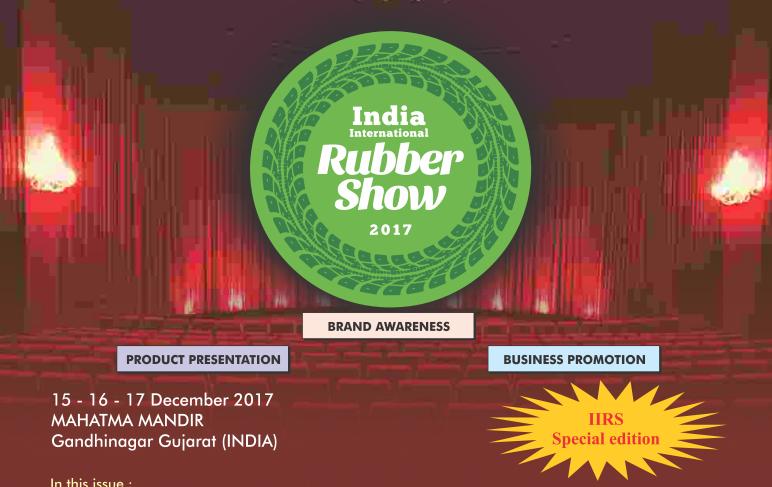


Volume 1 ◆ ISSUE 2 ◆ DEC 2017 ₹. 100/-

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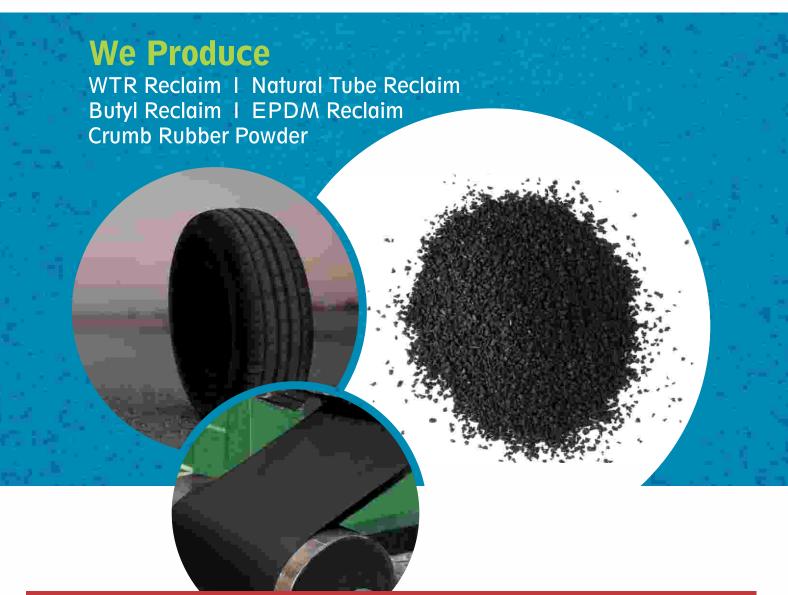
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Editor: Manoj Shah

Editorial Support: Deepak Doshi,

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Content Support: Atul Shah, Ronak Panchal

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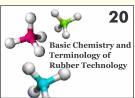


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Secretary Message INVITATION –IIRS2017

Yashodhar Kahate Secretary, RMWA



In its long history, the Rubber Manufacturers' Welfare Association (formerly the Gujarat Rubber Manufacturers' Association) has many achievements to its credit. However, the India International Rubber Show (IIRS) is the jewel in the crown. Just in its second edition, the IIRS has gathered much momentum. We had increased the saleable area by 66% compared to the first edition held in February 2016. The response has pleasantly surprised us. People from Mumbai, Delhi and even Kolkata have evinced interest to participate. The growing market of Gujarat has helped tremendously in gaining participation from suppliers of raw material and machinery from within and out of Gujarat too.

The biggest differentiating factor of IIRS from

other rubber expos is that it is aimed at promoting the rubber product manufacturers. Hence, one finds numerous stalls populated by rubber products besides those of raw materials and machinery. Normally, rubber product manufacturers prefer to participate in exhibitions catering to specific industrial sectors like pharmaceutical, textile, etc. We realized there was no event that specifically promoted only rubber products and have since been pushing this show as an event to attract all industries using rubber products as their input.

We are pleased to **invite you** to visit India this IIRS show being organized during 15-16-17 Dec 2017 @Mahatma Mandir, Gandhinagar, Gujarat. It offers a unique opportunity to engage and network with over 150 leading manufacturers / Traders from across the country.

I wish to thank all the persons responsible in making this event successful and also those responsible in making this issue of The RMWA Journal a great read.

Happy Participation in IIRS 2017...

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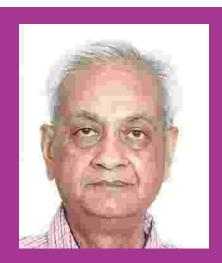
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Editor's Note Safety in Rubber Industries

Editor The RMWA Journal



Manoj Shah

Dear Readers,

I Congratulate to whole team with excellent beginning. Let us keep up the momentum.

Let us talk about safety in rubber industry. Rubber industry is an integral part of chemical industry. There are numeral possibilities of accident in such industries. There are many MSME industries where reactors, thermal fluid heating system and steam heating autoclaves are working. All such industries are using raw material like organic solvents and chemicals. Accident does not happen with prior warning. Do we take enough care to avoid accidents?

We must take care to observe all safety parameter. Periodically all limit switches and steam regulatory devices should be checked and maintained. Places where organic solvents are stored / or used should be properly ventilated. Educate operators to use mask and other protective gears for their safety. Certain chemicals like silica, peroxide and sulphur bearing chemicals are health hazardous. Consider your organisation like your family. Assure their safety at works. Explain them about toxicity so that they are aware and do not commit any mistake.

We all know what happened at Bhopal in Madhya Pradesh in 1984, the biggest toxic gas tragedy. So please be alert take care. Human life is most important than anything else. Loss of near one / dear one is never compensated.

Happy Reading...



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OVERVIEW

India International Rubber show 2017 acted as a key Catalyst in Propelling the growth of the Rubber and other Rubber related Industries in Western India. IIRS Scheduled from 15-16-17 December 2017 Proved to be an ideal platform for the companies from across India to Showcase their Product Quality and Strength. It Extends its Propose to Both buyers and sellers of the Rubber Products and Rubber Related Machineries, Chemical, Raw-Material etc.

On One side Where there Sellers can cater to a larger Potential Client Group Even the buyers are Made aware of the latest Technological Changes Happening in the Industry, Which in turn helps them choose the best Available Product.

India International Rubber Show 2017, Showcased the best in the terms of Quality, Innovations and technology and served as a Conductive Platform in amalgamating the capabilities of the industry with the specific needs of the Manufactures and distributors and Suppliers. With a strong Base the Exhibition offers a unique advantage by not only Providing new Opportunities For Enhancing the business but also for augmenting the process with cost-effective Technologies.

Being an all inclusive rubber and allied products show, The Event Provided an Opportunity to exhibitions from Various Sectors to Spread awareness about their Products. This year the show have participation from Chinese companies and India Companies and Visitors from the PAN India.







CLIENT SPEAK

India is a very Important Market for Rubber Industry and exhibitions
like IRS provides an ideal platform for companies like us to meet and
interact with large number of quality rubber manufacturers from
across India. We have been participating since last couple of years
in the event and it has been very satisfying experience for us.

R. K. Zindal General Manager Upper India Ltd.

We have been participating in IRS since the inception and the exhibition has grown from a regional level to an international level. The quality of visitors are extremely good and we are generating business from across INDIA in this event. We congratulate the organizers of IRS for such wonderful event and great services.

Shrikant Shah M.D. Amaeen Minerals

Though Elastochemie Impex Pvt. Ltd. has always been part of this event it is my first time here and I would rank this event at par with any international level exhibition happening across the globe.

Deepak Singh BDM Elastochemie Impex Pvt. Ltd.

Lead Reclaim And Rubber Products Ltd. has always been a part of this event and we are satisfied with the visitors of the event. This exhibition gives us exposure to quality rubber Manufacturer and amateurs both.

Jayesh Patel
Director
Lead Reclaim And Rubber Products Ltd.







VISITOR VIEWS

I have recently set up my studio in Bhopal and wanted to look for latest lights, backgrounds and other material for my studio. I had visited metro cities to source the same but what I can see and get in this exhibition is much better, the choice is much much wide and I can meet the suppliers directly. This is my 1st ever visit to Ahmedabad Exhibition but I will always be a visitor now.

Rajesh Patni 55 Surat We had heard of this event since last couple of years and many of our business colleagues had visited last year, some how we missed it last year but this year we made sure we visit the show and next year we would be the first one to book our participation. The show is very professionally managed and with international participation, We are really impressed.

Sumit Patel J



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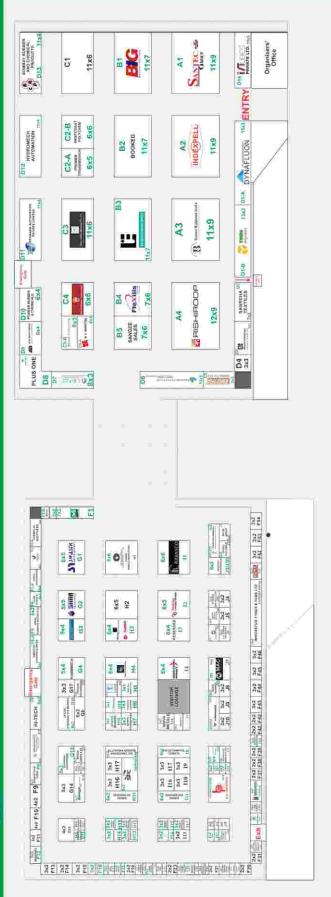
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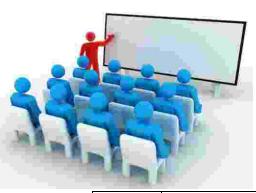
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Participant List in IIRS

Company Name	Stall No	Company Name Sta	ll No
A.B. Brothers	D9	Manjeet Engineering	G13
Annpurna Exim (Dalian Baofeng ltd Ch	nina) H5	Matrushree Rub Industry	J15
Arpit Enterprise	F4-A	Meditak Global Pvt. Ltd.	J16
Ashutosh Rubber	D4	Microquick Enginerrs	F7
B.P Chemicals	J13	MK Marketing	C5-A
B.P Chemicals	J14	Modi Wrap Star Pvt.Ltd.	J1
B.P Chemicals	J19	Moon Urecast Pvt. Ltd.	G7
B.P Chemicals	J20	Motiba Sylicon	F1
Bhavik Enterprise	C5-B	Natraj Rubber	D2
Bharat Enterprises	D3	Navbharat Oxide	H1
Bharat Rubber Chem	J10	Nishignadha Polymers Pvt. Ltd.	D5
Bombay Chemical	D13	Omega Plasto	G10
Booked	B2	Oyster Ind Pvt Itd	J29
Boron Rubber (Silver Sponser)	A3	P.D. Sales	F30
Chintan Rubber Products	F27	Pioneer Rubber & Chemicals	D10
Control Print India Ltd.	14	Piyus Eng	H20
Devshakti Plasmould Industries	F26	Plus One Machinefabrik Pvt. Ltd.	D8
Dipak RubberJ	25	Pollye RubbJ	31
DynaFlaun	D1-A	Pollye Rubb	J32
Eeshaan Automation Private Limited	D1-A	Qingdao Huicai Machine	17
Elastochemie	B3	Radhe Group	G12
	J12	Rane Elastomer	Н3
Fajr		Ratan Poly Elastomers	F51
Fine Polymers Finster Carbon	F22	Ravasco Swastik Industries LLPI	1
Flexilis Pvt. Ltd.	H6 B4	Reliable Oil Seal	F17
	B4 J3	Rohit Rubber	C4
Ganpati Enterprise		Rubb-Mach	G4
Ganpati Enterprise	J30	Rubber Products	F20
Global Technologies	18	Sagar Rubber	F25
Guru Krupa Mould	J17	Samir Enterprise	H7
Guru Polymer	J2	Sanghavi Sales Corporation	G9
HEXA Plast	J11	Santec India	A1
Hi Green Carbon	G11	Saraswati Rubber Industries	F24
Hi Link Printing SolutionJ	18	Satyanarayan Rubber And Plastic Industrie	s H8
Hi Tech Boilers Pvt. Ltd.	F6	Shani Rubber Product	J27
Hydromech Automation	D12	Shree Industries	F18
I .R.Tubes	D14	Siloxane Aggrandize Innovative Industries	F32
Indexpell	A2	Sima Industries	H2
J N Engineering	G2	Surface Improvments (india) Pvt.Ltd.	G3
Jaggu Hydrulics	G16	Swastik Sales	E1
Jashwant Marketing	F40	Swastik Shivpriya Impex	F 5
Jay Khodiyar Rubber	J21	Twin Engineers	D1-B
Jemond Rubber	H15	Uttam Industries	F21
Kedar Rubber	F33	Vaiva Metals and alloys	I 18
Laxmi Agency	F4	Vardhman Hoses Pvt. Ltd	J23
Laxmi Agency	F34	Vardhman Hoses Pvt. Ltd	J24
Lead Reclaim & Rubber Products Ltd.	D7	Viscon Rubber	F3
Mac Printing Solutions	J7	Xtreme Machines	12
Mac printing solutions	J26	Yesha Engineering	J22
Manav Rubber	C3	Zenith Rubber	H18



Schedule for Concurrent Seminars during IIRS 2017

Date	Time	Topic	Beneficial for	Fee for topic	Faculty
15/12/17	14:15 to 15:45	Compounding and Mixing techniques	Manufacturer	Rs.450/- inclusive of meal coupon	Dr. Samar Bandyopadhyay Pukhraj Additives LLP
15/12/17	16:00 to 17:30	Bonding Techniques and Trouble Shooting	Manufacturer	Rs.450/- inclusive of meal coupon	
16/12/17	10:00 to 11:15	Rubber – What Users need to know	User	Rs.450/- inclusive of meal coupon	Mr.Manoj Shah Manufacturer & Consultant
16/12/17	11:30 to 13:00	Understanding ASTMD2000 and Material Selection	Manufacturer	Rs.450/- inclusive of meal coupon	Mrs.Suchismita Sahoo IRMRA
16/12/17	14:15 to 15:45	Combination of Black/Non Black Fillers	Manufacturer	Rs.450/- inclusive of meal coupon	Mr.Atul Shah M.E.Rubber Technology
16/12/17	16:00 to 17:30	Quality Assurance through Physical & Chemical testing	Manufacturer.	Rs.450/- inclusive of meal coupon	Mrs.Suchismita Sahoo IRMRA
17/12/17	10:00 to 11:15	Advance Polymers & Thermoplastic Elastomers(TPE)	Manufacturer	Rs.450/- inclusive of meal coupon	Mr.Atul Shah M.E.Rubber Technology
17/12/17	11:30 to 13:00	Rubber in sealing & Conveying application	User	Rs.450/- inclusive of meal coupon	Mr.Manoj Shah Manufacturer & Consultant
17/12/17	14:15 to 15:45	Rubber in Pharmaceutical and living applications	User	Rs.450/- inclusive of meal coupon	Mr.Manoj Shah Manufacturer & Consultant

[·]Cash Payment at Spot Registration available at Seminar Hall, IIRS 2017, Mahatma Mandir, Gandhinagar.

ONLINE VISITOR REGISTRATION TO IIRS-2017

Please click on either of following links

http://www.rmwa.in/event-register.php

http://indiarubbershow.com/visitors-registration-2/

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[•]Branch: Drive in Ahmedabad * IFS Code: IDIB000D051.

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[·]Contact: 07927410226 / 7567351972 Mail: info@grma.in

RMWA News





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	Ahmedabad- 380 001		Paper Stickers
LAM-	Ravasco Swastik Industries LLP	Rajesh Ranjan - 9022842223	Conveyor
65	Swastik House,	Email: rsrajesh@vsnl.net	Belts/Rubber
	159 Nagdevi Street,		Sheets
	Mumbai – 400 003		
AM-	Krishna Rubber Industries	Shailesh modi -9825206436	Rubber Hoses
248	C-1/10 GIDC Estate	Email: Smodiad1@gmail.com	
	Chitra, Bhavnagar – 364004		
AM-	Madhu Silica Pvt. Ltd.	Ramesh Shah- 9825205195	Precipitated Silica
249	147, GIDC Estate, Vartej,	Email:	
	Bhavnagar – 364060	Rameshshah@madhusilica.com	
		Darshak Shah- 9825205190	
		Email:	
		darshakshah@madhusilica.com	
AM-	Matrushree Rub Industries	Alpesh Prajapati- 9558818472	Moulded Parts
250	15/A Raman Estate,	Email :	and Compounding
	Nr.Gota Over Bridge,	Matrushreerub2010@yahoo.in	
	Gota, Ahmedabad – 382481		
LM-	Maruti Plastorubb Industries	Amit Srivastav -98257 99595	Rubber O Rings
251	303, Nandanvan Complex	<u>Landline:</u> 07930525987	and Gaskets
	Opp.RTO Subhashbridge	Email :	
	Ahmedabad – 380027	marutiplastorubb@yahoo.com	
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	Tawadipura, Shahibaugh,	dinesh.gurumairubber@gmail.com	
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The Team members of RMWA presented case to Shri P D Vaghela, GST commissioner for the inappropriate GST rate. The GST rate is reduced now from 28% to 18% for the HSN code 4016 and 4017

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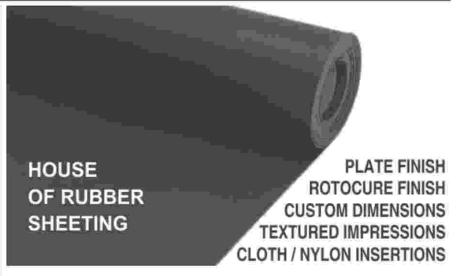
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Basic Chemistry and Terminology of Rubber Technology



Manoj Shah

I will briefly explain above subject to enable all [having any academic back ground] to understand the basics. This will be helpful to understand detailed upcoming articles which will be published here in future.

For the sake of simplicity we divide this article into four parts.

- [1] Basic chemistry
- [2] Polymer science
- [3] Rubber technology
- [4] Terminology.

[1] BASIC CHEMISTRY

Matters- there are more than 100 matters in nature. E.g. sodium ,calcium , zinc , etc.

Atom- smallest possible part of matter is called atom. Modern atomic physics has proved that atom is divisible in further small part like electron, proton, neutron, etc. Atoms are either positively or negatively charged. They join to each other in

different capacity. Such capacity is known as velence.

Symbols for certain matters are as under:

Hydrogen [H]	Oxygen [O]	
Carbon [C]	Sodium [Na]	
Nitrogen [N]	Chlorine [Cl]	
Fluorine [F]	Calcium lCa]	
Aluminium [Al]	Silicon [Si	[]
Barium [Ba]	Zinc [Zi	n]

Molecule- The smallest possible part of compound is called molecule. It is made of many atoms by joining together. E.g. Methane [gas] CH4 Rubber [solid] C5H8 Wood - paper [solid] C6H10O5 Benzene [liquid] C6H6

Macro molecule- By polymerization small molecule joins with each other to make a big

molecule, known as macro molecule. E.g.

Natural rubber [C5H8]n where n = 20000

Wood – paper [C6H10O5]n where n = 2000

[2] POLYMER SCIENCE

- Polymer means material like rubber, plastics and fibres. Polymers are made from basic chemicals. E.g. isoprene, butadiene, ethylene, propylene Isoprene is low boiling point liquid. Monomers of isoprene polymerize to form poly isoprene [polymer].
- This process is known as polymerization.

There are two types of this process
[1] Addition polymerization. There is no loss of atom. E.g conversion of Ethylene gas to

- [2] Condensation polymerization e.g. Thiokol rubber. There is loss of atom and a bi-product is formed.
- Polymerization may produce two types of structure.

[1] CIS [2] TRANSCIS Natural rubberTRANS Neoprene rubber.

polyethylene.

Thermoplastic Polymers Thermosetting Polymers

Rigid - Poly Vinyl chloride (PVC) Epoxy / PF rensins & abonite

Flexible - Polyethylene (PE) Highly Loded/Cured Rubber

Lightly Cured Rubber

Rubbery - High Styrene resin & (PU)

[3] RUBBER TECHNOLOGY

- Converting polymers to commercial product is rubber technology. By mixing different chemicals with polymer, a polymeric compound is formed.
- curing converts such compound to usable product.
- Vulcanization /curing / cross linking means joining two polymer chain with one or more sulphur atom.
- Cross-linking term is attached to peroxide curing.
- Sulphur is very inert material. [S8]. Accelerator generates reactive sulphur radicle. Thus sulphur







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- & accelerator OR peroxide converts polymeric compound into finish elastic rubber products.
- Brief summary of processes conducted in rubber industry.

1. COMPOUNDING

Polymers / Chemicals / Softners / Fillers / Curatives

2. PROCESSING

(A) Mixing

Open Roll / Banburry / Internal

(B) Shapping

Extruding / Calendaring / Spreading

2. VULCANIZING

(A) Moulding

Compression / Transfer / Injection

(B) Steam Curing

Autoclave / Open Steam / Jacketed

(A) Hot Air Curing

Oven / U.H.F.

 All these topics require detail understanding which we will try to provide here in forth coming article.

[4] TERMINOLOGY

There are certain terms which consist specific meaning. Here we will try to Define the same.

- [1] **Accelerator** / A chemical which speed up vulcanization.
- [2] **Aliphatic** / Straight chain organic compound. e.g. alkanes, alkenes
- [3] **Antioxidant** / A chemical which slow down oxidation process.
- [4] **Aromatics** / Unsaturated cyclic hydrocarbon. e.g. benxene, xylene
- [5] **ASTM** / American society of testing material.
- [6] **Cold flow** / Deformation under constant pressure.
- [7] **Co-polymer** / Polymerizing two dis-similar monomer e.g. SBR rubber
- [8] **Ter-polymer** / Polymerizing three dis-similar

monomer e.g. EPDM

- [9] **Elastomer** / Polymer capable to return to its original shape after distortion.
- [10] **Elongation** / % Increase in original length. [Strain]
- [11] **Compression set** / % Of failure to return to original size after release from constant compressive load.
- [12] **Elasticity** / Tendency of material to return to its original shape.
- [13] **Hardness** / Resistance of rubber to forced distortion.
- [14] **Mooney viscosity** / Measurement of plasticity [viscosity] of uncured Compound or polymers by an apparatus known as mooney viscometer.
- [15] **Mooney scorch** / Time to measure premature cure at elevated temp.
- [16] **Stress** [T.S.] / Applied force per unit area.
- [17] **Tensile strength** / Pull apart strength when stretched to the breaking pt.
- [18] **Tear resistance** / Resistance to the growth of cut.
- [19] **Modulus** / Tensile stress force required to produce specific increase in length.
- [20] **Fluid** / Aliquid or gas.
- [21] **Oxidation** / Reaction of oxygen with rubber products resulting in surface cracking. This involves transfer of electron hence effecting physical properties.
- [22] **Permanent set** / After prolonged stress & relaxation, the left deformat--on is known as permanent set.
- [23] **Permeability** / The rate of gas flow through rubber expressed in cubic centimetre per second.
- [24] **Post cure** / A second step in vulcanization to remove decomposition product.
- [25] **Shrinkage** / It occurs during moulding. It decreases seal volume.
- [26] **Thermal expansion** / Linear or volumetric expansion caused by temperature increase.
- [27] **Vacuum** / Negative atmospheric pressure.
- [28] **Viscosity** / Resistance to flow.
- [29] **Volume** / change Change in the size of specimen expressed as % of original volume.
- [30] **Vulcanization** / Chemically induced crossz linking of polymer chains This converts basic viscoelastic material into three dimensional net-work of flexible elastomeric chain material.



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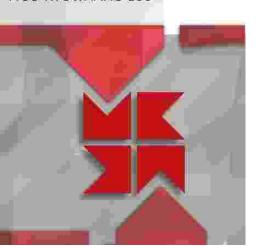
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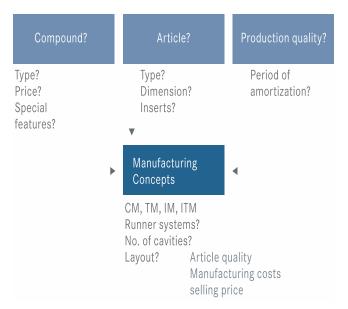
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Project Engineering Rubber Injection Moulding



Planning a mould part production typically begins with the consideration which manufacturing concept or automation level would be ideally suited in the specific case.

The type of article, the envisaged production quantity as well as raw material costs (elastomer compound) are decisive factors when taking one's choice. It is always the objective to achieve optimal article quality at minimum manufacturing costs. The comparative calculation must therefore not lack the costs for energy, maintenance, waste and the like.

BASE POLYMER (RUBBER TYPE)	MNE-MONIC	SPECIAL PROPERTIES
Natural rubber	NR	Heavy mechanical loads possible
Ethylene-propylene-diene rubber	EPDM	Water- and weather-resistant
Nitrile-butadiene rubber	NBR	Oil-resistant
Butyl rubber	IIR	Gas-tight
Fluorine rubber	FPM	Gas-tight, high general resistance
Silicone rubber	VMQ	Weather-, water-, oil and heat-resistant

Almost simultaneously the precise compound recipe is being determined. Above all, the material has to ensure technical product requirements, but also must be easily to process and affordable. It is important that the processing properties of the individual material batches do not strongly fluctuate.

As soon as an appropriate manufacturing concept and an appropriate compound recipe are found, the injection mould and the required machine can be elaborated respectively designed as second step.

After having completed all components, the exact (optimum) process control is established by way of injection tests in the course of which the fine-tuning of the injection mould is also carried out – e.g. optimization of the material distribution onto the individual mould cavities, of injection and/or venting.

Compound, mould, machine and process control eventually determine product quality, manufacturing costs and hence profitability of production. Only when these factors are optimally synchronized, a perfect result can be expected.



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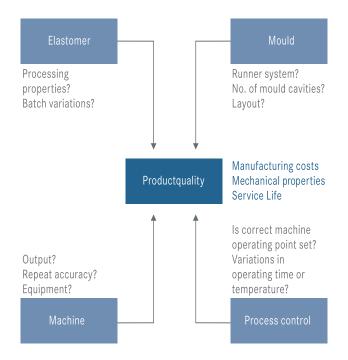
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NBR PVC

Polyyurethane

Silicone Rubber

SBR

PBR

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OVERVIEW OF INDUSTRIAL RUBBER ROLLERS

SuchismitaSahoo, Dr. K. Rajkumar

Indian Rubber Manufacturers Research Association

INTRODUCTION

Rubber is applied to the surface of metal core to prepare the rubber covered rolls, generally referred to as rubber rolls. It is a highly specialized area and comprises of unique methods and practices using an optimal balance of the combination of the rigidity of the metal core and elasticity of rubber. This is a highly versatile class of rubber product and finds application in almost all industrial sectors for wide variety range of purpose and machines. It can range from tiny rolls for making envelopes and movie films to giant rolls for paper making. Due to diverse and demanding applications the standardization of rubber rolls has been difficult. The current publication will primarily focus on the discussion of the various types of industrial rubber rolls.

The industrial rolls can be classified based on their application in different industries as below:

- 1. Paper Mill Rolls
- 2. Steel Mill Rolls
- 3. Printing Rolls
- 4. Tanning Industry Rolls

1. Paper Mill Rolls

The primary function of paper mill rubber rolls is to remove water from the sheet of pulp that is being converted to paper. Rubber rolls for paper industry has to satisfy multiple requirements, the specific requirements depends on the function of the individual roll. A sheet is formed on a travelling wire screen or a cylinder, dewatered under rollers, dried by steam-heated rolls, and finished by calendar rolls.

After the dewatering process the paper then passes through smoothing rolls (Steel and rubber-covered) and is picked up by the second felt blanket through a series of press rolls (rubber- covered), followed by a series of drying rolls internally heated by steam and finally the paper enters the calendar, where the finish is imparted.

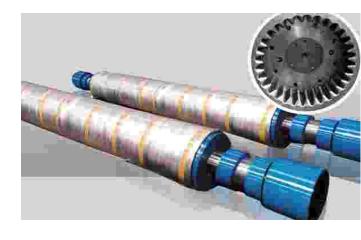
The general requirements of paper mill rolls comprises of the below properties

- High mechanical stability and good dynamic property.
- · Uniform hardness
- · Resistance to the chemical used in paper making (acidic and alkaline solutions)
- · Resistance the temperatures likely to be encountered
- · Resistance to scratching and marking

Good grinding characteristics

Spool Roll

Most of the paper industries use at least one suction roll, whose primary purpose is to draw water from the wet paper web. A suction roll consists of a perforated metal cylinder, either bronze or steel, with as wall thickness of 25-50mm. A rubber cover is applied to this perforated cylinder, and after vulcanization the rubber is drilled so that the perforations in the rubber lead into the holes in the metal shell. A suction box, 10-15cm wide, is connected to a source of low pressure and extends throughout the length of the roll on the inside. The suction roll and press roll getdeflected during operation, the actual amount depending on the type of metal used, the wall thickness, the diameter and length of the roll, the pressure applied, and the speed. To ensure that a uniform line of pressure is exerted on the paper web, a camber or crown is made into the rubber surface. Thus, the rubber covers must fled and yield to overcome the basic bending or flexing of the metal core. The rubber rolls require periodic grinding to prevent rubber cover failure due to excessive creep.













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It is desirable that the table rolls be as light as possible, to decrease their inertia. Usually, table rolls are made of thin-walled, lightweight seamless steel tubing covered with ebonite. They are balanced dynamically at the service speed, and the rubber cover is ground and polished to make them touch the wire evenly. The rubber compound used in table rolls is less easily wet by water than other kinds of roll surface. At high roll speed, this lower affinity cause water to be thrown off the rubber at a lower tangent. Consequently, less water is carried back up to the wire, and water is removed from the pulp sheet more rapidly and thoroughly.

To permit great pressure, paper mill press rolls are made quite heavy. The important function of the press rolls is to obtain high dehydration without damaging the quality if paper. In the stages where the paper contains much water, soft rubber rolls are used under low pressure, and the hardness of the rubber rolls and the pressure are gradually increased. It costs about 12 times more to remove a kilogram of water from paper with steam than with rubber-covered rolls. An important characteristic of rubber-covered press rolls as used in paper mills is their ability to absorb high impact loads in localized areas. Speedy recovery from deformation is also an important characteristic of rubber rolls. At each pressure through the nip between the two rolls, the rubber is deformed. However, if the rubber cover does not recover before the entire revolution of the roll is completed, additional stress is placed on the nonrecovered rubber and the result, as noted earlier, is corrugations, cracks, and ultimate failure of the rubber cover.

Since paper mill rolls must be reground occasionally, the ability to furnish a smooth, unblemished or ground surface is important. Regardless of other desirable physical and chemical properties, rubber covering compounds become unsatisfactory if, under the heat and pressure of the grinding wheel, they develop strings or bells of rubber, leaving a creep surface on the roll. Equally unsatisfactory is a rubber compound that permits the grinding wheel to pick out small piece of rubber, leaving a pockmarked or dimpled surface.

Natural rubber is the preferred polymer for paper mill roll covers. Blends of polybutadiene and natural rubbers also offer interesting opportunities. Some roll covers are now being made with chloroprene rubber. Cover stocks based on nitrile rubber are used in special cases only (e.g. for drying cylinders).

Approximately 30-40 phr zinc oxide is used for good thermal diffusion and dynamic properties. Blends of carbon black with precipitated silica are favored for obtaining higher values of elongation at break; coupled with higher tear strength. Sulfur is used in the range of 3-5, along with an accelerator system, which enables the roll covers to be cured for the usual long periods without risk of reversion.

1. Steel Mill Rolls

Rubber rolls used in steel mills, have uniform diameter. Rubber compounds used for covering rolls that handle metal sheets and strips must be designed to **resist the cutting and tearing action of rough, sharp edges**. Considering the mechanical strength required most steel mill rolls are covered with **Polychloroprene rubber and some with NR**, in the hardness range of **45-80 Shore A**. In the rugged service of sheet steel rolling mills, oiling rollers made from nitrile rubber are used for lubrication of finished sheet metal.

Continuous electrolytic machines in steel industries use rubber rolls of three types:

- a) tension rolls, to pull the sheet through the line
- b)
- c) wringer rolls, to remove water and chemical solution from the plated surface
- c) guide rolls, which act as deflectors in changing the direction of travel of the sheet

To avoid discoloration from rubber stock on the tinned surface the rolls are made from styrene butadiene rubber (SBR) and chlorosulfonated polyethylene (CSPE).





LEADERS IN RUBBER SHEETIING



- Natural/SBR Rubber Sheet
- Neoprene Rubber Sheet
- Nitrile Rubber Sheet
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- Butyl Rubber Sheet
- Diaphragm Rubber Sheet
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1. Printing Rolls

The function of printing rolls is to apply ink to a selected and prepared surface at a controlled rate, the quality of printing primarily depends on the quality of the roll cover. For printing rolls the following factors has to be considered

- · Strength
- · Resistance to oils and solvents
- · Resistance to glaze
- Hardness
- · Dimensional accuracy

Strength: Printing rolls rotate at high speed, which requires high strength. Reinforcing fillers are needed to increase the strength, and since the rolls are of low hardness, the amount of such reinforcing fillers must be limited. A proper balance of reinforcing fillers and plasticizers is required. Reinforcing fillers also improve the modulus and tear strength of the compound, properties that are essential for good grinding characteristics.

Resistance to Oils and Solvents: Depending on the process of printing, the inks employed may be based on vegetable oil (letterpress), mineral oil (rotary press), or aromatic solvents. The vehicles for offsetprinting ink are composed of linseed oil and mineral oil.

Printing rolls are constantly exposed to ink during printing and are cleaned with kerosene afterward. Thus resistance to such oils and solvents is an important property.

The problem of oil/solvent resistance is intensified because today's fast drying printing inks process highly varying chemical compositions. Accordingly, the ink mixtures exert very dissimilar effects on rubber, and the roller coverings must be designed to ensure resistance to swelling from a series of chemical substances. If the tendency to swell caused by these substances is not stringently limited, the dimensions as well as the hardness of the roller will be seriously affected. Moreover, a swollen rubber roll may result in an extensively intensive contact with printing plate, thereby causing damage to the roll surface. Nitrile

rubber is used mainly, with a large amount of plasticizers, since hardness required is low (20-40 Shore A). Since most plasticizers are easily extracted by the solvent or ink, with consequent decrease in volume, non-extractable plasticizers should be selected.

Resistance to Glaze

Offset printing inks contain phenol-alkyd resin to impart gloss and are mostly of the quick-drying type, suitable for use with high speed printing machines. Linseed oil based inks containing metallic soaps as dryers tend to form a dried, oxidized film of ink on the rubber rolls, which is known as glazing. Glazed rubber rolls become slippery and less effective for the transfer of ink; subsequently the glazed film may develop cracks and pit marks on the rubber surface.

Hardness

The hardness of rubber printing rolls greatly affects their efficiency in spreading ink, in accommodating ink transfer, and in ensuring the ability of the machine to absorb shocks. Thus hardness is one of the most important factors.

Dimensional Accuracy

For a correct and uniform ink transfer, smooth interaction of different rollers with extremely narrow tolerances is of importancewhich is of high importance for rubber inking rollers, which must maintain an exact clearance between the distributor roller and the impression cylinder. Any minor change in diameter would result in a weak contact resulting in an excessively light or bold type face.

Tanning Industry Rolls

Non — staining rubber compounds is the key requirement of the tanning industry rolls. Natural rubber is generally used for degraining, buffing, and splitting machine rolls , and nitrile rubber finds application in fleshing and dehairing machines rolls . The hardness of splitting and fleshing machine roll covers usually is 45-50 Shore A, while those of the buffing and degraining machines are in the range of 60-70 shore A. The roll covers used on fleshing machines to separate the flesh from leather are required to satisfy the critical parameters like tensile strength, compression set, tear propagation strength, and resistance to swelling.

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Rubber Contracts, Tyre Margins Expand

By Ruma Dubey of www.sptulsian.com

Rubber farmers in Thailand, one of the world's biggest exporters of natural rubber, threatened on Friday (Nov 10) to protest in the capital Bangkok if the military government does not help to prop up falling prices of the commodity. Their cost of production is higher than the selling price of rubber. Thailand rubber prices have plummeted to about 48 baht, a fourth of the levels seen five years ago. In India, on 15 th November, rubber prices hit a new 52-week low.

But what is very unusual this time around is that in 2018, we have been witnessing the increasing spread between the rubber prices in India and that quoted in Bangkok. As at 20 th Nov'17, rubber price in India was at Rs.125/kg while that in Bangkok was at Rs.101/kg. Little wonder then that tyre companies are grinning earto-ear.

Under the current circumstances, naturally they will import the cheaper rubber but even in India, the prices are at a year low. This means stocking would give them a price advantage, be it procured from India or imported.

Price of rubber has a direct impact in tyre companies as 40-50% of their cost is on account of this main raw material. One should expect margins to spurt. But wait, it might be a trailblazing runaway jump as the lower price of rubber could be offset to some extent by the higher crude price. Crude derivatives are also inputs for tyre companies and that makes up for around 25% of the costs. But because the slump in rubber price is much higher than the rise in crude price, tyre companies will continue to have an advantage.

Rubber is a cyclical trade. Rubber tree saplings take 7-10 years to mature after which a sticky, cream-like sap is used to produce tyres and

other goods. Those in the industry say that major rubber producers will soon be unable to supply sufficient quantities of rubber to tyre factories in China and other importing countries because rubber saplings have not reached the right age for harvesting. Thailand, along with Indonesia and Malaysia, produce nearly 70% of the world's natural rubber.

And the best news is that – prices are expected to slump further. This is based on the fact that in coming days, supply of rubber will go up as October to January is the time when peak tapping

happens. Over and above all this, rubber suppliers were sitting on stocks, holding on to its, expecting prices to go up and with their calculations going for a toss, this supply of old stock is also coming into the market now. 90% of natural rubber in India comes from Kerala and while tyre makers rejoice, rubber cultivators are crying, urging the Govt to hike import duties, with some even demanding a complete ban on rubber imports.

All this translates into? Price of rubber is not going to go up in a hurry. We will witness a buyers market and this means good times for tyre makers in the coming quarter. Look at Ceat. In Q2FY18, the company's EBITDA was at Rs.181 crore, up 211% (QoQ) while EBITDA margins rose to 11.9% v/s 4% in previous quarter. Its raw material cost has come down 16% (QoQ). Ditto for Balkrishna Industries, whose raw material cost was sequentially down just a little over 1%. JK







Tyre too reported a 16% drop in raw material prices on QoQ while that of TVS Srichakra was down 11%, Apollo Tyres was down 9% and MRF was down 6%.

In Q2FY18, the raw material cost eats away around 60% of MRF's total sales, Apollo at 49%, Balkrishna at 45%, Ceat at 53%, JK Tyre at 56% and TVS Shrichakra at 54%. If price of rubber remains around the same levels or climbs down further, the margins of tyre companies are expected to see a straight improvement of 10-13%. To boost volumes, companies might lower rates but they are sure to retain the lion's share of the margin for themselves. H2FY18 could see direct benefits of the same.

Along with the lower rubber price, wth the auto sector also doing pretty good, weak demand in China and the Govt bringing back the anti-dumping duty to fend off cheaper Chinese tyres has made the overall outlook for the tyre sector robust. Yes, the road ahead for tyre companies currently looks good, with a beautiful vista on the horizon.





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Brief on NETAP

- Ruchit Patel Netap (TLSU), Gujarat 9974013210

NETAP is "National Employability through Apprenticeship Program" from "TeamLease™ Skills University" which is a Public Private Partnership (PPP) with "All India Council for Technical Education" (AICTE), "Confederation of Indian Industry" (CII) and "National Skill Development Corporation" (NSDC) and aims at enhancing employability by overcoming the existing challenges faced by Corporates/Industries in implementing "Apprenticeship Act" of 1961

NETAP is registered under the "National Employability Enhancement Mission" (NEEM) of AICTE (F.No 37-3/Legal/AICTE/2013) which is the only governing law for this scheme (attached with the mail) and it overcomes some of the major challenges faced by corporate in India for deploying apprentice/trainees.

Benefits to Corporate:

- This will not be an employment contract or a labour contract hence the law pertaining to labour/employment is not applicable.
- 2. Stipends paid do not attract any statutory deduction/payment obligation on the part of the corporate/industry (No PF, No ESIC etc.)
- 3. Stipends paid qualify as CSR spend
- 4. Clear legal structure to take candidates for a test drive with no obligation to hire
- 5. Training period as low as 3 months to 36 months as per your company/industry's policy
- 6. Single window for all national compliance
- Building a pipeline for bottom of the pyramid hiring
- 8. Possible lower attrition given apprenticeship credit and degree connectivity

Eligibility of NEEM Trainee

1. Age: 16 Years - 40 Years

2. Qualification: Technically 10th Class

3. Experience: Should not be employed at the time of registration

Key Points:

- 1. This is not Mandatory for corporate
- 2. It is not a substitute to Apprentice Ship Act 1961
- 3. Stipends are benchmarked to the minimum wage act of the state of unskilled category (however companies who wish to pay more can do so).

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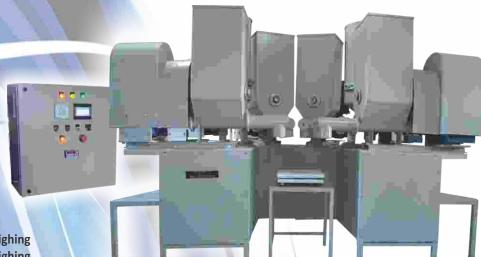
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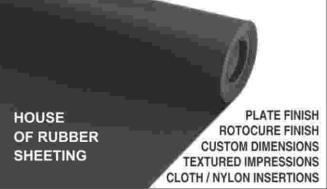
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