



Volume 1 ♦ ISSUE 10 ♦ February - 2020

₹. 100/-

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The RMWA Journal

GUJARAT'S FIRST RUBBER MAGAZINE



In this issue :

India Rubber & Tyre Show

Butyl Rubber

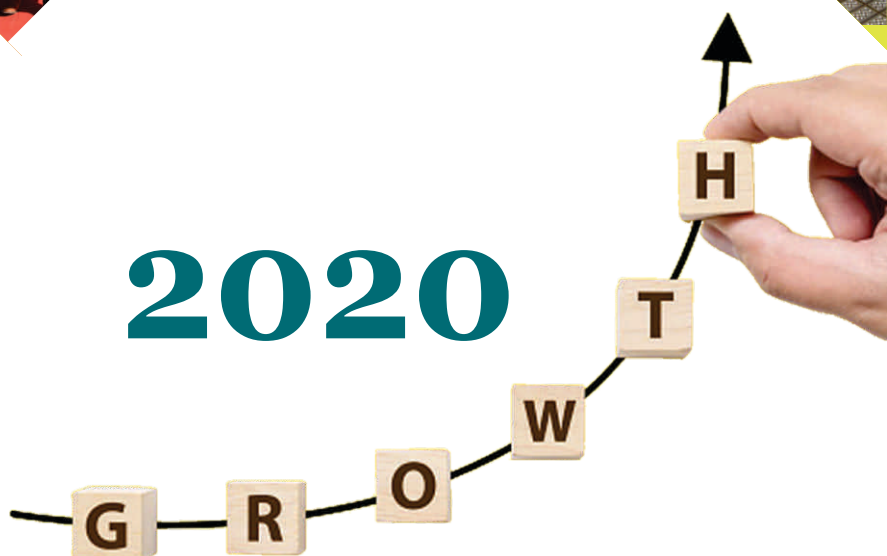
BKT Industries: Bhuj Plant

Financial Ratio

Kerala Miracle

Award Winning Film by Rubber Plantation Worker

2020



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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

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CONTENTS

Contents Of Magazine	Page no.
Editor's Note	06
Glimpses of IRTS 2019	07 to 09
Brief on Success of IRTS 2019	10&11
IRTS Press Report	11
Glimpses of IRTS 2019	12 to 15
Butyl Rubber	16 & 17
Discover the Bhuj Plant-Balkrishna Industries	19
Joint Agreement by Birla Carbon and Chasm	20
Information of Upcoming Rubber Events/Exhibitions	21
Global Rubber News- Impact of Epidemic on Rubber Production	23
The Small Business Owner's Guide to Financial Ratios	24 & 25
Continuous Improvement	26
Noteworthy	27 & 29
Kerala Miracle	30 & 31
A Profile on Latex Industry in India	32 & 33
New Members List	33 & 34
Kerela Unveils Draft Policy for Plantation Sector	35
Book Advertisement & Subscription	36 & 37



17



30



21



26



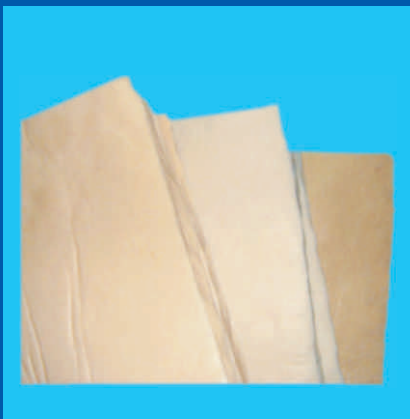
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Editor's Note

Nilesh Parikh
Editor, RMWA

Nilesh Parikh



“Optimism in 2020”

Dear Friends,

We have accomplished yet another bigger task - IRTS 2019 with wholehearted and invaluable cooperation from each and every exhibitor and visitors. Each & everyone associated in organizing this event shown noteworthy efforts with contributing their time and energy. This event shall not help to the progress of rubber industries but also for the growth of the nation.

The 2019 has been year of challenges for the economy in general as also for the Rubber Industries. The drop in sales caused operational hardships for many companies and production plan had to be re-evaluated throughout the year.

The Indian auto industry faced slowdown and now is desperately pinning hopes in the 2020 financial year.

All around the world, corona virus is biggest news. A pandemic will put economic recovery on the back foot. The die-hard optimist Indian feels that once summer comes, all the virus will disappear.

We hope and pray that the optimism which India wishes on economic recovery turnout to be true.

This issue includes various technical, Learning on Butyl Rubber, Glimpses of IRTS 2019 and some note worthy information with aim to keep you updated about the happening in rubber industries.

Best wishes...

Glimpses of IRTS 2019



Glimpses of IRTS 2019



Glimpses of IRTS 2019





Brief on Success of India Rubber & Tyre Show – IRTS 2019

- The India Rubber & Tyre Show 2019 organized by Rubber Manufacturers' Welfare Association from 20th to 22nd Dec 2019 at Gujarat University Exhibition Centre, Ahmedabad. The efforts were made to showcase tiny to major rubber products under one roof utilised in each and every industrial segment along with stall of Machineries and Raw materials.

- Nearly 1900 Sq. meter of Space occupied for Stalls. More than 120 exhibitors were participated to showcase their products. The exhibitors of foreign origin were also participated. The complimentary stalls were provided to various Rubber Institutes. The free entries for visitors were made.

- The sponsors of this exhibition under different categories were :

- Deep Jyoti Pvt Ltd : Delhi
- Dashmesh Rubber Pvt Ltd: Umbergaon
- Jayam Industries: Vapi
- Eeshaan Automation Pvt Ltd : Ahmedabad
- Elastohorse Rubber Technology: Ludhiana
- Elkem South Asia P.Ltd.: Mumbai
- Hydromech Automation Pvt.Ltd : New Delhi
- Indian Expeller Works Pvt. Ltd : Ahmedabad
- Kloeckner Desma Machinery P.Ltd
- M.K.Marketing: Mumbai
- Manav Rubber Machinery: Umbergaon
- Qingdao Huicai Machinery: China
- Ravasco Swastik Industries LLP : Mumbai
- Sec Auto Controls Pvt.Ltd : Mumbai and
- Swastik Sales Agency: Ahmedabad

- Visitors Bag was sponsored by **Polmann India Ltd: Surat**, and Visitors Lounge by **Sri Gaurav Impex: Mumbai**

- Water for three days during exhibition was sponsored by **Suresh Enterprise: Mehsana**

- The chief Guests of this event was Deputy Chief Minister **Nitin Patel, Shri Shailesh Patel- V.P.Mehsana**

District, of BJP, were Guest of Honor. They were welcomed by the RMWA committee members at the entrance of the venue with garland and Sharnai.

Inaugural function of IIRS began with ribbon cutting by chief guest and lighting of the lamp by distinguished members.

- The Chief guest have made detail tour in exhibition and visited each and every stall personally and interacted with participants about their products and utilizations in different segments.
- The opening function was addressed by distinguished Chief guests, President and Secretary of RMWA. They all expressed willingness to include efforts and to cooperate each other towards the development of manpower and growth of rubber sector.
- The Committee of RMWA hosted Gala Dinner with musical night for exhibitors at Hotel Hyatt, Vastrapur. This was sponsored by **Chem Mech Rubber & Engineering:Nadiad** and **Piyush Engineering: Ahmedabad**
- On last hours of exhibition, the committee members interacted with exhibitors and distributed Certificate of Participation to all exhibitors. The Felicitations to sponsors were made during these hours.
- The Rubber Skills Development Council (RSDC) was also invited to participate. They promoted their activities among our members, exhibitors and visitors. This was hugely beneficial to us too as we shall be affiliating with them for our VRTI.
- IRMRA & Rubber Board were invited with complimentary stalls to promote their activities. This was a gesture to benefit our members and the rubber community at large because these are the organizations of national repute and standing.
- The team of committee members of RMWA accomplished this event meeting various stiff deadlines of various activities.



Glimpses of IRTS 2019



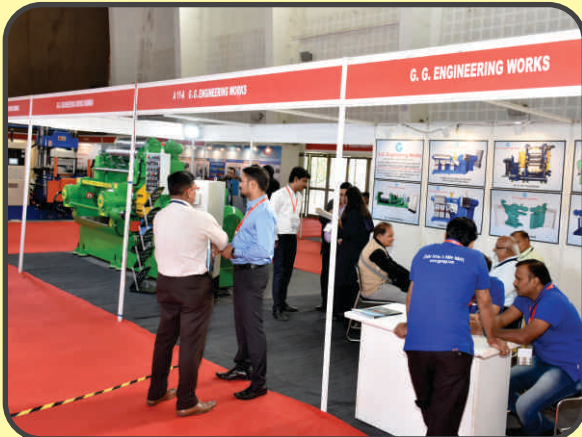
Glimpses of IRTS 2019



Glimpses of IRTS 2019



Glimpses of IRTS 2019



BUTYL RUBBER

Manoj Shah
Nitro Polymers

MANUFACTURE & % MOLE UNSATURATION

- Butyl polymer is manufactured by polymerising pure 99% isobutylene with 92% pure isoprene at minus 96°C in presence of catalyst.
- Here catalyst is aluminium chloride dissolved in methylchloride.
- This is well-known FRIDDLE CRAFT REACTION.
- There are 200 carbon atoms between two consecutive double bond in butyl rubber as compared to just 4 carbon atoms between two consecutive double bond in natural rubber
- The molecular weight in above scenario is 5000 to 68. This explains the saturate back bone structure of butyl rubber.
- The molecular weight of butyl rubber is 350,000 to 400,000.
- % Mole unsaturation represents number of isoprene units per 100 units of isobutylene.
- Grades having % mole unsaturation in the range of **0.5 to 1.5 %** are slow curing. They provide best resistance to ageing, ozone, weathering and chemicals. They are used in roof covering and tank lining.
- Grades having % mole unsaturation in the range of **1.5 to 2.0 %** are largely used. They are faster curing and give big compounding latitude. They are used in inner tubes, curing bladders, low cost compound, low voltage insulation, radiator hoses and shock absorbers.
- Grades having % mole unsaturation above 2% are faster curing. They are used in rain-wear, gaskets and extrusion products and general purpose mechanical goods.

COMPOUNDING

- Selection of butyl grade is dependent on vulcanising system, vulcanising method and final end properties requirement.
- Most practical compound have 50/100 phr carbon black loading. Hard clay & precipitated calcium carbonate are mild reinforcing filler whereas silica gives maximum reinforcement.
- Heat treatment [hot mixing] improves processing & flexibility.
- **Hard clay compound should not be mixed below 150°C because it may results in depolymerisation.**
- 5/10 % of paraffinic oil is sufficient for better processing. For frictioning 15/20 % is necessary.
- C.I.resin [10 parts or less] increases hardness without losing physical properties. Smooth surface, green strength and resistance to cold flow improves.
- Polyethylene is used in 3/5 %.
- Zinc oxide & stearic acid are used regularly as used with other diene polymers.
- Antioxidants are not much important in butyl rubber because of saturate chain structure of butyl rubber. 5% wax & 20% poly-isobutylene are useful to increase ozone resistance.

VULCANISATION

- There are three basic methods. [1] Sulphur-accelerator [2] Dioxime-oxidation [3] The resin cure.
- [1a] MBTS 1.0 + Metallic dithiocarbamate 1.5 + Sulphur 1.0
- [1b] MBT 0.5 + TMTD 1.0 + Sulphur 1.5
- [1c] Morpholine disulphide 2.0 + TMTD 2.0
- All above systems are activated by 5% Zinc oxide. Stearic acid is only lubricating aid and not required for vulcanisation. Higher curing temperature is necessary [160/170°C]
- For butyl rubber temperature co-efficient of vulcanisation is 1.4 per 5.5°C.
- [2] Dioxime-oxidation system provides

maximum ozone resistance, moisture impermeability and fast cure rate. Room temperature cured adhesive compound are also possible.

- E.g Di-benzo pera Quinone dioxime 6.0 + Lead oxide 10.0 + sulphur 0.8

- [3] The resin cure system is useful in curing bladder compound. Such compounds are heat resistant & thermally stable. This system is safe & slow curing.

- E.g 12.0 Methanol P.F. resin + 2.0 Stannic chloride. [no zinc oxide]

- The cure rate is fast. It increases modulus considerably high as compared to conventional sulphur / accelerator system.

PROCESSING

- Higher processing temperature improves vulcanisation properties.

- Heat treatment technique improves filler dispersion, increases modulus and lower internal friction & viscosity.

- For heat treatment banburies are best machines. Mixing for 2-3 minutes at 148°C. Mineral fillers are more responsive as compared to carbon black. For mill mixing polymer-filler M/B is heated to 160°C IN steam or open air.

- Vacuum extruders are preferred. 24 hours ageing of compound improves dimension control & surface of extruded section. Temperature of die & barrel should be around 120°C.

- Calendaring can be smooth provided middle roll is kept less hot as compared to top & bottom roll. Warm & even feeding to nip is desirable.

PROPERTIES

- Low unsaturation in butyl polymer offers special properties in finished butyl rubber article.

• Gas impermeability Heat resistance

Butyl [1.5 / 2.0]	100	100
Zinc oxide	5	5
Stearic acid	1.5	1.5
FEF Black	40	nil
SRF Black	40	nil
HAF Black	nil	50
Paraffinic oil	25	7.5
Sulphur	1.5	nil
TMTD	1.5	nil
MBT	0.5	nil
Brominated P.F. resin	nil	12.0

➤ Air pressure retention is 8 times

[1] Resin cure is the best curing

Better than natural rubber.

Method to achieve best heat resistance.

➤ Gases like He, H₂, N₂ and CO₂

[2] Expandable bladders are also well retained.

made from such compound.

➤ Applications are inner tubes of to cure tyres. automobile tyres, air cushions,

[3] Such bladders have useful and pneumatic springs.

Life for more than 500 curing cycles each of 20 minutes at temperature above 170°C.

OZONE RESISTANCE

Due to lowest unsaturation in polymer chain butyl rubber shows high ozone resistance. Lowest unsaturation grade is preferable. Electrical insulation product demands maximum ozone resistance. Cable produced with butyl rubber using Quinone dioxime cure system withstands 50 Kv insulation.

• WEATHERING RESISTANCE

Due to lowest unsaturation butyl rubber products are capable of resisting different weather situation [sun light, oxygen moisture etc]. Lowest unsaturated grades are preferred.

• VIBRATION DAMPING

Two methyl side group on every other chain in molecular structure of butyl rubber are responsible for greater delayed elastic response to deformation. Hence butyl rubber is largely used in automotive suspension mounting.

• CHEMICAL RESISTANCE

The solubility parameter of butyl rubber is 7.8 which is similar to aliphatic and some aromatic hydrocarbons. Hence butyl rubber will swell to greater extent in such hydrocarbon and oil.

But some polar oxygenated solvents, ester type plasticizer and synthetic hydraulic fluid have different solubility parameter value [10/11]. Butyl vulcanisates swell very little in such polar liquids.

The lower unsaturation imparts high mineral acid resistance. In concentrated sulphuric acid where NR or SBR fails, butyl is very little affected.



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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

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ANTI SKID MATS / FLOOR MATS
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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.



Balkrishna Industries Bhuj Plant

A trip to India: Discover the Bhuj plant

Our today's journey is taking us straightaway to India. Our final destination is **Bhuj**, in the **State of Gujarat**, at about a hundred km from the Pakistani border and **60 km from the Port of Mundra on the Arabian Sea**. You may wonder why we're taking you into the midst of a desert. The answer is simple: It's right here, where **BKT's latest and largest production site is located**.

Thanks to a **500-million-US-dollar investment**, a **self-contained and state-of-the-art manufacturing plant was inaugurated at the beginning of December 2015**. The Bhuj site stretches over an area of 300 acres (121 hectares) in a geographically strategic position near major communication roads and commercial ports with presently **150 MT** rolling off the production line every day. But let's take a closer look at some of **its divisions and facilities such as production, R&D, and tire testing**.

Manufacturing facilities

Bhuj represents the state of the art in modern industrial plants. It has been designed for a production output of **120,000 ton/year** at full capacity.

The production units are provided with **modern compound mixers, advanced equipment for the production of steel rings and the latest vulcanizing presses even for large tire sizes**, to name but a few.

Like all BKT plants, Bhuj has obtained the **ISO 9001:2000 Quality Certification** for its Quality Management system and operates in full compliance with the highest level of international standards regarding production parameters, quality control and environmental regulations.

Within the production division, an entire area for **OTR Giant tires** stands out. Yet, you can't overlook the brand



new **Earthmax SR 45 Plus** for rigid dumpers with its virtually giant dimensions. It made its debut at Bauma 2016, the World's Leading Trade Fair for Construction, Building Material and Mining Machines and Vehicles.

The R&D Center

As talent for innovation is one of BKT's core competencies, the **new and modern R&D Center in Bhuj hosts all facilities for developing top-of-the-range solutions**. Researchers, engineers, and technicians deal with anything related to the technical product development: from designing a new tire, over developing new compounds, to improving product performance as well as production processes. Substantial investments in R&D are the key to success. So, what does this mean for you, dear users? In a nutshell, **always better performing and high-quality Off-Highway tires** for an increasing range of applications.

A cutting-edge tire testing track!

What else can we say? BKT has been the first tire manufacturer to build an **outdoor tire testing track** in India: with 6 different tracks, the circuit stretches over a total area of about 25 acres (10 hectares) including tracks for tire performance tests in wet and dry conditions, an asphalt track as well as an inclined concrete track. Thanks to a large variety of tests, many relevant features such as traction, handling, comfort, noise, fuel consumption, braking, rolling resistance, soil compaction and many more can be measured by means of high-precision devices and instruments. As a result of this unique source of information, **BKT is able to further enhance tire performance and optimize user-specific solutions**.



innovation, thanks to:

- carefully assessing tire quality before launching new products on the market;
- testing new compounds to improve product performance;
- checking prototype development before industrialization.

Joint Agreement by Birla Carbon and Chasm

Mumbai, India & Marietta, USA – November 18, 2019 –



[Birla Carbon](#), a leading global manufacturer and supplier of carbon black, and [CHASM](#) Advanced Materials Inc., a leading developer and manufacturer of printed electronics materials and battery materials, based on proprietary carbon nanotube and ink/coating technologies, are joining forces to accelerate the discovery and development of novel nanomaterials to benefit various market segments including high-performance tires, novel coatings and next-generation batteries.

Sharing his views, Dr. Santrupt B. Misra, Chief Executive Officer, Birla Carbon, Director, Chemicals and Director, Group Human Resources, Aditya Birla Group said, “We are very excited to have the opportunity to collaborate with CHASM Advanced Materials. The combination of CHASM’s expertise in nanotube enhancement and our deep knowledge of carbon substrates and applications offers us the chance to rapidly advance our understanding of these high-performance, scalable nanomaterials.”

“As one of the world’s leading producers of engineered nanomaterials, CHASM looks forward to

collaborating with Birla Carbon, who offer us faster access to customers and markets. Their experience with large-scale manufacturing of engineered nanomaterials is outstanding”, stated David Arthur, CHASM, Chief Executive Officer and Co-founder.

Through this joint development agreement, the two companies will share research and engineering resources to develop and manufacture hybrid nanomaterials based on carbon substrates and carbon nanotubes. These hybrid nanomaterials will combine CHASM’s nanotube enhanced carbon (NTEC) technology with Birla Carbon’s expertise in commercialization and manufacturing. In so doing, the companies anticipate jointly developing novel carbon nanomaterials tailored for performance in a wide variety of demanding applications. The collaboration is ultimately aimed at driving sustainable innovative solutions to address customer, consumer and industry needs.

About Birla Carbon

[Birla Carbon](#) is a leading global supplier of carbon black. As one of the flagship businesses of the US\$ 48.3 billion [Aditya Birla Group](#), Birla Carbon provides innovative sustainable carbon black solutions that enhance the performance of paints and coatings, inks and toners, plastics, adhesives, sealants, textile fibers, mechanical rubber goods and tires. The company’s footprint extends across 12 countries with 16 manufacturing facilities and two state-of-the-art technology centers in Marietta (USA) and Taloja (India), providing industry leading innovation. It’s [Sustainable Operational Excellence](#) (SOE) strategy focuses on employee safety, environmental stewardship, efficient use of carbon sources and operating in a socially and ethically responsible manner.

About CHASM Advanced Materials Inc.

[CHASM](#) Advanced Materials is a leading developer and manufacturer of printed electronics materials and battery materials based on proprietary carbon nanotube and ink/coating technologies. The company began in 2005 as a consultancy focused on the commercialization of advanced materials, specializing in nanomaterials, coating technologies, and roll-to-roll manufacturing.

In 2015, a decision was made to acquire the assets of Southwest NanoTechnologies (SWENT), leading to the formation of CHASM Advanced Materials. With funding from WAVE Equity Partners and NXT Ventures, CHASM has continued the expansion of its Application Development Center in Canton, Massachusetts and its Nanomaterials Manufacturing Plant and R&D center in Norman, Oklahoma.

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BORON RUBBERS INDIA

Information of Upcoming Rubber Events / Exhibitions



GRTE

“Global Rubber, Latex & Tire Expo”
March 11-13 2020, Bangkok, Thailand



CTFRTE

“China International Tyre & Rubber Expo”
April 9-11, 2020, Qingdao China



CHINAPLAS

“International Exhibition on Plastics & Rubber Industries”
April-21-24 2020, Shanghai, China



EUROPE RUBBER EXPO

May 6-7, 2020 Budapest, Hungary



ELMIA POLYMER

International Trade Fair for Plastics & Rubber Industry
May 12-15 2020, Joenkeping, Sweden

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

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SH - 665	15 kg



Granular Grades		
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*Also available in Jumbo Bag packaging



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Phone : +91-9909977044 ■ Website : www.higreencarbon.com ■ E-mail : info@higreencarbon.com

Global Rubber News: Epidemic Due to Corona Virus

Source: February 3, 2020

The epidemic has no major impact on upstream [rubber](#) production. Domestic production areas are in the cut-off season, and major overseas production areas in [Thailand](#) and Indonesia have not yet spread the epidemic on a large scale. However, the number of confirmed cases in [Thailand](#) has increased in recent days, and trade with China has also been partially affected. The Thai baht has experienced a significant depreciation, from about US \$ 1 to US \$ 29.8 at the end of December to US \$ 1 to US \$ 31.2.

At present, there are still many travel restrictions on inter-provincial expressways, and the replacement demand brought by transportation is expected to be pessimistic. The impact of supporting needs such as heavy trucks is relatively small. The growth rate of fixed asset investment in the same period of 2003 did not slow down significantly. The secondary industry also had a small impact on the tertiary industry during the 2003 epidemic. It is not necessary to be too pessimistic in the short term. In terms of [tire](#) factories, Shandong Province requires various factories in the province to resume work no earlier than 24:00 on February 9th. From the communication with some [downstream tire](#) factories, it is understood that the resumption of work that was originally tentatively scheduled for the first 10 days will be delayed again. Only then resumed work.

To sum up, in the same period of 2003, rubber prices only experienced a large correction during the initial period of the epidemic and the peak period in April, and the increase was obvious in the second half of the year. Therefore, we expect that the post-holiday opening will be affected by short-term start delays, logistics stagnation, and pessimistic market sentiment. The negative factors still have the possibility to continue to explore, but after the holiday, the [price](#) itself is close to cost support. If Nippon Rubber has stabilized after the daily [decline](#), if the inflection point of the epidemic appears, it may also drive the market to repair quickly. There are still opportunities for rubber in the future, and [investors](#) need to [control](#) the rhythm and risk according to the changes in the epidemic.

Tripura Releases New Variety Of Rubber Resistant To Diseases, Low Temperatures

The Indian Express, February 12, 2020

Tripura on Wednesday released a rubber clone variety resistant to diseases and the cold, RRII 429, to develop commercial cultivation of the cash crop. Tripura was among the first states to commercially adopt rubber cultivation in northeast India way back in the 1960s, although organised cultivation shaped up only in the eighties. Over four decades later, the state still produces less than 1,200 kg per hectare plantation area of rubber, against the national average of 1,500. So, in a bid to boost production of the 'white gold' in the nation's second-largest rubber producing state, this engineered variety of rubber specifically suited for agro-climatic conditions of Tripura was introduced. Speaking at the inauguration event, Chief Minister Biplab Kumar Deb said RRII 429 will develop the livelihood of natural rubber cultivators, especially those in distant tribal hamlets, as it will grow faster and produce high yield despite harsh climatic conditions. "We have exported a lot of products to other states and foreign countries, but received profit from rubber alone. An annual business of Rs 1,400 crore from the rubber sector is definitely profit-making. We are hopeful this new clone variety will help develop Tripura's economy," Deb said. Deb also announced that Tripura would soon serve as a transit hub for the transportation route between India and Bangladesh via Chittagong, which is close to the Tripura-Bangla frontier. Rubber Board Chairman Sawar Dhanania and Executive Director KN, also present for the event, said the new rubber variety was found capable of producing over 64 grams per tree or per tap during large-scale trials, and 1,500 kg per hectare annually during block trials. The clone variety was put to rigorous testing for the last 23 years in several locations across North Bengal, Assam, Meghalaya and Tripura. In India last year, 6.5 lakh tonne rubber was produced, out of which Tripura produced around 12 per cent. While the figures seem promising, they have been rather stagnant in terms of per-hectare production. The national annual demand of rubber is 12 lakh tonne in the domestic industry, which means there is more scope for producing rubber. In terms of quality, rubber is produced in six major categories — RSS 1, 2, 3, 4, 5, and 'lot' or ungraded quality. Till a few years ago, nearly all the rubber produced in Tripura was of the last category. With some training and upgradation, 35-40 per cent of the rubber now produced in Tripura is graded — mostly RSS 3 and 4.

The Small Business Owner's Guide to Financial Ratios



In our [guide to financial forecasting](#), we mention the importance of keeping track of key financial ratios since investors and lenders use those ratios to evaluate your small business. Financial ratios have different purposes: some indicate the profitability of a business and others measure the ability of a business to use its operating cash flow to meet its debts. To help you determine the most suitable financial ratios for your small business, let's review these common formulas that are most relevant to lenders and investors.

Liquidity Ratios

These set of ratios allow a lender to determine how a small business owner can use her most liquid assets (those that can be turned into cash the fastest) to meet her most immediate financial obligations.

•Current Ratio

Current Ratio = Current Assets/Current Liabilities

The current ratio measures the working capital position of a small business, which is the ability to use short-term assets, such as cash and inventory, to cover financial obligations due within a year. Lending officers of working capital loans use the current ratio in context of the operating and financing activities to have a full picture of the liquidity of a company.

That's why you need to do your own [cash flow analysis](#) on a monthly basis to be ready to answer any questions.

- Quick Ratio
- Quick Ratio – (Cash+Cash Equivalents+Short term Investments+ Accounts Receivables)/ Current Liabilities

Also known as the acid-test ratio, the quick ratio is a much more stringent liquidity ratio than the current ratio and measures the ability of a business to use its most liquid assets to cover its current liabilities. While a lender won't expect you to have a high quick ratio, he'll see a very low quick ratio as a red flag that a cash crunch could increase your chances of turning in your monthly payments late – or even worse at all.

This ratio is particularly important for applications to very short-term loans or loans collateralized with financial vehicles or accounts receivable.

•Debt Service Coverage Ratio

•Debt Service Coverage Ratio
$$\text{DSCR} = \frac{\text{Net Operations Income}}{\text{Total Debt Service}}$$

This financial ratio is commonly used in a [term loan](#) application.

When calculating net operating income, you generally only deduct annual operating expenses (without tax or interest payments) from total annual revenue. The total debt service includes all payments for short-term and long-term debts due within the year.

DSCR requirements vary per lender. At Funding Circle, we require a minimum DSCR of 1.15 to approve a term loan. For loans with a term longer than one year, Funding Circle takes the average DSCR of all years. Download this [free template for calculating the DSCR](#) of your small business.

Profitability Ratios

Investors use profitability ratios to determine the sustainability of a small business operations and estimate the potential benefit for incoming investors.

•Operating Profit Margin

•Operating Profit Margin = Operating Profit/Net Revenue

While there are different types of profit margin ratios, the operating profit margin provides a closer look at the effects of managers in a business. You determine the operating profit by subtracting selling, general, and administrative expenses – those not directly related to the manufacturing of a product – from profit.

Since managers have more control over direct operating expenses than selling, general, and administrative expenses, investors look for trends in this ratio to determine whether or not to stick with the current management team in case of making an investment.

•Net Profit Margin

Net Profit Margin = Net Income/Net Revenue When financial analysts refer to the bottom line, they're referring to the net profit margin. This ratio owes its name to the fact that you find the net income at the bottom of your [income statement](#). While investors may be impressed with sales growth of 60% year-over-year over the last years, they won't be as impressed if expenses are growing at an even faster rate. The net profit margin can uncover such a trend.

While this financial ratio is a very important one, it needs to be put into perspective over a period of time. That's why it's key that you keep track of your net profit margin over time and can present forecasts for that ratio for the next three to five years.

•Return on Assets

•Return on Assets = Net Income/Average Total Assets

Whether your small business is being considered for a term loan or influx of venture capital, you're probably thinking about making use of those incoming funds to invest in additional assets to increase profits. To calculate average total assets, add the balance of total assets at the beginning

and at the end of the year and then divide that sum by two.

The ROA tells lenders and investors about your track record on using past and current assets to generate net income. While ROAs vary per industry, most investors like to see a ROA of at least 5%.

Cash Flow Ratios

A healthy cash flow is key to maintain a sustainable operation. The following financial ratios look at how much cash is generated through sales, how much cash is “free” (available for investments or reserves), and how much cash goes to debtors.

•Operating Cash Flow to Sales Ratio

•Operating Cash Flow to Sales Ratio = Operating Cash Flow/Net Revenue

This ratio indicates how a small business owner makes use of its cash to generate sales. As discussed during the cash flow analysis, cash flows from operating activities are cash inflows and outflows directly related to your core business operations. To reconcile net income with net cash flow from operating activities, you'll need to add and subtract certain items, such as in depreciation, changes in prepaid expenses, and changes in taxes payable. For a list of these cash flows, refer to the table [here](#).

Ideally, lenders and investors would like to see an increasing operating cash flow to sales ratio. Still, a ratio within a small and predictable range over a long period of time is an equal sign of healthy cash flow for small businesses with many years of operation.

•Free Cash Flow to Operating Cash Flow Ratio

Operating Cash Flow to Sales Ratio = (Operating Cash Flow – Capital Expenditure)/Operating Cash flow By taking out the capital expenditures, such as real estate acquisitions or heavy equipment purchases, from your operating cash flow, you determine the cash from your operation that is “free” for use.

Investors like to see a large percentage of free cash flow available because that means that the company has the means to make additional capital improvements or provide a dividend payment. Lenders like to see a high free cash flow to operating cash flow ratio too because that indicates that the small business is better prepared for handling cash crunches and continuing to meet monthly debt payments.

•Short-Term Debt Coverage

Short Term Debt Coverage = Operating Cash Flow/Short Term Debt An alternative to the quick ratio, the short-term debt coverage evaluates the ability of a small business to cover its most immediate liabilities with the cash generated from core operations. The larger this ratio, the happier your lenders.

When a small business is able to score well in these three cash flow ratios, it becomes very attractive for investors and lenders.

Collection Ratios

The following two ratios are often classified under

activity ratios, but we feel that, when talking about small businesses, these ratios deserve their own category. Financial institutions generally appraise eligible receivables at [70% to 80%](#) of their value for asset-backed loans, so it's a good idea to keep tabs on your ability to collect cash from credit customers, if applicable.

•Accounts Receivable Turnover

Accounts Receivable Turnover = Net Credit Sales/Average Accounts Receivable Depending on the industry of your small business, this ratio may be calculated on an annual or quarterly basis. The average accounts receivable is calculated as the sum of the initial and ending balance of accounts receivables for the applicable period and that sum divided by two.

When planning to use your receivables under 90 days to collateralize a loan, seek to optimize this financial ratio over a period of three years. A low accounts receivable turnover is a signal of the need to improve credit screening of clients and collection practices. However, an improving trend of receivables turnover could signal that your policies are working and would provide peace of mind to inquiring lenders.

Still, a very high accounts receivable turnover isn't necessarily a good thing. When the one from your small business is way above the industry standard, it could be a sign that you're losing potential sales due to a too tight credit policy.

•Days Sales Outstanding

Days Sales Outstanding = 365/ Accounts Receivable Turnover Your day sales outstanding tells you how many days your clients on credit are taking to pay you back. If you're extending credit for 45 days and you're able to collect payment in 35, keep up the good work. Under the same credit policy, 53 days sales outstanding would be a sign of trouble.

Pay particular attention to days sales outstanding when trying to use your 60- to 90-day accounts receivable. You want to make sure that this ratio backs up your claim that those accounts can actually be collected within 60 or 90 days.

The Bottom Line: Know Your Financial Ratios

While there are many more financial ratios, these ones should provide you with a solid starting point to start evaluating your small business. Management guru Peter Drucker said it best, “You can't manage what you don't measure”. By taking a closer look at the trends in liquidity, profitability, cash flow and collection of your small business, you'll be better prepared to make more informed business decisions. And be able to present a complete picture of your business to potential lenders and investors.

Also, financial ratios can be very useful in quantifying performance benchmarks to strive towards. If you have an accountant or bookkeeper, consult him about what other financial ratios would be useful for your unique situation.



Kaizen, Lean and Six Sigma. All three are business improvement methodologies and all three owe their origins to improvement initiatives in the Japanese and American manufacturing industries of the 20th Century. However, although all three have similarities, each should be understood before any are applied.

Lean vs kaizen vs Six Sigma: Developing an Improvement Model That Works for You

When surveying the contemporary business improvement landscape, it can be difficult to choose which process improvement method (or methods) fit best for what you are trying to achieve. As there are many competing methodologies out there, I have included three of the most respected and popular (Six Sigma, Kaizen and Lean) improvement methodologies to share with you.

Developing a Kaizen Culture

Kaizen is a Japanese word meaning 'change for the better' and is also known as 'continuous improvement'. It is a mindset or philosophy rather than being a tool to use.

Essentially, Kaizen is a belief that everything can be changed and everything can be more efficient. Creating a Kaizen culture entails using personal ingenuity to identify and solve problems in an organisation. The strategy aims to collect knowledge from all employees within an organisation to accomplish incremental improvements on a regular basis. What matters is not only the individual, but rather the collective whose collated achievements will be greater.

Kaizen is based on a number of principles, namely:

- Good processes bring good results
- Go see for yourself to grasp the current situation
- Speak with data, manage by facts
- Take action to contain and correct root causes of problems
- Work as a team
- Kaizen is everybody's business

One of the most prominent Japanese words associated with Kaizen is 'Muda'. 'Muda' means waste, and the Kaizen philosophy aims at cutting business waste through improving quality, increasing efficiency, reducing overproduction and unnecessary activities. Ultimately, this will result in saving both money and time.

Kaizen's core philosophy implies that involving everyone in making decisions will facilitate innovation and improvement. In short, this continuous improvement strategy can be a very powerful support for any improvement project, for as long as the majority of employees are on board.

Six Sigma

Six Sigma is a set of tools and strategies that were created to limit defects and variability.

It has two project methodologies:

- DMAIC (Define-Measure-Analyse-Improve-Control)
- DMADV (Define-Measure-Analyse-Design-Verify)

These two project methodologies are based on Deming's Plan-Do-Check-Act cycle (as previously mentioned) which has become the foundation for continuous quality improvement.

When using Six Sigma, a team leverages advanced statistical techniques such as pareto charts and root cause analysis to reach quantified value targets.

Lean

Lean is focused on the removal of wastes and it defines waste as anything that fails to add value to the customer. Its focus on cutting business waste is the Lean methodology's main driver of continuous improvement. Lean particularly revolves around the 7 wastes that are killing business efficiency, namely:

1. **Transport**
2. **Inventory**
3. **Motion**
4. **Waiting**
5. **Overproduction**
6. **Over Processing**
7. **Defects**

Lean owes its origins to the ingenuity of the Ford Motor Company more than 100 years ago and has continued to evolve over time as business improvement concepts have also improved over time. Rather than overcomplicating things, this continuous improvement methodology aims at completing three main steps:

1. Identification of wasteful activities
 2. Identification of the ways these wastes are killing business efficiency
 3. Elimination or reduction of these wasteful activities
- Which Process Improvement Methodology Is Best For Your Business?

Kaizen tries to improve the business as a whole by creating a standard way of working, increasing efficiency and eliminating business waste.

Six Sigma is more focused on quality output (the final product). This is facilitated through finding and eliminating the causes of defects.

Lean is all about eliminating waste to increase process speed and quality through the reduction of process waste.

All three have their part to play in developing an effective continuous improvement model and all three can be used in conjunction with one another depending on the specific problem you need to solve.

Process mapping is often seen as one of the integral practical implementations of a continual improvement strategy.

NOTE WORTHY

Apollo Tyres partners GARC for first tyre test track in India



This track will be used for testing wet grip of tyres as per standard specifications
November 7, 2019

In a unique Government – Corporate partnership, leading tyre maker, Apollo Tyres collaborated with Global Automotive Research Centre (GARC) to establish the first of its kind test track in India, in the southern state of Tamil Nadu, for testing wet grip of tyres, which is one of the primary safety tests. Apollo Tyres provided the technical expertise to get the track ready for testing wet grip of tyres, as per the standard specifications.

The readiness of the test track is linked to the Indian Government's plan to implement 'Star Rating' of tyres, in line with the Tyre Labelling regulation in Europe. This is with the objective to ensure safety, the economic and environmental efficiency of road transport by promoting fuel-efficient and safe tyres with low noise levels. A new Automotive Industry Standard, AIS 142, in line with UNECE R 117 is prepared. It comprises evaluation of tyres with regards to Rolling Sound Emissions, Adhesion on Wet Surfaces and Rolling Resistance.

Commenting on this, **Satish Sharma, President, Asia Pacific, Middle East & Africa (APMEA), Apollo Tyres Ltd** said “Being the leaders in the Indian Tyre Industry, we would like to further the cause of testing the tyres and provide highest quality tyres to our customers across geographies. We proudly associated with GARC to create the first of its kind wet grip testing track, meeting UNECE R117 standards in India, thereby upping India's self-sufficiency in tyre technology. This facility will not only help us test the tyres for the Indian market, but also the ones that are exported, and need to meet the labelling requirements.”

The major impediment to Government's plan of implementing Star Ratings, was the unavailability of approved test track facilities in India, to test and assess traction on wet surface or wet grip, which means the relative braking performance on a wet surface. TUV Rheinland, facilitator for automotive homologation, has

certified the compliance of the new test track in line with the stipulated conditions as in UNECE R117/ AIS 142.

M V Ramachandran, Officer on Special Duty, GARC Test Facilities said “the Wet Grip test facility of tyres will help the tyre, as well as the vehicle manufacturers, to evaluate the performance as per AIS-142 which is in line with Rev4 of UNECE R117. This additional facility is possible with the continuous encouragement and support of the competent authority of NATRIP. The work done by the Vehicle Evaluation Department of GARC and Apollo Tyres' test team towards finetuning the ABS track to meet the specific requirements, is highly laudable.”

GARC is one of the state-of-the-art centres established by Ministry of Heavy Industries and Public Enterprises, Govt of India (under NATRiP), located at Oragadam near Chennai, Tamil Nadu. It has been authorised as the test agency under CMVR 126 by Ministry of Road Transport & Highways, Govt of India. GARC has full-fledged R&D and homologation test facilities, including the test tracks, to certify all category of vehicles, systems and components as per national and international standards.

Daniele Lorenzetti, Chief Technology Officer, Apollo tyres Ltd commented “The new wet grip track, developed by GARC and Apollo Tyres, shows very good level of correlation with test tracks in Europe. This will enable Apollo Tyres to reduce time to market its products, along with the reduction in testing costs. We are further exploring opportunities to collaborate with NATRiP to enhance the testing capabilities to support the mid/long term challenges.”



Apollo Tyres collaborates with Ashok Leyland

First Of Its Kind Corporate Partnership

In a unique first of its kind corporate partnership, Ashok Leyland, flagship of the Hinduja Group, the second largest commercial vehicle manufacturer in India has associated with leading tyre manufacturer, Apollo Tyres to provide healthcare facilities to the trucking community in Namakkal, a prominent transshipment hub in the southern Indian state of Tamil Nadu. The Healthcare Centre at Ashok Leyland's Driver Training Institute at Namakkal, will be run by Apollo Tyres, and was inaugurated today by Anuj Kathuria, Chief Operating Officer, and Balachandar NV, President, HR, Communication and CSR, Ashok Leyland; along with Satish Sharma, President, Asia Pacific, Middle East & Africa, and Sunam Sarkar, President and Chief Business Officer, Apollo Tyres.

Serving a daily floating population of more than 12,500 truckers, and the allied community, the primary aim of the Healthcare Centre would be awareness generation on HIV-AIDS and prevention of Sexually Transmitted Infections (STIs) among truckers, and the local community. The Centre will be staffed by a qualified doctor, a counsellor, and paramedics, apart from outreach workers and a network of peer educators appointed over a period of time. This team will work together towards bringing down the instance of STIs, and thereby, reducing the vulnerability of the population of contracting HIV apart from offering a gamut of other healthcare services for Vision Care, Diabetes, Hypertension and Tuberculosis. The two companies will be working together to establish more such healthcare centres in large transshipment hubs across the country.

Commenting on the partnership, **Sunam Sarkar, President and Chief Business Officer, Apollo Tyres**, said, "We are delighted to join hands with Ashok Leyland to extend this facility at Namakkal. Ashok Leyland is a fellow stakeholder in the trucking industry and working together allows both organisations to maximise reach and deployment of resources. Serving truckers and the allied community will be the primary aim of this Healthcare Centre, along with awareness on generation of HIV-AIDS and prevention of STIs among truckers and the local community. We already have 31 similar health centres at multiple transshipment hubs across the country to serve the community."

Commenting on the partnership, **Balachander NV, President, HR, Communication and CSR, Ashok Leyland**, said, "Ashok Leyland has always been at

the forefront to provide the best possible support to the driver community. As a profession, commercial vehicle driving is a demanding job, owing to long drives, month after month. The high level of concentration required for driving, mostly results in stress and strain on the driver. These working conditions, coupled with negligence towards regular care, often leads to various health problems. To address this issue, we have collaborated with Apollo Tyres to offer the best medical support to an important stakeholder of ours. Through this collaboration, we will also educate the drivers on the importance of health for both personal as well as professional life. This will enable us to strengthen our relationship with the growing driver community."

The new facility has been created with a spacious floor space of 2500 sq ft. The Centre is equipped with adequate diagnostic equipment, which is exclusive for the health education of the Driving Community within the Driver Training premises. A nominal registration fees of INR 20/- will enable the driver to avail these services at any of the 31 Apollo Tyres Healthcare Centres across India. The idea behind this initiative is not just to provide medical benefits, but also to educate the drivers for a better life beyond driving.

Since 1994, Ashok Leyland has been educating the driving community on good driving practices through the establishment of the Driver Training Institute at Namakkal. Currently, 11 Driver Training Institutes are operational across the country and cumulatively 14,82,462 drivers have been educated since inception, through various sessions.

Apollo Tyres launched its healthcare initiative in 2000 and has since reached out to nearly 50 lakh people with its services like HIV-AIDS Awareness and Prevention, Vision Care, TB and other healthcare services in 31 centres across the country. The initiative has won multiple awards for its pioneering and effective work with the community.



Dekho Mera Desh': Tourism Ministry to fund those who travel to 15 destinations in India in a year

The Ministry of Tourism has stated that it would reward people who visit at least 15 tourist spots in the country in a year.



Indian travellers can also take a pledge to visit 15 destinations by 2022 and get a certificate.

In a bid to boost tourism in the country, the government has come out with a very creative approach which might cheer travel enthusiasts. The Ministry of Tourism has stated that it would reward people who visit at least 15 tourist spots in the country in a year.

"The tourism ministry will fund the travel expenses of tourists who visit 15 destinations in the country in a year and submit the photos on our website," Union Tourism Minister Prahalad Patel Singh said.

"Prime Minister Modi had urged Indians to visit at least 15 domestic tourist destinations by 2022, our campaign aims to make that pledge a reality," Pate added. "We will start a mass movement encouraging every Indian to visit more domestic destinations, this will boost up local as well as national economy," Patel told IANS.

Thanks to all the citizens for the overwhelming response in the last two days! We shall keep adding interesting trivia on 'Dekho Apna Desh' campaign.

Ministry of Tourism The minister also added that one needs to travel outside their home state to be eligible.

Indian travellers can also take a pledge to visit 15 destinations by 2022 and get a certificate.

How to take a pledge in "Dekho Apna Desh" campaign?

Step 1: Visit pledge.mygov.in

Step 2: Select language -Hindi/ English

Step 3: Take a pledge

Step 4: A certificate will be given via mobile text or e-mail



The tourism ministry has launched 'Dekho Mera Desh' campaign in order to encourage travel enthusiasts to visit Indian tourist spots by 2022.

The announcement was made during the National Tourism Conference held in Odisha. Tourism ministry will refund the travel expenses if a person travels to at least 15 Indian destinations by 2022.

To get the refund, the tourist will have to submit snaps of the visit on the ministry of tourism website. They must travel outside the home state to meet the eligibility criteria. The government will also offer certificate courses for people who opt for travelling as a profession.

Kerala Miracle: Film by Daily Wage Rubber Plantation Worker Gets Top State Award

Shareef Eesa's debut feature 'Kanthan The Lover of Colour' been awarded the top prize by the Kerala State Film Awards.



Malayalam film *Kanthan The Lover Of Colour* | Shareef Eesa On February 27, *Kanthan The Lover of Colour* won the top prize at the 49th Kerala State Film Awards for 2018. The next day, its director, Shareef Eesa, was back to work at the rubber plantation in Kannur district's Chapparapadavu village where he has been a daily wager for the past 15 years.

Kanthan, about a child and his grandmother battling poverty and deforestation, was selected as Best Film from among 104 titles by a jury led by director Kumar Shahani. For Shareef Eesa, the prize is both a vindication of his efforts over the past year-and-a-half as well as a way to ease his debt. "I had sold my wife's jewellery and my camera, and I still have a debt of Rs 20 lakh," Eesa told *Scroll.in*. "The best thing about the award is that now I can confidently ask for more time to repay my debt."

Shareef Eesa is 32 years old, and has been tapping rubber since he was a teenager. His routine involves waking up at four in the morning, walking to the plantation two kilometres away from his house, using his knives to create notches in rubber trees and collecting the latex in a red plastic pot tied around his waist. This latex is then handed over to the owner of the plantation.

Eesa earns Rs 600 per day. "I get Rs 2 per tree and I can tap 300 trees in six hours," he said.

In 2017, Eesa wove into his routine efforts to direct and produce *Kanthan*. The film explores the hardscrabble lives of Kerala's Adivasis through the story of the titular protagonist, a young orphan who lives with his grandmother. *Kanthan* has been entirely shot in an Adivasi hamlet in Wayanad – the Nengara colony of the Adiya tribe. It is the first movie in the Ravula dialect spoken by the Adiyas. The background music uses traditional Adivasi musical instruments. Shareef's friend and poet Pramod Kooveri, who lives in his village, wrote the screenplay. Another friend, Priyan, shot the movie.

Eesa spent his life's savings on mounting the project and then borrowed heavily to complete it. He sold

the camera with which the film was shot for Rs 60,000 when a fund crunch threatened to stall post-production.



Shareef Eesa at work. Photo by TA Ameerudheen.

Shareef Eesa's life itself is somewhat like a movie script. He was born to daily wage labourers PP Eesa and C Asya. He has been working alongside studying since childhood. Eesa has distributed newspapers, reared cattle, been a wedding videographer, and worked as a reporter for the Communist Party of India (Marxist)-owned Malayalam newspaper *Deshabhimani*. He started rubber tapping when he was 18.

Eesa has also held prominent positions in the children, student and youth wings of the CPI(M). When he was 13, a play written and directed by him won the first prize at an inter-school competition. Since then, Eesa has directed several professional and amateur dramas and street plays. He has also directed three short films and worked as an assistant director in two low-budget feature films.

The leap towards feature filmmaking was triggered by the suicide of Dalit research scholar Rohit Vemula at Hyderabad Central University in January 2016. "His suicide made me cry, and I decided to work on a 10-minute short film on him," Eesa said.

The idea evolved when Eesa and screenwriter Pramod visited Adivasi hamlets in Wayanad. "After several rounds of discussions and brainstorming sessions, we decided to tell the story through the lives of Kanthan and his grandmother," Eesa said. The film movie speaks against the atrocities against Dalits and Adivasis, the curse of caste, and the destruction of nature. "It is a socially relevant movie," Eesa said.



Shareef Easa's debut feature 'Kanthan The Lover of Colour' been awarded the top prize by the Kerala State Film Awards.



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A PROFILE ON LATEX INDUSTRY IN INDIA

Source : The Association of Latex Producers of India, Kerala

SHORT NOTE ON 60% CENTRIFUGED LATEX INTRODUCTION

Among the different marketable forms of natural rubber, latex concentrates are the most value-added form that can be produced from raw field Latex from the large as well as small rubber growers. For the organized processing and marketing of field Latex produced by small rubber holders, processing into centrifuged latex concentrates is considered as ideal and the best on account of the fact that it is relatively less labor intensive.

The total installed capacity for processing into centrifuged latex concentrates in India currently comes to 2,50,000 tonnes in terms of DRC. However, constrained by wide fluctuations in demand and prices, the current level of capacity utilization is less than 50% only.

Latex Preservation and Concentration Latex Properties

Latex is a white or slightly yellowish opaque liquid with a specific gravity, which varies between 0.974 and 0.986. It is a weak lyophilic colloidal system of spherical or pear shaped rubber globules suspended in an aqueous serum. The rubber globule is surrounded by a protective layer of proteins and phospholipids, which impart the lyophilic nature to latex.

The stability of latex is due to the negative charge present on the protective layer. Also it contains a variety of non-rubber constituents both organic and inorganic, in addition to rubber. The proportion of these constituents may vary with clone, soil nutrition, climate etc.

General composition of latex

Rubber	30-40%	Resins	1-2.0%
Proteins	2-2.5%	Sugars	1-1.5%
Ash	0.7-0.9%	Water	55-65%

Fresh latex, as it comes out from the tree is slightly alkaline or neutral. It becomes acidic rapidly due to bacterial action. The formation of organic acids neutralizes the negative charge on rubber particles and the latex gradually gets coagulated on keeping. Therefore, fresh latex cannot be kept for long without preservative treatment.

Latex can be processed into any of the following forms

1. Preserved field latex and latex concentrate
2. Sheet rubber
3. Block rubber
4. Crepe rubber

Field coagulum can be processed only into crepe rubber or block rubber.

Preserved field latex

Field latex is preserved using suitable preservative for long term storage. The processing of preserved field latex consists essentially of adding the preservative (usually ammonia, minimum 1%) to the sieved latex, bulking, settling, blending and packing. Field latex can also be preserved with LATZ (Low ammonia – TMTD – Zinc oxide) system.

Latex Concentrate

There is good market for preserved latex concentrate, as it is an important raw material with a wide range of applications. Two important methods of processing latex into preserved latex concentrate are commercially practiced.

1. Concentration by Creaming

The processing of latex into creamed concentrate involves the mixing of a creaming agent such as ammonium alginate or tamarind seed powder with properly preserved field latex and allowing the latex to separate into two layers; an upper layer of concentrated latex and a lower layer of serum containing very little rubber. The lower layer of serum is removed, leaving the latex concentrate having about 50-55% DRC (dry rubber content), which is often tested, packed and marketed.

2. Concentration by Centrifugation

The processing of latex into latex concentrate by centrifugation involves the separation of preserved field latex into two fractions, one containing the concentrated latex of more than 60% dry rubber and the other containing 4-8% dry rubber (skim latex). Skim latex is generally coagulated with sulphuric acid, made into crepe, dried and marketed as skim rubber, which is a low-grade rubber.

Preservation of Centrifuged Latex

Centrifuged latices are commercially available as high ammonia (HA – minimum 0.6% ammonia) and low ammonia (LA - 0.2 to 0.3% ammonia) types. The former is preserved solely with ammonia and the latter contains one or more preservatives in addition to ammonia. The most popular LA type latex is low ammonia TMTD – Zinc oxide (LA-TZ) which contains 0.2 to 0.3% ammonia, 0.013% TMTD, 0.013% zinc oxide and 0.05% lauric acid.

Specifications

Preserved latex concentrates shall be graded and marketed in conformity with the standards specified by the Bureau of Indian Standards (BIS) as given in IS: 5430-2017 (centrifuged latex), IS: 11001-1984 (double centrifuged latex) and IS 13101-1991 (creamed latex).

- 1) Difference between total solids content and dry rubber content. Total solids contents may be determined in accordance with 9316 (Part 4)
- 2) Test for mechanical stability shall be carried out at least 20 days of the packing of rubber latex
- 3) Or as agreed to between the purchaser and the supplier

Product Features

Centrifuged Latex of 60% of Dry Rubber Content (CENEX)

Processing of natural rubber latex into high quality latex concentrate of 60% dry rubber content is done through centrifugation. Centrifuging involves the separation of preserved field latex into two fractions, one containing the concentrated latex of more than 60% dry rubber and the other containing 4-6% dry rubber. Centrifuged latex is today available commercially in two different varieties with high ammonia (min. 0.7% of ammonia) and low ammonia (max. 0.3% of ammonia). The former is preserved solely with ammonia and later contains one or more preservatives besides ammonia. LA latex has several advantages which include better quality, lower cost of production by way of savings in preservatives, acid and low cost of effluent treatment.

IS 5430 : 2017Table 1: Requirements for Concentrated and Preserved Natural Rubber Latexes
(Clause 4.3)

Sl. No.	Characteristics	Requirement			Method of Test , Ref to
		Type HA (3)	Type MA (4)	Type LA (5)	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Dry rubber content, percent by mass, Min	60.0	60.0	60.0	IS 3708(Part 1)
ii)	Non-rubber solids ¹⁾ , percent by mass, Max	1.8	1.8	1.8	--
iii)	Coagulum content, percent by mass of latex, Max	0.03	0.03	0.03	IS 9316(Part 3)
iv)	Sludge content, percent by mass, Max	0.05	0.05	0.05	IS 3708(Part 2)
v)	Alkalinity as ammonia, percent by mass of latex	0.06 Min	Above 0.3 but below 0.6	0.3 Max	IS 3708(Part 4)/ISO 125
vi)	KOH number, Max	0.8	0.8	0.8	IS 3708 (Part 5)/ ISO 127
vii)	Mechanical stability ²⁾ S, Min ³⁾	650	650	650	IS 3708 (Part 6)
viii)	Volatile fatty acid number, Max ³⁾	0.10	0.10	0.10	IS 3708(Part 7)/ ISO 506
ix)	Copper content, ppm of total solids, Max	8	8	8	IS 9316(Part 7)
x)	Manganese content, ppm of total solids, Max	8	8	8	IS 9316(Part 9)

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DM-6	Fluoroplast Engineers P.Ltd.	Keyur Shah, Director 9426535480 11/14 Subash Estate, Ramol Road, CTM, Amraiwadi Ahmedabad – 380026 07929758345 hiflon@hiflon.com	Seals, O rings Raw Materials: NBR, Silicon, Viton Brand : Hiflon Fluoroplast

AAM-88	Arihant Reclamation P.Ltd.	Rajesh, Director 9625659044 Ahuzha Director 8860732624 PU 36, Pitampura Delhi – 110034 arihantreclamationprivateltd@rediffmail.com web:www.arihantreclamationpvtltd.com	Rubber Accelerator Zinc Oxide PBR Rubber Brand:ARPL Reliance
AAM-89	P.D.Sales Agency	Parthiv Pathak Proprietor 9825902553 3, Pushkar Industrial Estate, Opp.National Rifle, Mekan Steel Phase I, GIDC Vatva, Abad-382445 Pds_pathak@yahoo.co.in	Testing Equipments
DM-7	Jain Industries	Jayesh Damani Partner 9727716206 Kushal Damani Partner 9825032614 68/1 GIDC Estate	Zinc oxide Gold Seal Zinc Oxide White Seal Copper Sulphate Nickel Sulphate
		Phase – 1, Vatva Ahmedabd -382445 07948916266 chemorgejain@hotmail.com	
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AM-280	Anupama Rubber Industries	Dilip Jadav 94, Ashapura Estate, Nr.Ramol Chokdi, Vatva, Ahmedabad – 382445 9825485989 Anupamarub.eng@gmail.com anupamarubeng@gmail.com	Rubber anti vibration pads, Rubber tube, Rubber pin bush Rawmaterials Latex, Reclaim 555,chemicals

Kerala Unveils Draft Policy For Plantation Sector

V Sajeew Kumar Kochi | Updated on January 21, 2020
Published on January 21, 2020



Kerala has announced a draft policy on plantations to strengthen the sector and improve the living and service conditions of workers.

The policy envisages augmenting manufacturing, diversification, processing, marketing and preserving value-based plantation products.

Crisis situation

The sector is passing through a crisis following unlimited import of agricultural produce, dampening the demand for indigenous crops. A steep decrease in the domestic output and its quality, together with erratic weather patterns are also responsible for the current crisis.

Kerala produces around 48 per cent of the total plantation crops in India. The State accounts for 76.5 per cent of rubber, 88.6 per cent of cardamom, 22.05 per cent of coffee and 4.54 per cent of tea produced in the country. Around 3.3 lakh labourers are directly dependant on plantations.

In 2012-13, the sector generated ₹21,000 crore, which was 33 per cent of the total domestic agricultural produce. But in 2018-19, the production decreased to ₹9,945.15 crore. Consequently, 13 plantations were closed down and about 3,000 workers were rendered jobless.

State Labour Minister TP Ramakrishnan blamed the policies of the Centre and FTAs for the crisis, as it led to relaxation of rules, paving the way for unlimited imports of plantation products. Besides, climate variations have also adversely affected the output of plantation crops, he said. "It is in this context, the draft plantation policy is chalked out for a permanent solution to their problems," the Minister added.

Lease renewals

The draft policy envisages renewal of lease of the plantation land in a timely manner to enable owners to get funds and subsidies from banks. The cultivation practice being followed in the plantation sector is single crop, limiting the yield and income. It was, therefore, decided to permit mixed-cropping and inter-cropping.

Munnar, Peermedu and Nelliampathy have favourable weather conditions for producing vegetables in winter season. The cultivation of fruit bearing plants as inter crop can considerably increase the income from plantations.

To ensure reasonable revenue, measures will be taken to process and store plantation produce and to find suitable market for them. The existing auction system for farm produce would be altered to ensure better pricing after consultation with Central agencies. The cluster programmes will be extended to the plantation industry with a view to encouraging value addition.

Hostile weather conditions

The shortage of rainfall, prolonged drought, destructive rains and wind, and extreme winter have further damaged the business. Efforts should be made to protect and revitalize the soil, water and air in the Western Ghats.

The potentials and possibilities of farm tourism will be worked out without altering the basic structure of the plantations. The non-conventional energy sources available with the plantations can be used for power generation by using resources such as biomass, wind and solar, the draft policy said.

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3	Dynaflon	05
4	Boron Rubber India	18
5	Boron Rubber India	21
6	Hi-Green Carbon	22
7	Microquick Engineers	31
8	Samir Enterprises	38
9	Swastik Group of Companies	Back inner page
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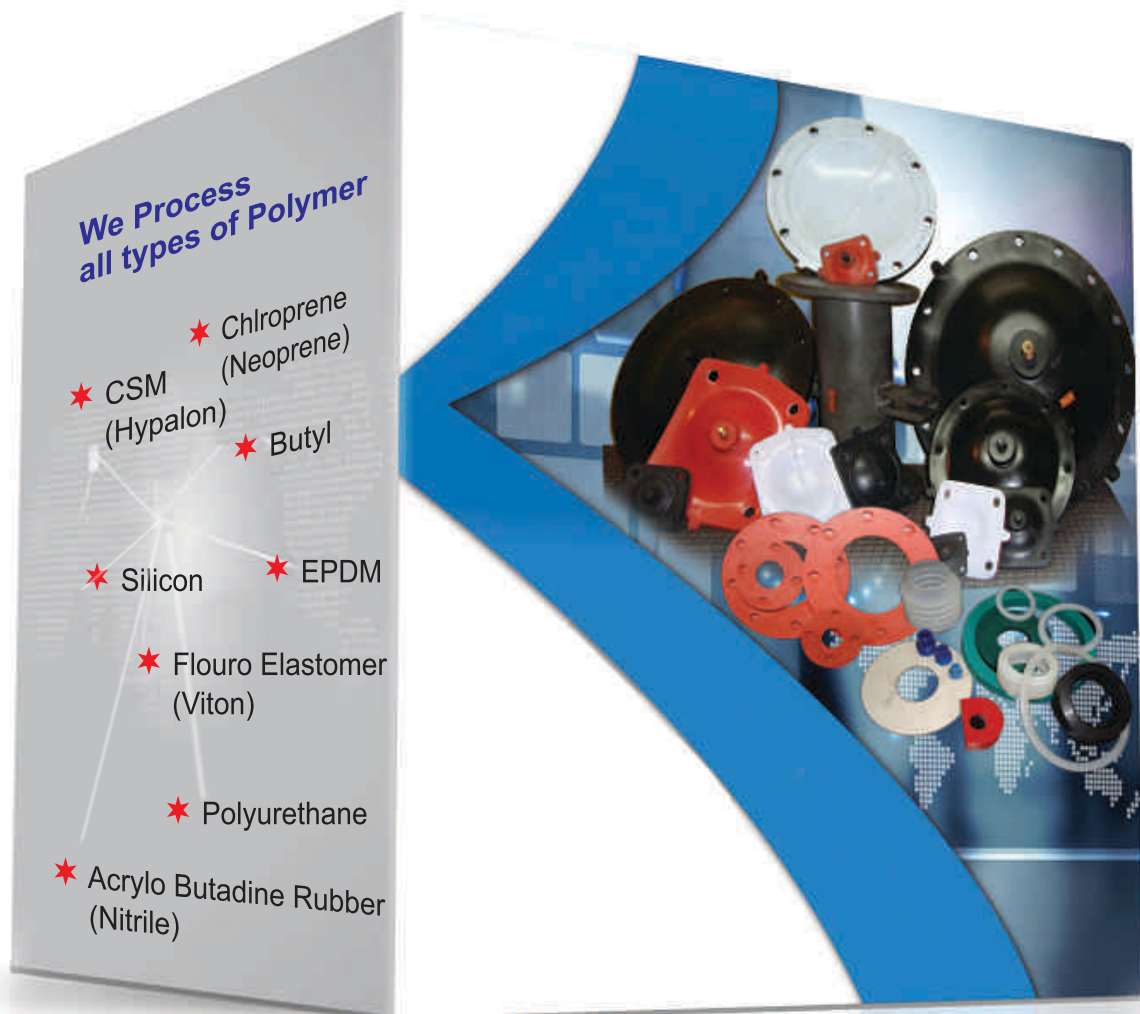
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