆ Food Processing
- ◆ Glass
- ◆ Cement / Ceramic
- ◆ Chemicals
- ◆ Petroleum & Transport

**EESHAAN
AUTOMATION
PVT LTD.**

MATERIALS

- ◆ Powders
- ◆ Granules
- ◆ Pellets
- ◆ Flakes
- ◆ Oils
- ◆ Esters
- ◆ Viscous liquids
- ◆ Diesel / Petrol
- ◆ Water

- ◆ Speed
- ◆ Repeatability,
- ◆ Reliability,
- ◆ Accuracy,
- ◆ Programmability,
- ◆ Display & Annunciation,
- ◆ Recipe Management.

EESHAAN AUTOMATION PVT LTD.

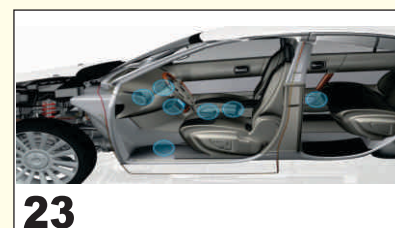
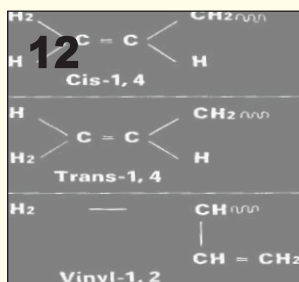
89, 90, 91, Rajdeep Industrial Estate, Bibi Talav, Vatva, Ahmedabad 382440. Tel: 91 79 25891296, M: 9227972801/5.
ykhate@yahoo.co.in / info@eeshaan.co.in / ykhate@eeshaan.co.in
www.eeshaanautomation.com / www.eeshaanautomation.in / www.eeshaan.net / www.rubberrollers.asia

Publisher :	RUBBER MANUFACTURERS' WELFARE ASSOCIATION
Editor :	Nilesh Parikh
Technical Editor :	Manoj Shah
Corporate Office :	RUBBER MANUFACTURERS' WELFARE ASSOCIATION B/413, Rudra Arcade, Nr. Helmet Circle, Memnagar, Ahmedabad – 380052.
Phone :	079 27410226
URL :	www.rmwa.in
Editorial / Subscription / Advertisement E-mail to :	info@grma.in
Creatives & Designs :	Gautam Bhide, Deepak Mistri
Printed By :	Kasturi Graphics 5, Chandralok Society, Nr Cadila Laboratories, Ghodasar, Ahmedabad - 50. (Gujarat) INDIA. M : 09825433219

RMWA COMMITTEE MEMBERS

Dipak Doshi	: President
Yashodhar Kahate	: Secretary
Samir Shah	: Treasurer
Piyush Shah	: Sr.Vice President
Snehal Shah	: Jt.Secretary
Arpit Karbhari	: Jt.Treasurer
Mukesh Desai	: Managing Trustee
Rajesh Kothari	: Past President
Rajendra Shah	: Trustee
Dinesh Chauhan	: Trustee & Working Committee
Hiren Panchal	: Working Committee
Dharmik Patel	: Working Committee
Nilesh Parikh	: Working Committee
Yogesh Rangras	: Working Committee
Nimit Arora	: Working Committee
Jignesh Sanghvi	: Working Committee
Hemang Shah	: Working Committee

Contents Of Magazine	Page no.
Editor's Note	07
From the Chairman's Desk	08
Glimpses of Past Exhibition	09
Message of Chief Convener	10
IRTS Exhibition Directory - Tariff	11
Polybutadiene Rubber [BR]	12 & 13
Information of Upcoming Rubber Events/Exhibitions	13
An Overview of Primary Accelerators Used for Rubber Vulcanization	15 to 17
Importance of Ash Content in EPDM Rings which are used in UPVC Pipes.	19
Noteworthy	20 to 22
Informative	23 to 26
Application Of Vacuum Lifter	26
Polyamide Modified Thermoplastic Elastomer: Automobile Application	27 & 28
RMWA Activities & News	30
RSDC News	31 & 32
New Members List	33 to 35
Book Advertisement & Subscription	36





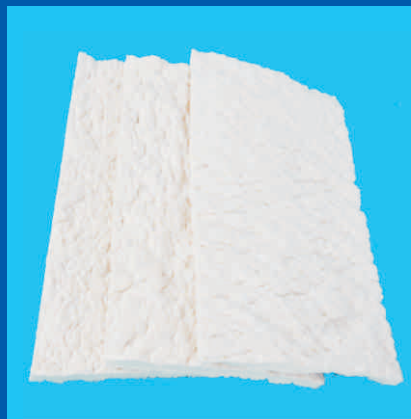
Fluoroelastomers **DYN AFLUON**

Dynafluon Designs & Manufactures Fluoroelastomer Polymer

Dynafluon follows individual customer need/specification to design Fluoroelastomer Polymer and Compound. Dynafluon customises Fluoroelastomer to suite end application, manufacturing process & specification.

Dynafluon offers high performance Fluoroelastomers for lower compression set, better abrasion resistance, improved stress/strain (modulus) characteristics, and other special properties required such as low post cure time, high tensile strength.

Dynafluon Fluoroelastomer Polymer and Custom Compounds are versatile material, flexible and designed for all processes like injection, transfer, compression moulding, calendaring, autoclaving and extrusion.



DYN AFLUON

406, Rainbow Chambers, S.V.Road, Poinsur, Kandivali (W), Mumbai 400067, India

Tel : +91-22-28652307 Fax : +91-22-28612795 Cell: +91-9320142795

Email: info@dynafluon.com / ajempl@gmail.com

www.dynafluon.com

3RD EDITION
India
RUBBER
& **TYRE Show**



DEEP JYOTI
RUBBER PVT. LTD.

20 21 22
DECEMBER 2019

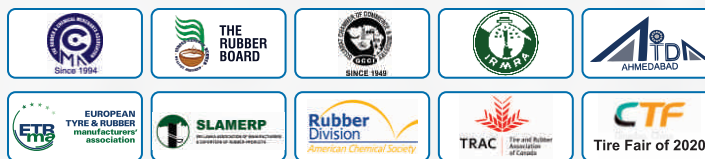


Gujarat University Exhibition Centre
Near Helmet Circle, Opp. Mayflower Hospital
Drive in Road, Ahmedabad.

Book
Your Stall
Now!



SUPPORTED BY



1 Lac Sq.ft.
Area Covered

150⁺
Exhibitors

15,000+
Visitors

ORGANIZED BY

**RUBBER MANUFACTURERS'
WELFARE ASSOCIATION**



413/B, Rudra Arcade, Helmet Traffic Point,
132' Ring Road, Memnagar, Ahmedabad-380052
Phone : 079 - 27410226 E-mail : info@rmwa.in

STALL BOOKING
97240 53399 / 97240 54282

Website : indianrubbershow.co.in

Editor's Note

Nilesh Parikh
Editor, RMWA

“Training of Work Force”

Nilesh Parikh



Dear Readers ,,,,

There is an acute need for rubber companies to train their work force to maintain quality products and reduction in rejection. As such it is difficult to find skilled work force. Alternatively we need to train our work force. For such training different association or institution can run specific courses through which rubber companies can train and retain their work force. Different short technical courses can be designed. Few suggestions are as under:

- [1] Selection of polymers
- [2] Brief compounding techniques
- [3] Explanation of processing methods
- [4] Product manufacturing
- [5] Preparing inserts for reinforced rubber product
- [6] Testing methods for in-process and finished product.

Such technical training can definitely improve our work force. In long term such activity will help rubber industries in long run.

Happy Reading

From the Chairman's Desk

Hemang Shah
Chairman IRTS 2019

“The Future belongs to those who prepare for it today”

Hemang Shah



Dear Readers,,,

As Chairman of India Rubber & Tyre Show exhibition, I am delighted to invite you to this exhibition to be held on 20th, 21st and 22nd December, 2019, Gujarat University and Exhibition Centre, Ahmedabad. This exhibition shall cover 2500 sq.mts. Area with more than 150 stalls to what shall truly be a Mega Rubber Event where tiny to large product manufacturers along with machinery manufacturers and Rubber chemical manufacturers and traders will showcase their products under one roof.

It will be both a privilege and opportunity for me to host the Potential ideas, Innovations, Professionals and Business Leaders to create the next epoch of Rubber Industry.

The organizing committee shall make all efforts to make your participation beneficial to you and your company. The venue is just right with enough infrastructure facilities in vibrant city - Ahmedabad, Gujarat.

Heartily welcome and looking forward to meet you all at “IRTS 2019”.

Happy Reading....

Glimpses of Past Exhibition



From the Chief Convener Desk

Yashodhar Kahate
Chief Convener IRTS 2019



Yashodhar Kahate

Dear Readers ,,,,

A long rainy season has finally come to pass. Or not? This year the rains have really shown their true colors. Until now, every year, a shower or two, leaving the city inundated with water and then dry spells for most of the two months was the norm.

So too will be the case with our India Rubber & Tyre Show 2019 this year. The last two times, we were associated with a professional outfit for organizing our shows. This time around, we are organizing the show ourselves. And the way preparations are going on, the show promises to be like this year's monsoon. A non stop business shower.

The largest saleable area covered in all shows, this time we shall be displaying in approximately 2100 square meters. We have returned to our previous year's venue again, the Gujarat University Convention and Exhibition Center (GUCEC) at Helmet Square, Ahmedabad. The Mahatma Mandir venue of the last show was a huge hit with the exhibitors. The venue was very impressive and gave a feeling of grandeur, However, visitors were not so eager in traveling all the distance and hence we noticed a fall in the number of overall visitors. To avoid this situation, we decided to keep the GUCEC venue until the show became large enough to be worth Mahatma Mandir.

Learning from our past experience, we started working on this show very early, say January 2018 onwards. Making a roadmap and adhering to it was the mantra on which the newly formed Exhibition Organizing Committee commenced working. This helped us to launch the IRTS 2019 at the earliest possible potential opportunity, the India Rubber Expo 2018, which we did with a bang. This came as a shock to our competitor, the Asia Rubber Expo, which was to be launched soon. This early start and right launching pad of the IRE 2018, helped garner our Main Sponsor. For any show, the main sponsor

is the sail which carries the ship forward. Then other sponsors followed and so did exhibitors one by one.

Our focus since the first show we organized, was Rubber Product Manufacturers. This has been continued and it is what differentiates us from other similar expos, which are populated by stalls of chemical suppliers. Another attraction this time is the number of machinery manufacturers that are participating in the show. It is unprecedented for this size of show. Actually, our show has been known for exhibiting machinery in large numbers and that too varied and innovative machines. The number of stalls of Rubber Products are the envy of our competitors, who approach us for the secret of garnering so many of them at every show.

It is normally difficult to obtain foreign participation in such a young show as ours. But due to our very successful and interesting shows in the past, we have generated considerable interest in Chinese companies, some of whom have participated through their local representatives. Our efforts in promoting our show at China Rubbertech held at Shanghai last year has paid dividends.

There are now but only two months to go for our show and preparations are frenzied. A few stalls are yet to be sold, which should not take much time. Then comes the promotion for registration of visitors. This time we have undertaken a new initiative to garner visitors who are end users of Rubber Products. A "Educate the Customer" series of seminars has been planned. The idea is to hold seminars in collaboration with associations of different sectors of the industry which use Rubber Products. The seminar will educate the user on various types of rubber, properties, design considerations, specifications, test certifications etc so that the customer can purchase and use only the correct rubber and specifications for his particular application.

An initiative that we undertook the last two times and are continuing this time too is the promotion of small units by provision of 2mx2m stalls at a price of Rs.16000 inclusive of GST. We hope this will encourage small units to come out and obtain exposure to the market and gain from the same at a very nominal cost. We think this is our moral responsibility as an association.

Hoping to see all of you at the IRTS 2019, I remain.

Happy Reading

Few weeks to go

“ Book your Stalls, Advertisements and Sponsorships”

3rd Edition of “ India Rubber & Tyre Show 2019”

Exhibition Directory - Tariff

Category of Page	Amount
Back Cover of the Directory	25000/-
Back Inside of the Directory	15000/-
Back opening of the Directory	15000/-
Front Inside of the Directory	15000/-
First opening of the Directory	15000/-
Full Colour page of the Directory	10000/-

GST 18 % extra

Sponsorships opportunities IRTS:

Category of Sponsorships	Amount
Visitor Lounge	125000/-
Conference sponsorship (Max.5)	200000/-
Exhibitor Lounge	125000/-
Catalog Distribution (Max.8)	15000/-
Gala Dinner	500000/-
Gala Dinner(2)	250000/-
Gala Dinner(3)	200000/-
Banner Display	15000/-
Visitor Bag Sponsorship	150000/-
Water Bottle Sponsorship	200000/-

GST 18 % extra

- Sponsors Company logo will appear on front page of Exhibition catalogue
- Website with hyperlink.
- Logo will appear on all email campaigns.
- Onsite Branding at Venue.

ORGANIZED BY



**RUBBER MANUFACTURERS'
WELFARE ASSOCIATION**

CONTACT

STALL BOOKING / SPONSORSHIP
97240 53399 / 97240 54282

Email : indiarubbertyreshow2019@gmail.com
Website : indianrubbershow.co.in

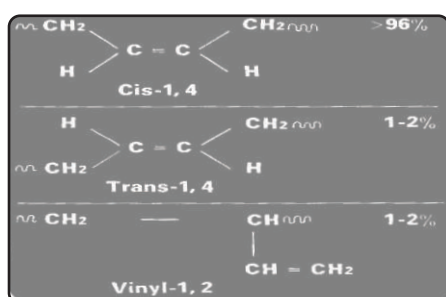
POLYBUTADIENE RUBBER [BR]

Manoj Shah
Nitro Polymers

GENERAL

Main features of BR rubber are abrasion resistance, crack resistance, high resilience, resistance to heat degradation & excellent low temperature flexibility. Present popular market grades are compromise between processibility & end use of functional properties. Solution polymerised BR is well placed in all tyre compounds. Modern BR are manufactured by solution polymerisation process which employs organic metal catalyst of titanium, cobalt & nickel. Such catalysts are controlling micro structure, molecular weight distribution & branching.

STRUCTURAL EFFECT



Cis BR requires less sulphur for curing as compared to trans BR Change in cis content from 25 to 80 % hardly affects the physical properties of BR vulcanisates. The increasing chain regularity does increase tensile strength of BR vulcanisates, though it is not comparable to natural & poly isoprene rubber.

The ultimate elongation increases remarkably when cis content % passes above 80% Cis BR have excellent resilience even at -40°C. Moderately high cis BR remains rubbery even at their brittle point [-85°C]. This is due to disappearance of crystallization tendency in the range of 82 / 87% cis content.

Commercial solution polymerised BR high cis content [93 / 98 %]. Other types are lithium catalysed with 38% cis configuration.

PROPERTIES

BR Blended compound shows [1] faster extrusion rate [2] better mould flow [3] superior resistance to reversion [4] good dimensional stability [5] higher oil / filler tolerance & shorter curing cycle due to better thermal conductivity.

When BR is blended with natural rubber it imparts superior resistance to abrasion to vulcanizate. A 25/75 BR/NR blend process satisfactorily and reduce abrasion volume loss by 60% as compared to 100% NR compound.

Such blend also imparts superior resistance to reversion. It helps to reduce curing time at higher temperature without sacrificing physical properties. As percentage of BR increases in the blend resistance to dynamic flex cracking is improved but at the same time resistance to crack growth is reduced. 30/70 BR/NR blend is the best combination to have both properties balanced.

BR/NR or BR/SBR compounds are highly resilient. They have improved damping characteristics under dynamic stress.

BR/SBR blend remarkably lower heat built up.

BR rubber have low moisture absorption as compared to NR or SBR.

COMPOUNDING & PROCESSING

Polybutadiene rubber is hardly being used at 100% sole polymer due to its poor processing properties.

30/70 BR/NR blended compounds are better resilient, resistant to flex cracking & reasonably good processing.

40/60 BR/SBR blended compounds are good processing. Since SBR is low gum strength polymer & BR has high tolerance for carbon black and oil, it makes the resultant compound fairly high in tensile strength, abrasion resistance and flexing resistance.

70/30 CR/BR blended compound exhibits much advantages than using neoprene alone. It improves low temperature flexibility, better compression set & better mould flow.

Most BR rubber resists breakdown on milling. Chemical peptisers are not much effective. 2% stearic acid reduces viscosity reasonably when added during breakdown.

Due to high linearity BR can absorb more oil & filler resulting in low cost compound without sacrificing physical properties.

To achieve same level of viscosity in BR compound, proportion of carbon black can be kept at 3 parts HAF: 5 parts FEF: 10 parts SRF.

China clay does not give adequate reinforcing effect in BR compound.

Aromatic & naphthenic oils are best softeners. Sulphur level should be 1.6 to 2.0 % for 30/70 BR/NR compounds.

APPLICATIONS

- [1] Tyres Tread / carcass / sidewalls / undertreads.
- [2] Footwear Transparent soling [flexing & abrasion resistance]
- [3] Dock fenders Improved damping and low water absorption.
- [4] Conveyor & V belts Low hysteresis and low compression set
- [5] Miscellaneous Rollers / mechanical goods / play balls & sporting goods.

BR	POLYBUTADIENE RUBBER
NR	NATURAL RUBBER
SBR	STYRENE BUTADIENE RUBBER
CR	CHLOROPRENE RUBBER

Information of Upcoming Rubber Events / Exhibitions



K-2019

Organised at Duesseldorf, Germany between 16th to 23rd October



Plastics & Rubber Industry Exhibition(PRI)

Organised at Weifang, China between 18th to 20th October 2019



Kazakhstan International Exhibition for Tyre & Tyre Repair Equipment

Organised at Almaty, Republic of Kazakhstan between 17th to 19th October, 2019 exhibition for Tyre and Tyre Repair Equipments



Global Tire Expo

Organised at Las Vegas, USA between 5th to 8th November, 2019



Truck, Trailer & Tyre Expo

Organised at Mumbai, India between 22nd to 24th November, 2019



Plastic & Rubber Indonesia

Organised at Jakarta, Indonesia between 20th to 23rd November, 2019



Plastics & Rubber Expo

Organised at Hanoi, Vietnam between 27th to 29th November, 2019



Latex Expo Chennai

Organised at Chennai, India on 4th and 5th December, 2019



*India Rubber & Tyre Show *

Third Edition Organised at Gujarat University Centre, Ahmedabad between 20th to 22nd December, 2019



BORON RUBBERS INDIA

**HOUSE
OF RUBBER
SHEETING**

**PLATE FINISH
ROTOCURE FINISH
CUSTOM DIMENSIONS
TEXTURED IMPRESSIONS
CLOTH / NYLON INSERTIONS**

TYPES OF RUBBER SHEETS AVAILABLE

COMMERCIAL	Flange Gasket Packing to avoid air, water & inorganic chemical leakages.
NR / SBR	Skirt board, bridge bearing, high pressure gasket packing, sand / shot blasting, Shock absorber, shelf liner, anti-abrasion lining.
NEOPRENE	Sealing applications in construction sites & sound studios, used as gasket to avoid leakages of oil, heat, steam, water, air, acid & alkali. Used in marine, flame retardant, inorganic chemical resistant.
NITRILE	Sealing, gasket & packing to avoid leakages from oil, solvent, petroleum based fluids, lubricating oil, transformer fluid & very low permeability to gases.
EPDM	Outdoor applications like weather strips, drinking water applications, rain water sealing, protection against sunlight & heat gaining as a roof membrane, acid resistance, liner in pulverizing system.
BUTYL	Chemical tank lining, pharmaceutical stoppers, acid protective clothing.
DIAPHRAGM	1 to many ply insertion rolls used in control valves, regulators, pumps for oil, LPG & solvents resistance applications.

RUBBER MATS

ELECTRICAL INSULATION MATS (AS PER IS 15652)
ANTI SKID MATS / FLOOR MATS
AGRICULTURAL / HORSE STABLE MATS / COW MATS

RUBBERIZED FABRIC / COATED FABRICS
TANK LINING RUBBER SHEETS (VULCANIZED / UNVULCANIZED)
SPORTS FLOORINGS / PLAYGROUND FLOORING

BORON RUBBERS INDIA HAS CUSTOM DESIGNED THESE RUBBER SHEETS & ROLLS TO MEET MANY APPLICATIONS ON SEVERAL DIFFERENT LEVELS WHILE MAINTAINING A VERY ECONOMICAL BASIS FOR END-USER.

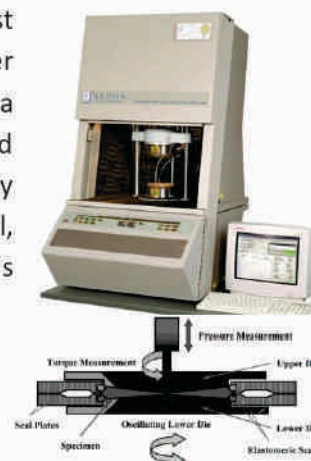


An Overview of Primary Accelerators Used for Rubber Vulcanization

Indian Rubber Manufacturers Research Association
Suchismita Sahoo, Dr. K. Rajkumar

INTRODUCTION

The rubber process analyzer is a dynamic mechanical rheological test instrument that measures the properties of polymer and rubber compounds before, during and after the cure. The analyzer provides a range of oscillation angle, oscillation frequency, torque and temperature. It can test under conditions of variable strain frequency and temperature, which reveal important differences in rheological, rheometric and dynamic viscoelastic properties. The instrument's versatility allows for polymers and compounds to be comprehensively characterized, especially in terms of intrinsic material properties, processability characteristics and end-product performance.



VISCOELASTIC BEHAVIOUR OF RUBBER

Rubber and rubber material have both viscous and elastic properties. A perfectly elastic material is also called elastic solid or ideal solid and complies with Hooke's law which in brief states that the stress resulted is proportional to the applied strain. In other words an elastic solid will give perfect storage of deformational energy without any loss and will regain its original shape after being deformed.

The viscous response relates to the flow of material and viscosity is defined as the resistance to flow. Viscosity is defined as the ratio of shear stress to shear strain. Therefore highly viscous material will produce higher shear stresses at constant shear rate. For ideal fluids or purely viscous material the shear stress is proportional to shear rate.

An elastic solid will give perfect storage of deformational energy without any loss and will regain its original shape after being deformed.

The simplest method to measure the viscoelastic properties of uncured and cured compound is to test with sinusoidal deformation which is accomplished by

Rubber being viscoelastic in nature, it is important to understand the viscoelasticity in order to predict the processability of these materials. The viscoelastic properties related to processing properties such as die swell, mold flow, smoothness of extrusions and mixing behaviour and it also predicts the property of final cured product.

The simplest method to measure the viscoelastic properties of uncured and cured compound is to test with sinusoidal deformation which is

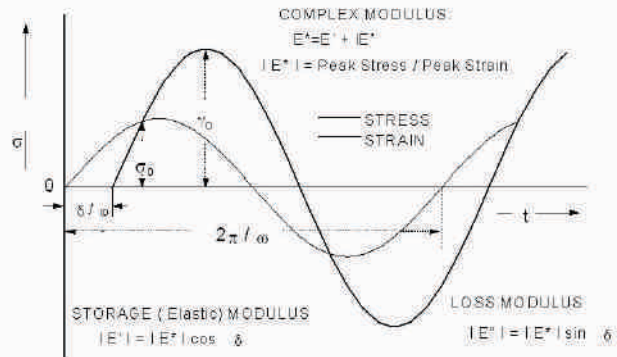
accomplished by rubber process analyser.

MEASUREMENT OF VISCOELATIC PROPERTIES THROUGH SINUSOIDAL DEFORMATION BY RPA

$$\tan \delta = S''/S'$$

$\tan \delta$ or the loss tangent where δ is the angular difference between or lag between stress and the sinusoidally applied stress.

A cured compound with a very low $\tan \delta$ will be very resilient, have high rebound, and low hysteresis. In other words hysteresis relates to energy dissipation or losses which is translated to heat build-up.



VARIABLES IN RPA

Commonly used test range is frequency 2 to 2000 cycles per minute, strain range is ± 0.1 to 90° , temperature range is 40°C to 200°C .

TYPICAL RPA TESTING OUTPUT

- Determination of optimum cure time and insights on processability
- Determination of effect of temperature, strain and frequency
- Monitor the quality of materials

SIGNIFICANCE OF RUBBER PROCESS ANALYZER TO MONITOR THE QUALITY

From the rubber process analyser the information on rubber quality characteristics and its impact on the processability can be obtained precisely.

Optimum Cure Time

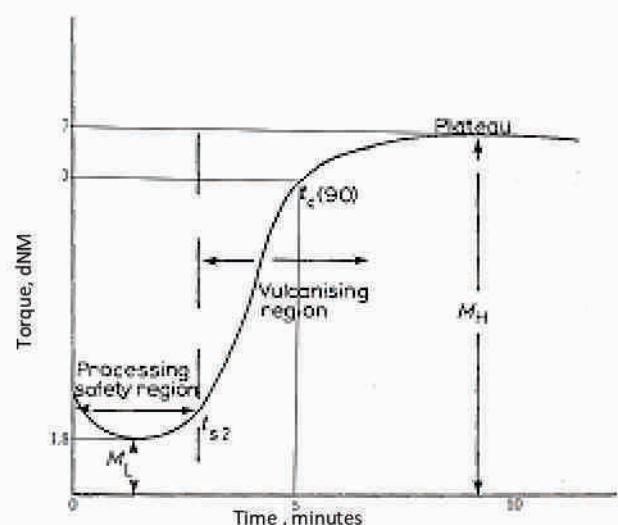
The optimum cure time is the basic data obtained from RPA. The result obtained from RPA provides better precision and accuracy. The optimum cure time decides the time and temperature to obtain the optimum physical and mechanical properties.

Scorch Time

The scorch time predicts the process safety of the compound.

Tan Delta Value

The higher tangent δ value at high frequency for the good processing polymer confirmed this result.



Conclusion

Since its commercialization, the RPA has found a growing importance in rubber testing.

- At first, at big rubber manufacturers such as tire companies
- But these were the most reluctant to share useful information on how to use this novel instrument.
- The level of complex physical properties of rubber compound and even pure polymers have hindered wide and fast distribution
- Available literature may present some of RPA useful technique in showing how things are different but often failed to explain why.
- In this presentation I tried to present some of critical RPA tests in connection to material fundamental properties.
- These properties include processing related characteristics such as viscosity, greenstrength (sagging resistance), surface aspect, mixing etc.
- We have also seen precise relationship between RPA measurements and polymer characteristics (AMW, MWD, LCB etc.) affecting compound processing.
- The RPA effective testing power remains essentially within its high and flexible programmability thus offering a unique testing versatility.
- So the RPA is capable to replace a large amount of conventional techniques.
- It can as well considerably deepen rubber behavior understanding.

The Real Green Carbon Black

Emerging World Wide

The New Era of "Real Green Carbon Black"



ASTM - D3053 (rCB - Recovered Carbon Black)

Available Green Carbon Black (rCB) Grades by Hi-Green Carbon

Powdery Grade	
SH - 665	15 kg



Granular Grades		
1	SS - 330	25 kg
2	SS - 550	25 kg
3	SS - 770	25 kg

*Also available in Jumbo Bag packaging



HI-GREEN CARBON

Plot No. 2621 & 2622, Gate No.1, Road D/2, Lodhika G.I.D.C., Kalawad Road, P. O. Metoda, Tal. Lodhika, Dist. Rajkot-360 021. (Gujarat) India.
Phone : +91-9909977044 ■ Website : www.higreencarbon.com ■ E-mail : info@higreencarbon.com

Importance of Ash Content in EPDM Rings which are used in UPVC Pipes.

Source : Ashutosh Rubber Pvt. Ltd.

- Ash Content plays a vital role in order to achieve the physical properties of EPDM Rubber Rings as per IS 5382.
- Low ash content signifies higher grade and better quality EPDM Rings, whereas High ash content signifies use of low grade rubber and low quality reinforcing fillers being used in manufacturing the EPDM Rings.
- All the specified physical properties in IS 5382 standard can be achieved only if the ash content of EPDM Rubber is below 8%.
- Frequently the filler content of a material needs to be measured either for quality control purposes or as part of a troubleshooting exercise where verification of a specification for filler content is needed.
- The Ash content test will identify the total filler content. It cannot identify individual percentages in multi-filled materials without additional test procedures being performed. An ash test cannot be used to determine the percent carbon fiber or percent carbon black since carbon burns off during the Ash test.
- The standard test method to determine Ash Content is as per IS 3400 Part22 or ASTM- D4574.

How can we easily calculate percentage of Ash Content in Rubber Products?

1. Connect the power supply to muffle furnace.
2. By pressing the start button provided on Digital Temperature controller and simultaneously moving the screws on the right marked .Set clockwise to increase and anticlockwise to decrease. Set the required temperature.
3. Let the temperature rise to set temperature and stabilize
for few minutes.
4. Heat the crucible at specific temperature say 150⁰ C to remove moisture for 20-25 minutes.
5. Place Crucible in Desiccator and let it cool for 30 minutes.
6. Weigh the empty crucible on weighing balance and take
weight of your test sample.
7. Place the crucible along with the sample in muffle

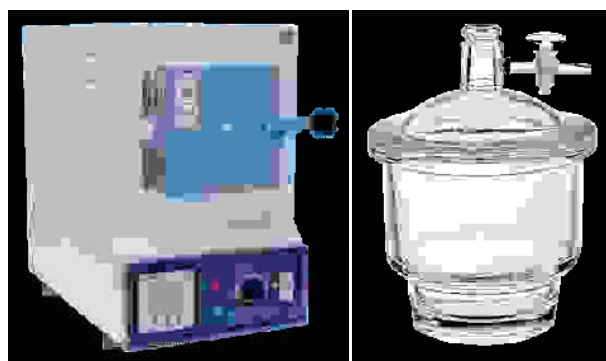
furnace. Set the temperature of 6000C in muffle as per your sample specifications for a 2-3 hours .Thereafter leave the crucible to cool down in Desiccator for 30 minutes. Reweigh the crucible with ash on weighing balance to take the weight.

8. Now Calculate Percentage of Ash Content by using below formulae.

- The standard test method to determine Ash Content is as per IS 3400 Part22 or ASTM- D4574.

$$\% \text{ of Ash Content} = \frac{\text{Weight of the Ash} = \text{Weight of crucible with Ash} - \text{Weight of empty crucible}}{\text{Weight of the Rubber Sample}} \times 100$$

MUFFLE FURNACE



DESICCATOR CRUCIBLE



www.ashutoshrubber.com

DEVELOPMENT OF RUBBER INDUSTRIES IN GUJARAT

Tyre Maker BKT Working on Rs 2,000 Crore Expansion Plan in India

Off-Road tyre manufacturer Balkrishna Industries Limited (BKT) said it is working on a Rs 2,000 crore expansion plan in India to meet the increasing demand of its products globally. The company is planning to set up a modern carbon black manufacturing facility at its plant in Bhuj, Gujarat. "The company is working on a Rs 2,000 crore expansion plan," BKT's Chairman and Managing Director Arvind Poddar said.

Poddar was speaking to Indian journalist at the international agri machinery exhibition SIMA. Expecting healthy demand, he said farmers in India want good machines and the government too was focusing on the agriculture sector. Currently, the company's share in the off-road tyre market in India is 7-8 per cent and it is "looking at increasing the share to 15 per cent in the next three to four years", he said.

Poddar also said the company will shift its Aurangabad plant to a new location. The project will be completed in 18 months at a cost of Rs 450 crore. The company has five facilities in Maharashtra, Rajasthan and Gujarat. Poddar said during the last financial year 2017-18 the company's turnover stood at Rs 4,500 crore. "We are expecting this will increase to Rs 5,000 crore during the current financial year. We are expecting 10 to 15 per cent growth in the years to come," he added.

The company mainly exports its tyres to Europe, America and Australia. Currently, Europe accounts for about 52 per cent of its total exports.

Toyoda Gosei Celebrates Opening of New Plant in Gujarat, India



Kiyosu, Japan, February 8, 2019: Toyoda Gosei Minda India Pvt. Ltd. (TGMIND), an Indian subsidiary of Toyoda Gosei Co., Ltd., held a ceremony on February 4 to celebrate the opening of its new Gujarat Plant. At the ceremony, Toyoda Gosei President Naoki Miyazaki spoke of Toyoda Gosei's aspirations in India.

"The start of operations at the Gujarat Plant, our sixth location in India, gives me great pleasure. We hope to continue contributing to the development of the automobile industry in India through the 'Make in India' initiative of Prime Minister Modi, who was born right here in the state of Gujarat."

India is a key market for Toyoda Gosei and the company has been enhancing its development and production network there, including the establishment of a new technical and sales office (Gurugram Office) in a suburb of Delhi in April 2018. Toyoda Gosei plans to increase its sales volume in India to 35 billion yen by fiscal 2025, more than twice the current level.



NOTE WORTHY

Indigo – India's Largest Airline, Chooses Michelin To Be Its Tire Partner For Entire Fleet

Michelin, a worldwide leader in Aviation tires, will now be IndiGo's trusted partner for long term supply of tires for its Airbus and ATR Fleets and will help IndiGo create better value for its passengers, by equipping its fleet with environment friendly MICHELIN® AIR® fuel efficient tires.

Since their inception in August 2006, IndiGo has grown from a single-plane carrier to a fleet of 189 aircraft today, and currently operates flights to 48 domestic and 11 international destinations. Known for their customer service, IndiGo has a simple philosophy – offer fares that are low, flights that are on time, and a travel experience that is courteous and hassle-free. Aligned with this philosophy, IndiGo has been buying customer-friendly & fuel efficient A320 NEO family aircraft, for which Michelin also happens to be an OE tire supplier.

Michelin AIR X radial tire, is the reference in the global aircraft tire market. This tire promises to provide an overall reduction in the operational costs through increased number of aircraft landings, better fuel efficiency & exceptional resistance to foreign object damage. Thanks to its innovative radial casing design, the tires are also environment friendly, as their construction is designed to utilize fewer components and use less fuel leading to less CO2 emissions.

Frank Moreau, President of Michelin Aircraft Tyre, commented: "We have developed truly high-technology tires that are perfectly adapted to the needs of the airlines. This means that we not only combined a high level of safety in extreme conditions and guarantee a large number of landings, but also allow fuel efficiency and environment friendliness". The close strategic partnership forged between IndiGo & Michelin is poised to bring significant value to the aviation market not only in terms of enhanced safety & efficiency, but also in terms of contributing to a more sustainable & eco-friendly environment.

New manufacturing facility signals growth in India

Source : www.trelleborg.com

As the demands of the modern world continue to change, **Trelleborg** Industrial solutions is continuing to meet the demands of manufacturers around the globe. To achieve this, we have significantly increased our anti-vibration solutions production capabilities in India with the development of a state-of-the-art manufacturing facility in Bengaluru.

With an inauguration ceremony marking the official opening of the facility on 24 April 2019, the new 6,200 square meter site substantially increases our production capabilities for our individual Business Units – Trelleborg Antivibration Solutions, Molded Components and Pipe Seals – in the region and facilitates the local manufacture of our portfolio. Employing approximately 100 personnel, the facility means enhanced distribution and reduced lead times for specifiers,

while reflecting the high production standards for anti-vibration systems that we have honed over 100 years.

As India continues to invest in its rail infrastructure, our antivibration solutions operation will work closely with major original equipment manufacturers to share our expertise in the sector, ensuring the design and delivery of market-leading anti-vibration solutions. We also have plans to develop an engineering center within the new facility to support this work, equipping our team to support all engineering requirements for the region's rail industry.

Ranadip Basu, General Manager of the new facility, said: "The opening of our new facility in Bengaluru represents a significant investment for Trelleborg and demonstrates our commitment to local manufacturing. As a global manufacturer, having localized manufacturing facilities enables us to better serve each of our customers with local expertise. Our increased production capacity will also see us deliver market-leading solutions with reduced lead times, making us a reliable partner for customers' projects.

"As an area renowned for innovation, Bengaluru is the perfect location for Trelleborg's antivibration solutions operation to establish its new facility. As we strive to deliver the very best solutions to help our customers overcome their challenges around vibration, developing new solutions is what drives us. Through our new facility, we can work ever-more closely with our customers, both to understand their specific challenges and deliver custom solutions which meet their precise specifications."

Additive Manufacturing Changing The Dimensions Of The Machine Tool Industry

3D printing technology is going through a sea of change globally. 3d printing also known as additive manufacturing is a method of building 3D models into solid objects building up on layer by layer. 3 D printing technology is widely used in broad spectrum sectors such as automotive aerospace, manufacturing.

After going through a slowdown for a few years the industry seems to have finally picked up. We can see huge developments happening in this area.

Some of the key trends contributing to rise in the Indian additive manufacturing market are: Start-ups coming into

additive manufacturing. Over the years, it has been witnessed that the number of start ups entering the industry has increased as service providers or as manufacturers of small desktop printers.

Awareness regarding the technology in India is finally getting better with many companies adopting/entering in the domain.

It's no more an unknown technology. Indian manufacturing industry seems to have finally realized the benefit of additive manufacturing and exploring further.

Hybrid manufacturing is the talk of the town. Machines that can perform additive & Subtractive manufacturing both are gaining popularity in the Indian market.

Mixed-material printers are gaining popularity. It was not long ago when printing a part with two different materials was considered a challenge. But now there are printers that can manage printing with more than one material and this could be the global trend in additive manufacturing technology.

Metal printing is finally catching up. Between 2017 and 2018, a 3D printing industry survey showed that although

plastic continues to be the most common material, its share in 3D printing fell from 88 percent to 65 percent in that single year. The share of metal printing rose from 28 percent to 36 percent that year. At that rate, it is probable that metal will overtake plastic and represent more than half of all 3D printing as soon as 2020 or 2021. The shift can be seen in India as well.

A more recent technology called binder jet metal printing, which has the capacity to cut down 50 percent of the time required to produce each part, is poised to become widely available in 2019. It might take some time for this in India though.

Not only are 3D printers getting faster, but their build volume –the printable objects' size – is growing.

In 2019, multiple printers are available with a 30x30x30 centimeter volume, or nine cubic litres, which was not the case few years ago.

Finally some large companies are entering the 3D printing market, validating the space and pushing the overall industry to innovate faster.



MICROQUICK
ENGINEERS

Manufacturer of Dispersion Kneaders

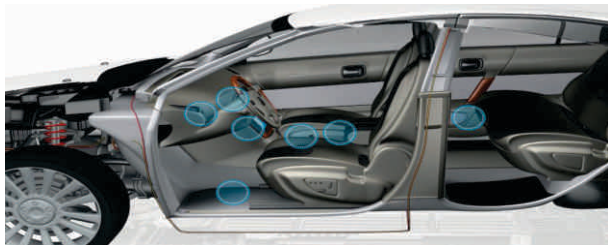


Make Faster, Consistent Quality Compound At Less Labour

- Excellent Dispersion of Ingredients
- Faster Batch Preparations than that of mixing mill
- Minimal fly of ingredients – Carbon black & other

www.microquick.co.in

Thermoplastic Elastomers For Automotive Interior Applications Keeping Emission And Odor Under Control



1. INTRODUCTION

Sensitivity to emissions in automotive interiors has been a topic since the early 1980s. This was in particular caused by the formation of undesired condensation on the inside of windshields of new vehicles. As a result, the focus was initially on achieving specific fogging values. The requirements for interior components have been extended and have become more sophisticated over the years. Various analytical test standards were gradually developed to ensure compliance with emission standards. Odor has become a more critical issue for both automotive manufacturers and consumers. The general opinion on regional differences relating to the issue of odor that has been expressed during conferences and meetings. While odor, or rather the requirement to have no odor, has top priority in Asia, in Europe the focus is primarily on single substances and total emissions inside motor vehicles' cabins. In North America, the debate about odor and emission is led with lower dynamism.

Due to the material properties of thermoplastic elastomers (TPEs), a wide variety of potential applications and cost-effective processing, these materials have developed rapidly since the 1990s. This is reflected in a large number of applications including components for automotive interiors. A project was started more than three years ago to acquire comprehensive knowledge about emission and odor values of materials for automotive interiors and gain a thorough understanding of their influencing factors.

2. EMISSION MEASUREMENT AND ODOR ASSESSMENT – A COMPLEX CHALLENGE

Testing the emission behavior of materials differs significantly from determining common materials data

like mechanical properties. In addition to various standards such as DIN or VDA methods, automotive manufacturers have established many standards of their own. Some of them are very similar in their specifications. There are over 15 company standards for determining fogging behavior, but all are related to DIN 75201. Along with a large number of similar methods, it is necessary to take into account, that depending on the measuring parameters, each emission test gives different results of emitted substances. Therefore, the dynamic thermal desorption analysis in accordance with VDA 278, the static headspace analysis VDA 277 and various chamber methods specified in the ISO 12219 versions cannot be compared to each other nor should the test values be converted in any way. Test methods that seem to be similar often differ in the type of conditioning, testing temperatures or duration providing results that are not comparable. In some tests, calibration of equipment and sampling play a decisive role and have a significant influence on the measurement results.

Assessing odor is even more critical than measuring emissions. All efforts to replace the purely subjective, human olfactory perception by other more objective methods have not been very effective so far. The evaluation by trained panels in accordance with VDA 270 remains state of the art. Despite intensive training and a precise selection of panels, there may be significant differences in odor assessments. It is not unusual that various laboratories or automotive manufacturers determine different odor rating for the same materials. To some extent this can be explained by local and gender-specific senses of smell. What makes the qualification of TPEs for automotive interiors even more difficult is that automotive manufacturers do not use the same specifications.

It is not recommended to draw inferences from emission results about odor results and vice versa. However, what emission results and odor results have in common is that they depend on the sample history. It plays a major role, along with the selection of the test method and has been specified by the ISO 12219-8 standard since January 2019. To generate comparable results, we have to ask the following questions: Are plastics granules, sample plates, single components or component groups tested? How is the sample packed? How was it stored and under which conditions was it processed to become a sample or component part? The reproducibility and comparability of the measured results are depending primarily on the sample history.

“Continuous Improvement”

Continuous Improvement is the objective of many organisations. It isn't however something to be done, it is an approach or a culture and as such it can be hard to achieve. In this article I will explore ways to make its implementation both easier and successful.

Firstly though, what is Continuous Improvement?

What is Continuous Improvement?

Continuous Improvement - also known as Continual Improvement, CI, Continuous Improvement Process, CIP and often used interchangeably with the term Kaizen - is a long-term approach to improvement that systematically seeks to achieve small, incremental changes in processes in order to improve efficiency and quality.



This is in contrast to one overwhelming innovation and is a **business culture** or approach which **involves everyone**, leadership, management and employees, in **finding and eliminating waste** on an ongoing basis.

Continuous vs Continual Improvement

Although as we have seen, several terms can be used for Continuous Improvement, the fiercest debate rages between supporters of the term '**Continuous**' and supporters of the term '**Continual**'. This is semantics. In terms of the improvement approach **there is no difference**.

For the record though:

- **Continuous** is nonstop
- **Continual** things come and go, like arguments or rain (thank goodness!)

Where to start with Continuous Improvement?

Before a framework of Continuous Improvement can be introduced it is important to have a **thorough understanding of how your organisation is working currently**. What processes are in place at the moment?

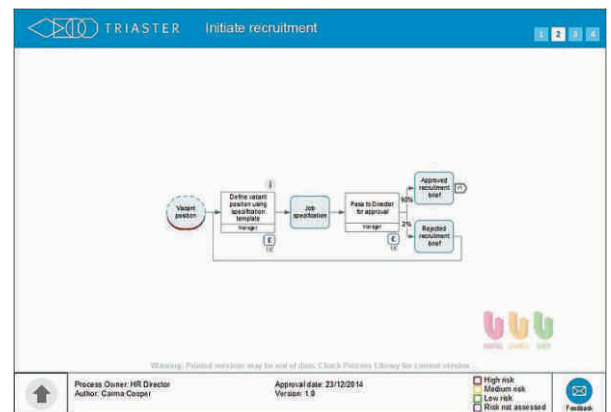
Initially, concentrate your efforts on **understanding your processes** rather than focusing on your results.

This requires discussions with the people who are **actively involved in the process** and **those who are required to manage it**, sometime there is a third party involved – a customer or supplier.

A recommended way to understand your processes is to **capture them as process maps**.

What is a process map?

A process map sets out **all the steps and decisions** in a process in diagrammatic form. It has benefit over a text based set of instructions in that it **captures the steps taken** to deliver the process, rather than the tasks. This means a process map is **appealing to the eye, easy to follow and isn't too detailed**.



Business Process Management (BPM) System

Once you have captured your end-to end business processes, you have a **model of how your organisation works**. This can be a standalone model, but more commonly it forms the **business management system** for your organisation which also contributes to **achieving quality standards** such as ISO 9001, 14001, 18001, 27001 and **compliance with regulatory standards**.

This model of how the organisation currently works is the start point for **modelling future options**. Starting with a **gap analysis** to identify areas which need **most urgent focus – where the waste or risk is highest** – a programme for incremental changes can be established.

This is however only the mechanism for Continuous Improvement; **implementing a system does not result in a culture change**.

Cultural Change

It is fundamental that **all employees** are engaged in Continuous Improvement in order for it to be successful. This means that there needs to be a **big emphasis on employee engagement** with business processes and an **appetite for a process driven culture at all levels of the organisation**, from the leadership down.

This is achieved over time with **ongoing communication**, but an essential start point is to involve everyone in the process of capturing what the organisation currently does (the process mapping). As part of this **everyone should be asking**: Why are we doing this?

What does it produce? Who is the benefactor of the process? How does it impact our customers?

Continuous Improvement requires a **systemic dissatisfaction with the status quo**, no matter how good the organisation is perceived to be. There needs to be a **collective understanding** that **standing still will allow the competition to overtake**.



It also requires individuals to **feel ownership** for their part of the process and a **responsibility for its quality and improvement**. Using a Business Process Management system which allows this to be **clearly identified and visible**, really helps to **establish and reinforce this**.

With these factors in place, employees are empowered to **suggest and implement** improvement ideas and when the ideas come from the employees themselves there is **far less resistance to change** and Continuous Improvement is **far more likely to be successful**.

The support of the leadership and top management is imperative too, as not all the improvement ideas implemented will be successful. There has to be a long term view, an appetite for a certain amount of risk and support when the result are not positive.

Using a Business Process Management system which enables the ability to model future options and the capacity to **'try out' differing scenarios** for process improvement, **reduces the risk** of Continuous Improvement considerably. However the **need for a culture of senior support** for trying out improvement ideas remains.

Continuous Improvement as Business as Usual

For Continuous Improvement to be successful **making incremental improvements must become business as usual**.

Using a BPM system to **enable analysis and comparison of processes**, benchmarking and being aware of why certain tasks are performed in the first place, puts you in a better position to have a **positive impact on business change** both in the short and long term, without catastrophic effects to ways of working and delivery.

However the **absolute game changer** is the **employee engagement and empowerment** to identify small steps for incremental change. This **takes time, commitment and ongoing communication**.

Central Tax Rates

(Notifications dated 30th Sep.2019)

Source : -Nirav Pankaj Shah ,NPS & Associates

1) Notification 43/2019- Central Tax
Manufacturers of Aerated Water debarred from availing composition.

2) Notification 14/2019- Central Tax (Rate)
Changes in rates of certain goods viz. a. Marine Fuel 0.5% (FO) now taxed @ 5%, b. Wet grinder consisting of stone as grinder @ 5%, c. Woven and non-woven bags and sacks of polyethylene or polypropylene strips or the like, whether or not laminated, of a kind used for packing of goods @ 12%, d. Railway wagons, coaches, rolling stock, parts thereof @ 12%, e. Caffeinated beverages @ 28%, f. Precious stones (other than diamonds) and semi-precious stones, whether or not worked or graded but not strung, mounted or set; ungraded precious stones (other than diamonds) and semi-precious stones, temporarily strung for convenience of transport @ 0.25%, g. Synthetic or reconstructed precious or semiprecious stones, whether or not worked or graded but not strung, mounted or set; ungraded synthetic or reconstructed precious or semiprecious stones, temporarily strung for convenience of transport @ 0.25%.

3) 15/2019- Central Tax (Rate)
Grant exemption to dried tamarind and cups, plates made of leaves, bark and flowers of plants.

4) 16/2019- Central Tax (Rate)
Extends concessional rate of 5% to specified goods for Petroleum operations or coal bed methane operations under Hydrocarbon Exploration Licensing Policy (HELP) or Open Acreage Licensing Policy (OALP).

5) 17/2019- Central Tax (Rate)
Exempts GST on supplies of silver and platinum by nominated agencies to registered persons.

6) Notification 18/2019- Central Tax (Rate)
As manufacturers of aerated water are now debarred from availing composition scheme, parallel change made in the rate notification

7) 19/2019- Central Tax (Rate) Exempts supply of goods for specified projects under Food and Agricultural Organisation of the United Nations (FAO).

8) 20/2019- Central Tax (Rate)
Changes in rates of certain services viz a. Hotel accommodation (above Rs. 1,000 and not exceeding Rs. 7,500 per day) @ 12%, b. Outdoor catering @ 5% b. Other professional, technical and business services relating to exploration, mining or drilling of petroleum crude or natural gas or both @ 12%, c. Services by way of job work in relation to diamonds @ 1.5%, d. Services by way of job work in relation to bus body building @ 18%, e. All other job work (other than manufacturing services) @ 12%.

9) 21/2019- Central Tax (Rate)
Exempts certain services viz: a. Services provided by and to Fédération Internationale de Football Association (FIFA) and its subsidiaries related to FIFA U-17 Women's World Cup 2020, right to admission to the FIFA U-17 women's WC 2020, b. Services by way of storage or

warehousing of cereals, pulses, fruits, nuts and vegetables, spices, copra, sugarcane, jaggery, raw vegetable fibres such as cotton, flax, jute etc., indigo, unmanufactured tobacco, betel leaves, tendu leaves, coffee and tea, c. Services of life insurance provided or agreed to be provided by the Central Armed Police Forces (under Ministry of Home Affairs) Group Insurance Funds to their members under the Group Insurance Schemes of the concerned Central Armed Police Force, Bangla Shasya Bima.

10) 22/2019- Central Tax (Rate)

a. Author given an option to discharge tax under forward charge on services of transfer/allowing use of copyright relating to original literary works. b. Tax on the services of renting of a motor vehicle (which are taxed @ 5%) provided by person other than body corporate to a body corporate shall now be paid under RCM by the recipient body corporate. c. Tax on the services of lending of securities under Securities Lending Scheme, 1997 of SEBI shall now be paid under RCM by the borrower

11) 23/2019- Central Tax (Rate)

Deferment of time of supply under Notification No. 4/2018 - CT (R) with respect to development rights would not apply to the development rights supplied on or after 1st April, 2019

12) 24/2019- Central Tax (Rate)

Lacuna corrected pertaining to payment of tax under RCM by real estate promoter on cement from unregistered suppliers.

13) 25/2019- Central Tax (Rate)

Service by way of grant of alcoholic liquor licence by State Government would not be regarded as supply of goods/services.

14) 04/2019- Integrated Tax

Notifies special place of supply rules for research and development services related to pharmaceutical sector.

Central Tax Notification No. 47/2019

Notification No. 47/2019 – Central Tax dt. 09.10.2019 has been issued to provide that the registered persons whose aggregate turnover in a financial year does not exceed Rs. 2 crores shall have an option to furnish the annual return for FY 2017-18 & FY 2018-19. In other words, such persons may choose not to furnish the annual return for the said years. If the annual return is not furnished by the due date (i.e. option is exercised to not furnish the annual return) the notification provides that it shall be deemed to have been furnished. Said deeming fiction has been created so as to apply the time limits, given under law from the due date of furnishing the annual return, for issuance of show cause notices as well as adjudication orders.

VACUUM LIFTER



SAVE MONEY WITH ENHANCE PRODUCTIVITY

Convenient & Faster for Palletizing, Stacking, Loading & Unloading of Raw Material Bags, Rubber Bales, Sacks and Cartons etc.

Makes production efficient - Use at Machine feeding, On-line assembly & Conveyor.
Ease in emptying raw material from bag to Silo.



Polyamide Modified Thermoplastic Elastomer: Automobile Application

Source : Ronak J Panchal
Master in Rubber technology

International Journal of Research in Engineering and Applied Sciences

ISSN (Print): 2249-9210 | ISSN (Online): 2348-1862

© IJREAS, Vol. 02, Issue 02, July 2014

Abstract
The main objective of review is to develop thermoplastic elastomer for the automobile application. Automobile sector plays a major part in consumptions of rubber in world. There are many application of rubber in automobile, and there are many critical application of rubber in this sector. In this era of technology there is some very sensitive and critical application of rubber such as high heat resistant and high strength. There is application in oil also; in that case there should be low oil swell. Now day's cars and vehicles are meant to be light for the more fuel economy. Weight of rubber part is also important. For that thermoplastic elastomer have low specific gravity than that of conventional rubber, so aim of thesis is to fulfill the requirement of automobile sector with TPE having high heat resistant and low oil swell. And thermoplastic elastomer have reprocessibility same as plastics. and thermoplastic elastomer have high production rate and good processing characteristics. there is also a major advantage of using plastic processing machinery. I will work on research based on thermoplastic elastomer having high heat resistant and low oil swell. I will consider two basic thermoplastic blends and compare it with each other properties. From that I will suggest best option for automobile application in TPE. which will improve quality and service life of the product.

Keywords- TPE, Automobile Application, Heat Resistant, Swelling, polyamide.

1. INTRODUCTION

Thermoplastic elastomer also referred as thermoplastic rubber. Material with thermo reversible crosslink can be processed as a thermoplastic. Thermoplastic elastomers are one of the most versatile plastics in today's market. Thermoplastic elastomeric materials are a physical mixture of polymers (a plastic and a rubber). They exhibit the properties of both plastics and rubbers. The unique properties of both materials exist because TPE materials are created only by physical mixing of a thermoplastics and elastomer and no chemical or covalent bonding exists between the two. This behavior has opened a new field of polymer science. TPE are significant part of the rubber industry. They are used in many applications like adhesive, footwear, medical devices, automobile parts, house hold good. Nevertheless, from experiences, mankind has found that rubber can only be used after curing with suitable cross- linking agents, such as the invention of sulfur vulcanization by Charles Goodyear in 1839 opened a new door for various potential applications of natural rubber. The formation of covalent cross-links between the chain molecules prevents melt (re)processing, which gives cross-linked rubbers a distinct disadvantage compared to thermoplastics.

1. EXPERIMENTAL MATERIALS

Polyamide :- PA-1: Capron 8202NL NYLON 6 from Allied- Signal; PA-1C: Capron 8202C NYLON 6 from Allied- Signal; PA-2: Rilsan BMNO NYLON 11 from Rilsan Corp.; PA-3: Grilamid L20G NYLON 12 from Emser Industries; PA-4: Zytel 101 NYLON 6,6 from DuPont;

Acrylate Rubbers: R-1: VAMAC-G neat terpolymer of about 73 mole percent of ethylene, about 26 mole percent of methyl acrylate and about one mole percent of carboxylic acid from DuPont; **R-2:** VAMAC-123 masterbatch of 100 parts of VAMAC-G 20 parts of fumed silica and 3 parts of stabilizers and processing aids. **Cross linking agent:-** Crosslinking agents: **XL-1:** tris(hydroxymethyl)amino methane from Angus Chemical Company; **XL-2:** LICA-44 neoalkoxy tri[N-ethylaminoethyl amino] titanite from Kenrich Petrochemical; **XL-3:** 4,4'-methylene dianiline from Olin Chemicals; **XL-4:** 4,4'-methylenebis(cyclohexylamine) from Aldrich Chemical Company; **XL-5:** N-(2-aminoethyl)-piperazine from Aldrich Chemical Company; **XL-6:** Maglite D magnesium oxide from Merck; **XL-7:**

Mondur E-501 isocyanate-terminated polyester prepolymer from Mobay, about 19 percent NCO. **Stabilizers: S-1:** mixture of 0.4 pbw Irganox MD 1024 and 0.3 pbw Chimassorb 944LD and 0.2 pbw Irganox 1425 anti oxidants from Ciba-Geigy; **S-2:** mixture of 0.4 pbw Ethanox 330 from Ethyl Corp., 0.3 pbw calcium stearate, and 0.2 pbw Carbstab distearylthiodipropionate from Cinnat Milacron.

2. EXPERIMENTAL

Mixing equipment

- Brabender Mixer.
- Mixing extruder such as a twin screw continuous mixing extruder
- Two roll mill

Brabender mixer: - brabender plasticoder is a machine to produce master batches for rubber, plastic, TPE. In this TPE the vamac and nylon is mixed above melting temperature of nylon. That is above 220°C. in this machine the desire ratio of nylon and vamac is mixed at 240 °C and at 100 rpm for 3-4 min. then curing agent is added after that and mixed it for more 1-2 min. this is a process for mixing of TPE in brabender plasticoder. The mixture will be in dump form. And the mixing of vamac and rubber will be done in absence of air. In brabender they provide nitrogen atmosphere for inert atmosphere.

Twin screw extruder: - twin screw extruder is used for mixing of plastic material and for mixing of TPE also. In this machine there are two screws rotating in parallel axis. The advantage of twin screw is there is extra shear developed in the barrel due to shear between two screw as well as screw and barrel wall. Dynamic vulcanization can also be done with this twin screw extruder.

Two Roll mill:- two roll mill is essential mixing machine for rubber industries. It is also known as heart of rubber industries. The mixing of vamac and nylon on two roll mill is quite difficult. Because nylon will melt above 200 °C. It is not possible to achieve this much temperature in rubber two roll mill. It can be achieved in plastics two roll mill. In plastic two roll mill when we melt nylon on to the mill and make band of nylon on to the roll the temp is about 200°C. After melting of nylon we add rubber in to the mill.

1. OS(150)-137125OS(175)-153179Extract1011633

1. RESULTS

A. Experiment -1 This example serves to illustrate thermoplastic elastomer compositions of TPE comprising polyamide PA-1, acrylic ester copolymer rubber R-1 and varying amounts of tris(hydroxymethyl) amino methane crosslinking agent XL-1.

TABLE :-1 properties comparison with respect to different crosslinking agent PHR.

R-1	60	60	60	60
PA-1	40	40	40	40
XL-1	0	0.15	0.3	0.45
S-1	0.54	0.54	0.54	0.54
UTS	0.3	6.4	14	20
M100	0.8	3.8	11	16
UE	2320	250	170	180
H	42A	60A	80A	89A
TS	40	16	18	28
OS(125)	45	54	43	34
OS(150)	75	73	50	39
OS(175)	50	57	52	48
Extract	95	65	95	15

Figure 1:- Graphical Representation of Properties vs crosslinking agent

B. Experiment -2

In this experiment the rubber to polyamide resin ratio is kept 9:1 and different crosslinking agent is used and properties are checked .

R-1	90	90	90
PA-1	10	10	10
XL-1	0	0	0.36
XL-6	0	0.9	0
Mgs	0	0.45	0
S-2	0.81	0.81	0.81
UTS	0.3	11	6.7
M100	0.3	1.6	0.8
UE	370	640	580
H	18A	44A	32A
TS	40	3	6
OS(125)	-	94	90
OS(150)	-	137	125
OS(175)	-	153	179
Extract	101	16	33

TABLE :- 2 Experiments With Different Crosslinking Agents And Comparision.

CONCLUSION

This invention provides thermoplastic elastomer compositions comprising blends of polyamide resin and covalently-crosslinked acrylate rubber. Such blends are preferably in a weight ratio of rubber to polyamide of about 9:1 to about 4:6. Such thermoplastic elastomer compositions exhibit excellent high temperature dimensional stability and exceptional resistance to solvent swelling. rubber is advantageously a functionalized olefin/acrylic ester copolymer rubber that is dynamically vulcanized, e.g. by a polyfunctional, covalently crosslinking agent. the polyamide is advantageously a polycaprolactam (NYLON 6), polyhexamethylenediparamide (NYLON 66), or mixtures or copolymers thereof. As used herein the term "elastomeric" refers to thermoplastic compositions which exhibit rubber-like elasticity, i.e. have a tension set of less than about 60 percent, preferably less than about 50 percent.

REFERENCES

1. TPE materials and Their use in out door Electrical Insulation: Salman Amin & Mohammad Amin, University of Taxila Pakistan
2. Semon W.L, U.S Patent 1929453 (1933 to B.F Goodrich co.)
3. Synder ,M.D U.S Patent 2632031,1952, to Dupont
4. U.S Patent 2629873 (1954, To Dupont)
5. Hoolzer R , U.S Patent 3262,992 (1967 to Hercules Inc.)
6. Fisher W.K ,U.S Patent 3806558
7. Reader C.P Handbook of thermoplastic elastomer (second edition),chapter 7 (Waker B.M And Rader)
8. Vanderbilt Rubber Handbook, Ed., R. F. Ohm, R. T. Vanderbilt Co., Norwalk, Connecticut, 1990.
9. Rubber Technologist's Handbook , Edited by Sadhan K.De and Jim R. White
10. G. Holden in Encyclopedia of Polymer Science and Engineering, 2nd Edn., Volume 5, Ed., J. I. Kroschwitz, John Wiley and Sons, New York, 1996, 416.
11. Handbook of Thermoplastic Elastomers, Ed., B. M. Walker, Van Nostrand Reinhold, New York, 1979.
12. N. R. Legge, G. Holden and H. E. Schroeder, Thermoplastic Elastomers - A Comprehensive Review, Hanser Publishers, Munich, 1987.
13. G. Holden in Rubber Technology, 3rd Edition, Ed., M. Morton, Van Nostrand Reinhold, New York, 1987, Chapter 16, 465.
14. W. Hofmann, Rubber Technology Handbook, Hanser Publishers, Munich, 1989.
15. R. D. Lundberg, C. M. Alslys and B. M. Walker in Handbook of Thermoplastic Elastomers, Ed., B. M. Walker, Van Nostrand Reinhold, New York, 1979

BEST MANUFACTURER EXPORTER AWARDED TO BORON RUBBERS INDIA

**ANOTHER
FEATHER ON
THE CAP**



Gujarat's very reputed association, Saurashtra Chamber of Commerce and Industries, Bhavnagar has awarded Boron Rubbers India once again after 14 years.

“OUR CUSTOMER’S CUSTOMER IS OUR CUSTOMER”

MAINTAINING THIS POLICY THEY POCKETED THIS AWARD

The SCCI, Bhavnagar, since long has proved to be a non-biased organization where with its effort to promote industries, the committee has always shown a logical interest for the upliftment of the industrial fraternity. With this determination, they have again, proved to select a company with this year's category for SME sector for its maximum export.

We congratulate M/s Boron Rubbers India, Bhavnagar to win this award. The company has, since last 3 years, have taken the export market so well that, it has increased its export turnover in multiple flips. It was observed during analysis that, Boron Rubbers India, has concentrated more

on export then domestic market which has surpassed more than 2/3rd in only exporting its goods.

By asking them regarding the success ratio and difficulties faced by them to achieve it, as a SME manufacturing unit, Shri Dipak Doshi, Partner in Boron Rubbers India says, that, since two decades, the factory's domestic selling was powerful and sales were dependent on the traders mostly. But, since we have developed our own website since a decade, we have seen a paradigm shift on many types of customers getting in touch with us. We, at company, strongly trust on our understanding, that:

‘Our customer’s customer, is our customer’

‘Deliver Quality, in time’.

With this very basic, conservative business practice yet with adopting modern way of doing business, has enabled us to reach from Bhavnagar to almost 22 reputed government organizations in the world. If the focus in on bigger decision, small decision cannot stop you from doing business from any part of the world.

We are extremely delighted to express our gratitude towards the efforts taken over by the SCCI, Bhavnagar for making this award ceremony possible at AGM 2019. We pay, full attention to thank the committee members to make this possible in 2005 and again in 2019.

RMWA Activities & News



Technical Seminar, Vadodara:

RMWA organized a One Day Technical Seminar on 19th July, 2019 at Surya Palace, Vadodara.

The main objective of the seminar was to educate the necessity to get their products tested for various properties as per the current days needs.

The speaker Mrs. Suchismita Sahoo and Dr. Bharat Kapgate from Indian Rubber Manufacturers' Research Association were invited to deliver talk on Basic Rubber Technology. The topics like Raw Material Ingredients, their Advantages & Disadvantages, Calculation of Tensile properties, Ash Content, Hardness etc. have been included during the speech.

The important learning like Shop Floor Testing during Rubber Compounding, Moulding, Extrusion, and Calendaring and for the finished products has been included.

Mrs. Suchita Roy from Rubber Skill Development Council (RSDC) was present and introduced to members the benefits granted by govt. under National Apprenticeship Promotion Scheme.

Many members availed special discount offer by becoming members of IRMRA on spot.

More than 80 members had participated for this seminar. Positive feedbacks were obtained from the members for organizing many more such value added seminars.

Annual General Meeting:

Annual General Meeting for 2018-2019 was scheduled on 7th September, 2019 at Hotel El Dorado, Ahmedabad.

Jt. Secy Mr. Snehal Shah welcomed the members and read out proceedings and last AGM which was unanimously approved.

Treasurer Mr. Samir Shah discussed the financial reports which was discussed and was passed unanimously.

Hon. Secy Mr. Yashodhar Kahate briefed past year

activities carried out for the benefits of members. He also briefed about the important upcoming exhibition - IRTS.

President Mr. Dipak Doshi has informed the members to present / suggest possible solutions to increase funds in order to implement the future projects like Vocational Training Centre, Setting up testing laboratory etc.

The approval of Voluntary Contributions from the members towards Fund Raising activities was made for the future projects.

More than 60 members were present and meeting was concluded with vote of thanks by Jt. Secy Mr. Snehal Shah and followed by dinner.



RSDC NEWS

Mobile vans flagged off to up-skill tyre mechanics under Saamarth project



In a major drive to skill up tyre mechanics dotting the length & breadth of India, mobile Skill Vans, fitted with state-of-the-art equipment's were flagged off on 11th August 2019 from Trade Facilitation Center, Chandmari, Badalapur, Varanasi, to increase the reach for Eastern UP belt. The mobile vans launched by Rubber Skill Development Council (RSDC) have been pressed into service for up-skilling tyre fitters and certifying them. The skill vans were launched under the Reskilling project of RSDC, SAAMARTH- Empowering a Million lives in Rubber.

Flagging off the vans, Dr Mahendra Nath Pandey, Hon'ble Minister for Skill Development & Entrepreneurship, Government of India, stated that up-skilling and re-skilling thousands of tyre mechanics represents a significant step in the journey to a skilled India. Introduction of mobile skilling centres will be a game changer for skilling of those who can't reach a formal skilling centre.

Tyre mechanics which dot the length and breadth of Indian highways play an important role in making road transport safer. Fitting of tyres, especially commercial tyres, is a skill based job requiring formal training.

The vans have been mobilized with a view to move them across different state highways, villages and towns, creating awareness about skill requirement for tyre service and maintenance and safety on roads associated with upkeep of the tyres.

"Tyres are known as wheels of a nation and tyres services and maintenance is a huge sector that needs a skilling boost. Currently this segment which has a major role to play in making road transport efficient and ensuring road safety is largely unorganized. Hence skilling and reskilling in Tyre services has been taken by RSDC as a major area", said Mr Vinod Simon, Chairman RSDC.

The launch of Mobile vans was followed by the distribution of certificates and kits to the candidates undergoing the RPL training.

"Mobile Skill Vans have been launched, keeping in view the incapability of the fitters working across the state and national highways, and reach them by bringing the training centers to their door step. More than 10 Lakh will be trained and certified under the Saamarth project by RSDC," said the Hon'ble Minister Dr MN Pandey.

Automotive Tyre Manufacturers Association (ATMA) has collaborated with RSDC for up-skilling tyre fitters. The training is being provided under Recognition of Prior Learning (RPL) Type 1.

Rubber Skill Development Council (RSDC) is a Sector Skill Council for the rubber sector set up by All India Rubber Industries Association (AIRIA) and Automotive Tyre Manufacturers Association (ATMA), in Collaboration with National Skill Development Corporation (NSDC) under the aegis of Ministry of Skill Development & Entrepreneurship. RSDC is focusing on skill development & training needs of the Rubber sector.

RSDC collaborates with Army Base Workshop for Saamarth



New Delhi -- Rubber Skill Development Council (RSDC) has collaborated with the Army Base Workshop, Pune to re-skill their personnel in Rubber. A letter of Intent in this regard has been shared by Army Manufacturing Group with RSDC. The skilling drive was jointly inaugurated by Brig. IS Rathore, Comdt. & MD 512 ABW (Army Base Workshop) and Mr Vinod Simon, Chairman RSDC at Pune.

Present on the occasion were Col KT Kuriakose, DGM (Manufacturing Group), Col. Anil Verghese, GM Manufacturing Group, Ms Suchita Roy, Regional Coordinator – West, RSDC, Dr Rupesh Rohan, Assistant Director, IRMRA and Mr Shyam Kumar, Foreman, ABW.

RSDC is sector skill council engaged in skilling, up-skilling and reskilling in Rubber in the country. RSDC has signed up with several Universities, State Skill Missions and Government agencies for widening usage of skilling in rubber, one of the fastest growing sectors in the country. This is the first time RSDC has joined hands with Indian Army.

"We are privileged to be of assistance to Armed Forces in our own modest way. Armed Forces have been rendering yeoman services to the nation. Nothing could be more satisfying than helping Indian Army increase its competitiveness by up-skilling their personnel in Rubber technology", said Mr Vinod Simon.

Army personnel at Army Base Workshop Khadki (Pune) will be trained by RSDC in the job role of Junior Rubber Technician. The training will be provided under Recognition of Prior Learning (RPL) scheme of Pradhan Mantri Kaushal Vikas Yojna (PMKVY). The RPL training of Army personnel will be a part of the Saamarth project launched by RSDC for re-skilling/ up-skilling of a million people in Rubber sector. In the first phase of these trainings, more than 40 personnel will participate.

Rubber Industry has been serving the nation by supplying quality rubber products, often customized, to the special needs of the Defence sector. Over 4500 Rubber SMEs spread across the country are manufacturing over 35000 different products which find usage in vital sectors including Defence.



RSDC Joins hands with NSKFDC for Widening Reach of skilling



Continuing with its drive to extend the benefits of skilling to the lowest strata of society, RSDC has tied up with *National Safai Karamcharis Finance And Development Corporation* (NSKFDC), a Govt. of India undertaking. The tie up which comes in the wake of successful tie ups with National Scheduled Castes Finance and Development Corporation (NSFDC) and National Backward Classes Finance & Development Corporation (NBCFDC) is aimed at widening reach of skilling in the marginalized sections of society and ameliorate their social standing through fruitful employment.

In fact, RSDC was chosen for the coveted Meritorious performance award by NBCFDC, recently, for an effective implementation of NBCFDC skill initiatives, based on the evaluation of the overall performance.

Under the terms of MOA signed with NSKFDC, RSDC will implement Skill Development Training Programme (projects) in rubber Plantation, Manufacturing and Tyre Services Sub sector, as sponsored by NSKFDC from time to time.

“The MOA will harness the immense potential for training youth belonging to the marginalized sections, in employable skills, required for the rubber sector. Rubber sector in India is employment intensive requiring a large number of skilled and employable youth”, said Ms Meghna Mishra, CEO of RSDC.

NSKFDC works under the aegis of Ministry of Social Justice & Empowerment with an objective of socio economic development of Safai Karamcharis / Manual Scavengers and their dependents through its various schemes.

RSDC will ensure that fresh candidates who are not already employed in the unorganized sector are the actual beneficiary of skilling programme under this MoU with NSKFDC.

RSDC is engaged in establishing an ecosystem for imparting skill-based trainings in the Rubbers sector including curriculum development, robust delivery system, standardization of processes, accreditation and certification processes to enhance the employability of the Indian workforce, globally.

For achieving the objectives of these trainings, RSDC has handpicked training providers which have expertise in effective delivery mechanism, for skill based trainings in the Rubber sector. A stringent accreditation process is followed to ensure quality of the training delivery by the training service providers, followed by regular assessments.

RSDC has developed National Occupational Standards (NOS) for various job roles and ensures that the course curriculum prepared by the training service providers is aligned to the NOS.



DM-4	Maruti Engineering Works 23 Samrat Industrial Area, Opp.Ganesh Industries, B/h.S.T.Workshop, Gondal Road Rajkot	Hitesh Depani 9426732792 Hitesh.marutirubber@gmail.com	Rubber Parts
LAM-77	Burad Chemicals Pvt.Ltd. FF-1 Welcome Shopping Centre, Old Padra Road, Vadodara - 390015	Pramil Jain 9825298888 pramiljain@burad.co.in Kapil Burad 9824447733 ksburad@gmail.com	Antitac Agent, TIP, Baldder Coat, Finish Paint
AAM-83	Dwarkadhish Marketing 327 Star Chamber, Rajkot 360001	Daksha Dholakia 9824290144 dwarkadhishmarketing@gmail.com	Dealers
AM-271	Shree Nathji Rubber Products Plot No.G/706 Gate No.2, Tele.Exchange Road, Metoda, Rajkot 360021	Kirit Ghetiya 9825314114 Srpproducts2001@gmail.com	Products
AM-272	Deep Jyoti Rubber P.Ltd. A-32, Sector 5 Nodia Uttar Pradesh	Abhishek Jain 9811411133 Hose_sheet@yahoo.co.in	Rubber Products
AAM-84	Bently Rubmech P.Ltd.	Rohan Zalavadiya 7874386782 Alpesh Patel 9904869907 bentlyrubmech@gmail.com	Hydraulic Machine and Bale Cutting Machine Manufacturers
AAM-85	Alfa Pigments & Chemicals P.Ltd.	Jeet Dey 9831212723 Managing Director Jeet.dey@apcplkol.com chemalfa@yahoo.com	Zinc Oxide Manufacturing and Trading
AM-273	Aayushi Ruber Enterprise	Vishnu Thakor 9377476907 CEO sumitravthakor@gmail.com	Tyre Patch Bending Gum Cushion Gum

AM-274	Shree Vinayak Enterprise	Shreeraj Joshi 9662026462 Partner Exim.vinayak@gmail.com	Crumb Rubber
AM-275	Shree Durga Rubber Products	R.B.Yadav Partner 9426274748 D.D.Darbar Partner 9824386279 Durgarubber46@gmail.com	Industrial Products Valve Products
DM-5	H.M.Rubber Industries	Nileshbhai B-31, Maruti Ind.Estate Nr.Daksheshwar Mandir, Pandesar, Surat – 395020 9429931013 hmrubber@yahoo.co.in	Rubber Products, Precision Rubber, Oil Seals, Gaskets, Bellows and Joints
AAM-86	Globus Rubchem P.Ltd.	Pramod Bothra, Ayush Bothra 1012, Corporate Annexe, 10 th Floor, Sonawala Road, Goregaon(E) Mumbai – 400063 9007033410, 9007030030 globus@globusrubchem.in globusrubchem@yahoo.in	Silicone Rubber (Hoshine) NBR(Sibur) FKM(CHR)
AAM-87	Swarup Chemicals P.Ltd.	Akhilesh Kumar Trivedi, Water Works Road, Aishbagh, Lucknow-226004 9335201818 info@swarupchemicals.com	TMT,ZDC Brand Vulcasa
AM-276	Standard Rubber Products	S.K.Choudhry/ R.C.Joshi Village –Piplia, Opp.SIMT College, P.O.Gadarpur – 263152 Dist.Udham Singh Nagar, Uttarakhand 9319897345/9319897346 srp@srp.india.com info@srp-india.com	Single Extrusions, Co-extrusions, Moulding

AM-277	Unick Vibration Control Systems P.Ltd.	Vivek Gupta, 7BU Block, DDA Complex, Outer Ring Road, Pitampura, Delhi 34 01165728200 9718575974 sales@unickvibration.com	Manufacturer, supplier and exporter of anti vibration pads and leveling pads
AM-278	SRP Synthetic Rubber Products P.Ltd.	K.S.Venkatesha Managing Director 9845538562 Senthil Kumar Sr.Engg 7022259184 C-81, 2 nd A Main Road, Peenya Industrial Estate, Peenya 2 nd Stage Bangalore – 560058 ksvenkatesh@srpblr.in	O Rings, Gaskets etc. Raw Materials JSR NBR Floura silicon etc.



Rubber Reprogrammed

Creatively compounded Rubber performs better and adds value to products. Shrinath Products offers complete in-house Rubber compound mixing and characterisation solutions for your custom needs.

Continuous efforts to combine new age chemistry, engineering and quality control techniques ensure Reprogrammed Rubber compound for worry free processing, better yield, enhanced product performance and cost effectiveness.

For your enquiry
Email: rc@shrinathproducts.com
Phone: +919825030530

Book Advertisement

- For RMWA Journal

Advertisement Tariff of “The RMWA Journal” Quarterly colour Magazine

S.No.	Type	Full Pack Amt. RS.	Insert ion per issue	Single Package Amount in RS.	Total No. of Insertion
1	Title Cover of the Magazine(1/6) Size :7 cm x 9.5 cm	30000	1		4
2	Front Cover Inside Size : 21cm x 28 cm	32000	1		4
3	First Page of Magazine Size : 21cm x 28 cm	32000	1		4
4	Back Cover Inside Size : 21cm x 28 cm	32000	1		4
5	Last Page of the Magazine Size : 21cm x 28 cm	32000	1		4
6	Back Cover of the Magazine Size : 21cm x 28 cm	36000	1		4
7	Colour Pages(Full) other than first and last page Size : 21cm x 28 cm	24000	1		4
8	Colour Pages(Full) Size : 21cm x 28 cm			7500	1
5	Colour Pages(Half) Size : 19cm x 12 cm			5000	1
6	Colour Pages(Quarter) Size : 9.25 cm x 28 cm			3500	1
7	Classified Advt Size : 9 cm x 6.5 cm			1500	1
8	Strip Advt(on any one page)			1500	1

: NOTE :

Designs should be in cdr format .

Priority will be on first cum first basis on the availability of page.

GST extra 18% on tariff amount.

Bank Details : Cheque in Favour of Rubber Manufacturers' Welfare Association

Address : B/413, Rudra Arcade, Nr.Helmet Circle, Memnagar, Abad – 380052

Contact : 07927410226 Email : info@grma.in grma.rmwa@gmail.com

NEFT Details : A/c No.6281877317 / A/c.Name : Rubber Manufacturers' Welfare Association

Bank Name : Indian Bank **Branch :** Drive in Ahmedabad **IFS Code :** IDIB000D051

Fees : Entrance Fees Rs. 1,000/-

MEMBERSHIP APPLICATION

Categories of Membership :	Yearly Membership	10 Year Membership
(1) Ordinary Member (Manufacturer)	₹. 2500/- Yearly Fee	₹. 12500/-
(2) Technical Member	₹. 2500/- Yearly Fee	₹. 12500/-
(3) Associate Member	₹. 3500/- Yearly Fee	₹. 20000/-
(4) Patron Membership	₹. 1,11,000	

**BECOME
A
MEMBER**

SUBSCRIPTION

- The RMWA Journal

QUARTERLY MAGAZINE / SUBSCRIPTION COUPON

Annual Subscription Rate Card

Period	Amount in Rupees
1 Year	500.00 (Five Hundred) + GST
2 Year	900.00 (Nine Hundred) + GST

Yes, I/We want to subscribe "The RMWA Journal"

Fill in BLOCK LETTERS

Name: _____

Designation: _____

Company Name: _____

Address: _____

City: _____ State: _____

Country: _____ Pin Code: _____

Tel: _____ Fax : _____

Mobile: _____

Email : _____

DD/Cheque No. _____

Drawn on(Bank): _____

Dated: _____ for Rs : _____ in favour

"RUBBER MANUFACTURERS' WELFARE ASSOCIATION"
payable at Ahmedabad or Cash / Cheque / DD may be deposited
to any branch of Indian Bank and copy should be mailed /
faxed to the Association.

JOURNAL WILL BE SENT BY NORMAL POST

NEFT Details : A/c No.6281877317

A/c.Name : Rubber Manufacturers' Welfare Association

Bank Name : Indian Bank

Branch : Drive in Ahmedabad

IFSC Code : IDIB000D051

ADVERTISEMENT INDEX

Sr. No.	Company Name	Page No.
1	Kloeckner DESMA Machinery Pvt. Ltd.	Front Cover
2	Bhavik Enterprise	Front Cover Inside
3	Eeshaan Automation Pvt. Ltd.	01
4	Dynafluon	05
5	India Rubber & Tyre Show	06
6	Boron Rubber India	14
7	Hi-Green Carbon	18
8	Microquick Engineers	22
9	Award	29
10	Shrinath Products	35
11	Manav Rubber Machinery Pvt. Ltd.	38
12	Swastik Group of Companies	Back inner page
13	Jay Ashirward Trading Co.	Back Cover

WE LOVE TO HEAR INTERESTING INFORMATION FROM YOU

Please share your Product Write-ups
with photographs, Innovations,
Research & Technical Articles,
Joint ventures & Collaborations,
and Press Releases.

We shall explore to publish
the same in this magazine.

Please send to
email info@grma.in.



MANAV
Since 1993

MANAV RUBBER MACHINERY PVT. LTD.

Mfg. & Exporters of Rubber Processing Machinery

Fully Automatic Compression Type Rubber Moulding Machine



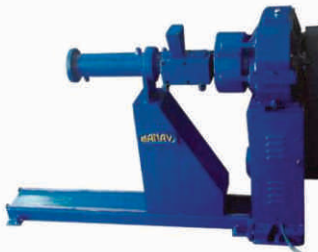
100 Ton Die Pushing - Pulling, Ejecting Press

Hot Feed Extruder



115mm Extruder Equipped With Tube Die Head

Silicon Extruder



55mm LD Ratio 12:1

Rubber Dispersion Kneader



Mfg From 10ltrs to 75ltrs

Fully Automatic Four Plate Mold Handling System Rubber Vacuum Compression Molding Hyd. Press



200 TON Vacuum Hyd. Press

Heavy Duty Rubber Mixing Mill



12" X 30" Anti - Friction Bearing Type Uni - Drive Mixing Mill

2, 3, 4 Roll Calender



Rubber Bale Cutter Machine



Bale Cutter Can Be Made In Semi & Fully Automatic

**SOLUTION
FOR
BETTER
WORLD**

Product Ranges

- HEAVY DUTY RUBBER MIXING MILLS IN BULL GEAR & UNI - DRIVE TYPE WITH STOCK BLENDER
- VACUUM / COMPRESSION TYPE RUBBER MOULDING MACHINE
- RUBBER BALE CUTTING MACHINE SEMI & FULLY AUTOMATIC WITH AUTOMATIC BALE PUSHER
- CALENDERS 2, 3, 4 ROLLS
- HOT FEED RUBBER EXTRUDERS
- SILICON RUBBER EXTRUDERS
- RUBBER DISPERSION KNEADER
- ROUND AND SQUARE STEAM HEATED VULCANIZERS



Factory Address

Plot No. 1801/3 & 4, G.I.D.C.,
Phase - III, Near Regent Plast Ltd.
Umbergaon, (Dist - Valsad),
Gujarat - 396 171, (INDIA).

Office Address

Plot No. 24- B, Gr. Floor, Garage No. 2,
S.V. Rd. "Param Sukh Shanti" Bldg.,
Nr. Jawahar Nagar Hall, Goregaon (W)
Mumbai: 400104

Telephone No: 022- 2876 -7985

Mr. Hemang Jhaveri

Mobile No. : +91 (0) 9320023120

YouTube / Manav Rubber Machinery Pvt. Ltd.

Mr. Parth Jhaveri

Mobile No. : +91 (0) 8898313888

Email ID: manavrubber@gmail.com



GROUP OF COMPANIES

SYN. RUBBERS

NITRILE:
PERBUNAN NT 3445 F,
KNB 35L, JSR 230 SL,
LG 6240
OFF SPEC NBR

NEOPRENE:
SKYPRENE, B-30, Y-30-H,
G40S
BAYPRENE A100
OFF SPEC NEOPRENE

SILICONE RUBBER:
DJ (CHINA) 10-80 SH
HOSHINE 30-80 SH
TRANSPARENT 40-70 SH
KCC (KOREA) NPC 2540, 2580

EPDM:
KEP 210, 240, 270, 435, 960
ROYALINE 301T,
DOW NORDEL 4640, 4570, 3640
DUTRAL - 4049,
MITSUI - 3110 & 3092 M
OFF SPEC EPDM

HIGH NITRILE:
JSR 220S, 220SH,
PERBUNAN 3945, 3965

PVC NBR:
VINOPRENE 70:30,
50:50, 60:40

BROMO BUTYL:
X2 PHARMA, 2030,
RUSSIAN 232

CHLORO BUTYL:
EXOON 1066,

BUTYL:
BK 1675N,
LANXESS 301

**GENERAL PURPOSE
COMPOUNDS :**
FKM, NBR, EPDM, SBR
IIR, CR, NR, PU

SBR
1502, 1712, 1738
568

PBR:
1220-GP, 01,
1220 IRAN

HYPLON:
TS 530

CHEMICALS

RUBBER CHEMICALS :
LANXESS MBTS, MBT, TMTD,
TMT, TDQ, 4020, PVI,
ZDBC, ZDC, CBS

RUBBER CHEMICALS :
DCP-98, DCP-40, NA-22,
DIAC 3, STARIC ACID MGO,
SULPHUR, DPTT, TETRON-A
ZINCLOT 16 & 44
ADDITIVES

METAL OXIDE:
ZINC OXIDE
TITANIUM DIOXIDE
Dupont Rutile 104, Anatase
TTK, LEAD OXIDE, ACTIVE ZINC

RECLAIM RUBBER:
BUTYL RECLAIM,
TUBE GRADE,
EPDM RECLAIM,
WHITE RECLAIM,

RESIN
PF RESIN, CI RESIN, HYDRO
CARBON C9/C5, WOOD ROSIN

**SILICONE
EMULSIONS:**
WACKERS

PLASTICIZER:
DOP, DBP, FH

WAX:
PARIFFIN WAX
CARNOBA WAX

PEROXIDE:
TRIGONOX 101
PD-50

RUBBER TO METAL BONDING AGENT

POLYLOC, MAGUM, THIXON, MBR, CHEMLOCK, IRODUR, DESMODUR RE

CARBON BLACK PHILIPS

HAF-330, 339, FEF-550, GPF-660
SRF-774, ISAF-220

FLUOROELASTOMERS

DAIL-EL (VITON), G-C752, G-C771,
G-755/501/723/503/901 & OTHER GRADE



SWASTIK SALES AGENCY



SWASTIK MARKETING



SWASTIK TRADELINK

Complete Solutions For Tough Conditions



IMPORTERS, DEALERS & STOCKIST OF RUBBER & RUBBER CHEMICALS

F/23, New Madhavpura Market, Shahibaug Road, AHMEDABAD - 380004, Gujarat, INDIA.
Tele : +91-79-25621279, 25626798 • Mobile : 9824013787, 9376176266, 9824523787
Website : www.swastikgroup.info • E-mail : swastikgroup@yahoo.com, swastikgoup@gmail.com



"Supply chain to rubber industries"

**Dealers & Importer Natural Rubber, Synthetic Rubber,
Rubber Chemicals, Carbon Black, RPO Etc.**

**AVAILABLE READY STOCK :
NATURAL RUBBER, SYNTHETIC RUBBER,
RUBBER CHEMICALS, RPO, RECLAIM RUBBER**

SYN. RUBBERS

NITRILE:

NT 3445 F, KNB 35L, JSR 230 SL, LG 6240,
OFF SPEC NBR, NBR POWDER

HIGH NITRILE:

JSR 220S, 220SH, 3965, 3945, KNB 41M

PVC NBR : JSR NIPOL 50:50, 70:30

SBR :

1502, 1712, 968, 568

PBR :

1220-GP, 01, 1220 IRAN

NEOPRENE:

B-30, A-90, Y-30-H, BAYPRENE 210,
BAY-100, DUPONT AD, DENKA A-100
A-400, G40S

SILICONE RUBBER:

DJ (CHINA) 40-50-60-70 80,
DOW CORNING TRANSPARENT 40-50-70,
DOW CORNING NPC 40-80

EPDM:

KEP 960, KEP 210, KEP 435,
ROYALINE 301T, VASTALON 7001, 5601,
8800, DOW NORDEL 4640, 4570, 3640

BUTYL :

BK 1675N, LANXESS 301,

BROMO BUTYL :

X2 PHARMA, 2030, RUSSIAN 232

CHLORO BUTYL:

EXOON 1066, RUSSIAN 139, LX 1240

HYPLON: TS 530

POLYISOPRENE :

SKI3S, NATSYN 2200

NATURAL RUBBERS

SVR3L (SELF IMPORT), ISNR3L, RSS1 X,
RSS4, RSS 5, RSS GOOD LOT, ISNR3L,
PLC 1X, ISNR 20, SKIM CREPE, ETC.

CHEMICALS

RUBBER CHEMICALS : LANXESS

MBTS, MBT, TMTD, TMT, TDQ, CBS,
ZDC 4020, PVI, ZDBC, ZDC, CBS, DCP-98,
DCP-40, NA-22, DIAK 3, STARIC ACID,
MGO, SULPHUR, DPTT, TETRON-A

RUBBER PROCESS OIL : GANDHAR

GANDHAR : FLEX P, FLEX A, FLEX N
HP : ELASTO 710, 245, 541

METAL OXIDE :

ZINC OXIDE (99.5% WHITE SEAL-'Ace
Chemie), TITANIUM DIOXIDE Dupont
Rutile 104, Anatase TTK,
LITHARGE - LEAD OXIDE, ACTIVE ZINC

RECLAIM RUBBER:

BUTYL RECLAIM, TUBE GRADE,
EPDM RECLAIM, WHITE RECLAIM,
HIGH TENSILE, WTR-SF HR-MEDIUM.

RESIN :

PF RESIN, CI RESIN,
HYDRO CARBON C9/C5, WOOD ROSIN

SILICONE EMULSIONS :

DOW CORNING, WACKERS

PLASTICIZER :

DOP, DBP, FH

WAX :

PARAFFIN WAX

CARBON BLACK

HAF-330, FEF-550, GPF-660,
SRF-774, ISAF-220,



Dealers :



Phillips Carbon
Black Limited



Jay Ashirwad Trading Co.

M : 98240 88289 RUSHABH KAMDAR

Add : 30, Janta Chamber, Saijpur Bogha, Naroda Road, Ahmedabad-382345.

E-mail : info@rubberrawmaterial.com, www.rubberrawmaterial.com

Phone : (O) +91-79-2281 6327 +91-79-2282 2841

IF COURIER NOT DELIVERED PLEASE RETURN TO :

RUBBER MANUFACTURERS' WELFARE ASSOCIATION, B/413, RUDRA ARCADE, NR. HELMET CIRCLE, MEMNAGAR, ABAD - 380052