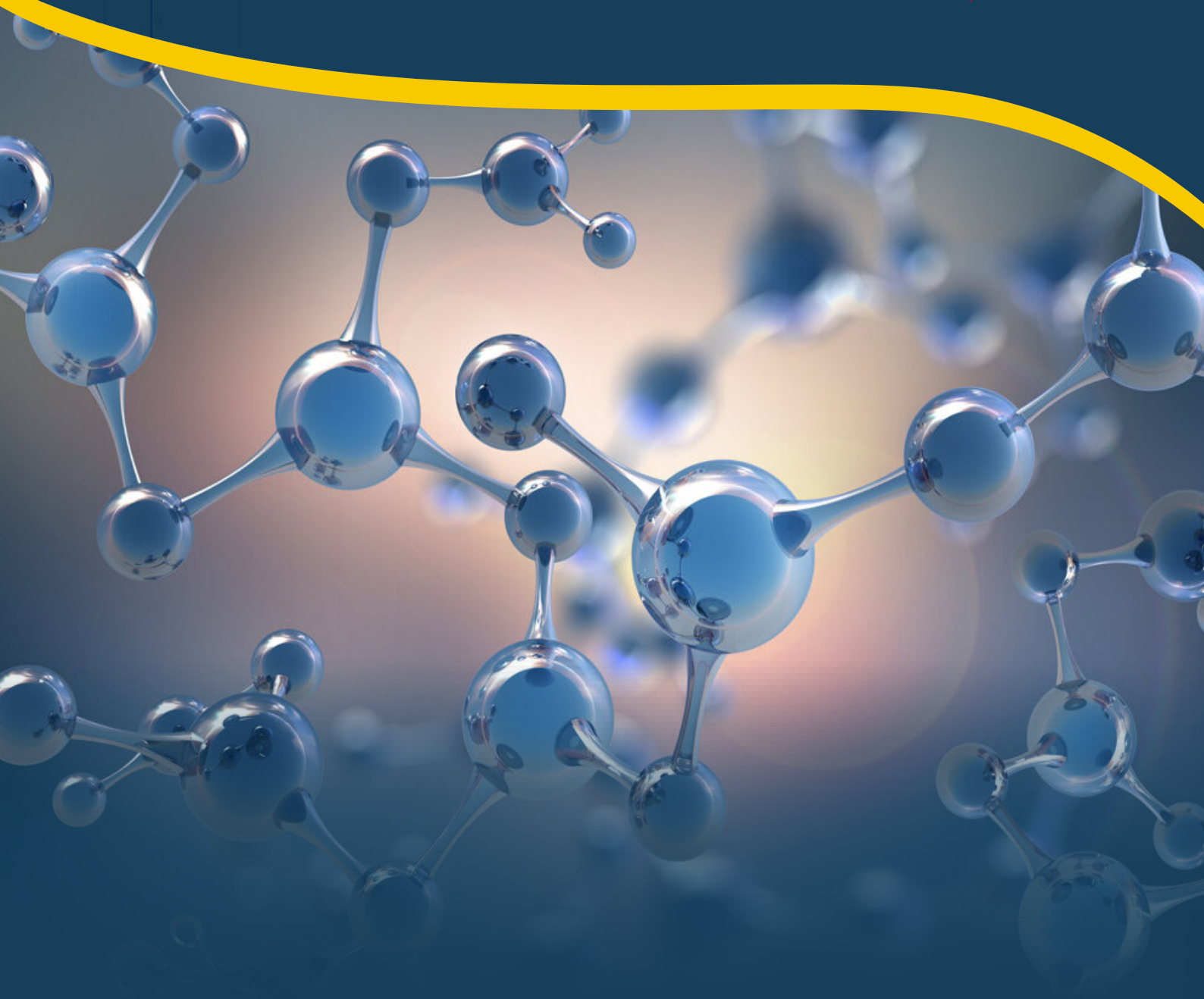
Issue | July 2022

PAWAPULSE



SECOND EDITION

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From the Editor's desk

Dear Reader,

It's been over three months since we launched our first-ever Newsletter called "PAWApulse" and we are into the second edition now since we received an immense number of responses from our members. The ongoing conflict between Russia and Ukraine seems to be unending and it has several adverse impacts on several countries in business and lives of people. The polymer industries are struggling to cope with this as many of the raw materials are imported from Russia. We hope the conflict should come to an end and pray that peace prevails across the world leading to business growth. The ongoing political crisis in Sri Lanka looks difficult for solution in near future. The citizens of island are facing trouble to live each day due to escalated price of commodities.

The stock market also has gone down by 15-25% with uncertainty in the market due to several reasons. The corona is at bay in India and we are not sure when it would surge again seeing careless behaviour of people in crowds. We are keeping our fingers crossed for a few more months to overcome these factors.

In this newsletter, you would see a technical paper on Bladder Manufacturing volume 1 by undersigned, a second edition on Fundamentals of Mixing Process by Mr. SV Rao, Current affairs, Upcoming events in Rubber and Plastic industry compiled by Mr. Rajesh Rao, a brief write up on Polymer Technology course as per new education policy and updates of renovation of classroom, set up of new composite lab by Mr. Santosh Kumar, Achievement of Ms Amrutha Joshi on biking covering 11290 kilometres in just 64 days, Life time achievements of PAWA members – Mr. Sandeep Shetty as an entrepreneur working with ACEBOND and Mr. Gangadhar Shetty as CEO and MD of oil association in Ghana and few

Kavanagalu, chutuka by our Sahiti Mr. Krishna Prasad Bhat in Kannada.

We always welcome your opinions about the newsletter and you may reach out to undersigned or our President Mr. Sriganesh U.P. and Hon Secretary Mr. Rao.

Wish you all a happy reading.

Anil Pais

From the desk of PAWA President

My Dear Pawa'ites,

Last 3 months remained uncertain for industries & it was evident for Rubber / Tyre / Polymer related companies as well. The geopolitical uncertainties, pressure on logistics, higher hydrocarbon prices resulting overall increase in prices of raw materials put stress on margins of manufacturing segments. Good thing is that big conferences & events are started with Big Bang, Tyre shows, Rubber conferences, Plastics, Paint & coating shows were held successfully with unexpected crowds from the industrial professionals. This shows resilience & V curve growth in the demand. Automotive segment has shown good growth in last quarter. On our PAWA front all members need to gear up to support our plastic lab project which is going slow due to fund shortage & lack of active participation. I request all members to contribute to PAWA with all enthusiasm. As alumni of DPT we only can get our campus improved & we have supporting Principal now at KPT. Let's also work on our long pending dream of hosting grand seminar & conference DPTcon. We need volunteers to come forward & nominate yourself. Governing council is happy to coordinate for these tasks. Suggestions are welcome for conducting the Dpt con. I am happy to hear that all students of DPT final year are placed in good companies & congratulate the students/ Polymer Head / Team of lecturers for getting able polymer technologists. Covid 19 cases are on the raise & I wish all pawaites & their families good health, Safe year ahead.

Sriganesh U P

Current affairs

Vehicle sales up 27% in June 2022, still away from pre-Covid levels 2019

Registration of automobiles across categories rose 27 per cent year-on-year in June as improved availability of semiconductors enabled automakers to increase output and dispatch more vehicles to dealers, but when compared with June 2019, the overall retail sales declined 8.68 per cent.

Overall, retail sales in the three months to June contracted by 8.13 per cent when compared with the corresponding period in FY19

The trend reveals that a broad-based recovery, encompassing all segments - continues to elude the world's fifth-largest auto market.

Whichever way one sees it, the continuing pain in the two-wheeler segment is evident. Hit primarily by the rising cost of ownership and also prices, the sales in the segment slipped 13.6 per cent when compared with Q1FY19, indicating that two-wheelers still have some distance to cover to reach the pre-pandemic levels. Three-wheelers, too, crimped 12.8 per cent in the same period.

Meanwhile, retail sales of passenger vehicles, tractors, and heavy commercial vehicles in April-June period offered some relief. The three have zipped past pre-pandemic sales and are on a strong growth path.

While passenger vehicle sales grew 17 per cent to 7.9 million units over the Q1FY19 figure, tractors advanced 34.72 per cent to 158,169 units and heavy commercial vehicle sales increased 17.05 per cent to 66,836 units.

"The commercial vehicle (CV) segment showed strength for the first time (in June) as it grew by 4 per cent over June 2019, a pre-Covid month".

The Bus segment, along with LCVs, is showing good traction.

Two-wheeler sales - which advanced 20 per cent YoY in June over last year's low base - continue to suffer due to poor market sentiment, especially in rural India, high cost of ownership, ad inflationary pressure. Three-wheelers have seen the

volumes contract owing to a rapid shift to electric. Apart from this, permit issuesand frequent price increases remained the biggest dampeners.

The PV segment continued to see robust growth in June. An increase in wholesale sales clearly shows that semiconductor availability is now getting easier. Waiting periods, especially in the compact SUV and SUV segment, remain high. New vehicle launches are seeing robust booking, reflecting a healthy demand pipeline.

Govt of India extends anti-dumping duty on bus and truck tyres from China by three months. The centre has extended the anti-dumping duty on import of bus and truck tyres from China by three months. In a gazette notification, it was stated that the anti-dumping duty imposed in September 2017, for a period of five years, will now be in force till December 2022.

According to a notification by the Central Board Excise and Customs (CBEC), the anti-dumping duty on these Chinese products lies in the range of $ 245.35 - 452.33 per tonne.

It covers new or unused pneumatic radial tyres with or without tubes and or flap of rubber (including tubeless tyres) having normal rim diameter code above 16 inches used in buses, lorries, and trucks.

The recent order is following a sunset review investigation into these imports from China at the behest of Automotive Tyre Manufacturer's Association (ATMA). It argued that despite duties in force, there is positive and significant dumping margin. Further, ATMA said that there is likelihood of continuation/ recurrence of the dumping and the injury to the domestic industry in the event of cessation of duty.

Prices of crude derivatives rose and are still unstable.NR prices expected to remain range-bound due to supply-demand related challenges.

Industry which took small hikes, intends further price actions as it is now difficult to continue without further increase in final price.

Polybutadiene Rubber slight availability improvement felt in the market as Reliance maintenance shutdown is over but shortage expected to continue during Q3 2022. LG Chemicals announced discontinuation of SBR 1502 and 1712. Very short supplies of PBR Cobalt and PBR Nickel from KKPC, Arlanxeo and LG.

Tyre companies are under extreme pressure to continue production due to shortage. July – Sept quarter expected to be tough due to raw material shortage specially PBR Grades.

Auto segments production is expected to improve further as semiconductor availability is improving, motorcycles is yet to recover. Meanwhile, the commercial vehicle and the tractor segments are showing some signs of recovery.

Tyre production shown improvement of 5 - 10% in May-June over Feb-March 2022 due indicated improvement in demand in spite of sky rocketing raw material prices but expected to get effected during June and mainly during July/Aug 2022 due to low margin and high cost of various RM, tight availability of polymers and some other commodities, Major Tyre companies in India decided to slow down production by 10% due to high FG inventories specially of the Truck Bus tyres and due to margin pressure.

Non tyre segments mainly Cycle tyre & tubes, Moulded Goods, Transmission belting, hoses and Conveyor Beltings were continued to be negative during April-June 22 and expected to continue negative during 2022 due to very high RM prices especially synthetic polymers, Rubber Chemicals and Carbon Black. These segments are mainly dependent on OEMs, and Govt sectors and not able to pass price increase in those market segments.

Exporters face high freight charges, order delays and payment issues amidst Russia-Ukraine crisis.

Oil prices extended their rally, with Brent continued above $110 a barrel again after

a short relief as trade disruption and shipping issues from Russian sanctions over the Ukraine crisis sparked supply worries.

Passenger Vehicles, Commercial Vehicles sectors to look up; 2W market is lethargic, turn around likely in tractor.

-Sriganesh U P
LANXESS India Private Limited
BU: RheinChemie
VicePresident, Head of Region – India

Rubber Mixing Process - Part 2 (PPT)

- Rubber Mixing Equipments
- Kneaders
- Bannury (Tangential Type)
- Intermix (Inter Meshing Type)
- Continuous Mixing

Click Here

-Suratkal Vasudeva Rao

Upcoming Conference / Exhibition Events In Tyre, Rubber & Plastics Industry

Rubber & Tyre Vietnam 2022 on 3 – 5 August 2022 at Saigon Exhibition and Convention Center (SECC), Ho Chi Minh City

The 8th International Exhibition and Conference on Rubber Industry and Tyre Manufacturing.

National Rubber Conference – 2022 (NRC 2022), Chennai on August 5 - 6, at Feathers A Radha Hotel, 129, Mount Poonamallee Road, Manapakkam, Chennai.

9th Edition of AIRIA, NRC 2022, Chennai is aimed at bringing our members nearer to the latest technology and innovations that are available across the globe. The NRC is a widely anticipated event which encompasses both Technical and Business aspects of the Rubber Industry

International Tire Exhibition & Conference (ITEC) on September 13 - 15, 2022, at the John S. Knight Center in Akron, Ohio, U.S.A

15th edition of the conference is the largest tire manufacturing trade show and conference in North America and is dedicated exclusively to tire makers and those that serve the industry. It features leading exhibitors from across the world as well as an exceptional technical conference program.

International Rubber Conference & Expo' 2022 on Nov 24 – 26 at Sheraton Grand Bengaluru Whitefield Hotel & Convention Center, Bengaluru, India.

International Rubber Conference focuses on Rubber Materials, Reinforcement and compounding ingredients, Processing technology and innovation, Innovation in rubber products and design, Thermoplastic elastomers, Miscellaneous, India

specific topics like New Technologies and Markets, Smart, Nano and Functional materials, Advances in testing and testing equipment.

K-Plastics & Rubber Exhibition, on 19 - 26 Oct 2022 at Messe Dusseldorf, Düsseldorf, Germany K as anticipation - to the leading business platform for the plastics and rubber industry. As the world's leading trade fair, K will once again be your global highlight next October: for pioneering innovations and developments as well as visionary impulses. Industry and research from all over the world will present you with future perspectives and solutions.

TOPLAST : Total Plastics Expo on 09 - 11 Sep 2022 at Chennai Trade Centre, Chennai, India. TOPLAST is a Leading Trade Fair for Plastics Industry.

TOPLAST will be a dedicated B2B Expo on plastic, machinery and equipment, mold making, plastic semi & finished products, raw materials, packaging technology, hydraulics, and pneumatic, Plastic Film Machinery, Bag Cutting Machinery, as wellas related industries and trade journals. It gives the regional plastic processors an opportunity to source the complete range of plastic converting requirements – from raw materials, additives, moulds & machinery. TOPLAST will be an exclusive multi-industry trade event for the plastics, mould-making, printing and packaging industries.

INDIA CHEM on 6 - 8 Oct 2022 at Bombay Exhibition Centre (BEC), Mumbai, India Organized by Federation of Indian Chambers of Commerce & Industry (FICCI)

India Chem is the flagship event of the Department, is one of the largest composite events of the industry in the Asia Pacific region and comprises of an International

Conference and Exhibition. It will showcase the tremendous potential and supportive government policy for sustainable growth in the sector and will be a single platform for investors, both domestic and international, and other stakeholders to interact and forge alliances, thereby providing immense potential for trade and investment, in a mutually beneficial way.

Plastic EPR Conference on 22 Nov 2022 at Holiday Inn Mumbai International Airport, Mumbai, India.

Plastic EPR Conference will focus on the brand owners perspectives on plastic recycling, sustainability & ground-level applications of various methods used by brand owners and solution providers. The conference will cover beyond EPR strategies, EPR compliance, Govt. interventions, regulations by the Govt, and many more thrilling topics. Along with the brand owners, there will be all stakeholders of the EPR segment in Plastic waste management

Indplas' 2022 on 25 - 28 Nov 2022 at Milan Mela, Kolkata, India Organized by Indian Plastics Federation, Indplas

is the largest International Exhibition on Plastics. It will feature Raw Materials, Polymers & Resins, Intermediates, Blends & Alloys, Masterbatches, Additives, Fillers, Colorants, Specialty Chemicals, Printing Inks, and Ancillary Equipment and Instrumentation, Mould & Dies, Finished Plastics products, etc.

Machma Plast 2022 on 09 - 12 Dec 2022 at Glada Ground, Ludhiana, India.

Machma Plast 2022 will promote the latest technology and plastic industry. Major participant will be from manufacturing plastic raw material & petrochemicals from different parts of India and the event will create an excellence platform to publicise & display the latest products, services & will enhance the business network. There

will be an exclusive program for business matchmaking, launching of latest products, live demonstrations & awards, and realizing business opportunities to address emerging markets.

Compiled By

-Rajesh Rao

Country Head - India

Bernauer Group (Beratex/Texpak)

Polymer Technology
NEP- New Education Policy

About the Program

The Diploma in Polymer Technology was started, in our state in the year 1975, and Karnataka (Government) Polytechnic Mangalore is the only college which is offering Diploma in Polymer Technology. Right from the inception our department has unique distinction in teaching and learning process, quality education, academic activities, co-curricular and extra - curricular activities. Very good Infrastructure facilities are provided for imparting quality practical training, by inculcating skills among the students in handling and operation of equipment's in the field of Polymer processing lab both for Rubber, Plastic, Composites material, mechanical operation Chemical testing, analysis. Through well-established laboratories to cater present industrial needs. Good class rooms, experienced faculty members, create good teaching – learning atmosphere in the department, which leads to get 95- 100 % academic performance every year. This department provides needful exposure and training as per the present industrial requirements. Keeping this in mind, the Department of Technical Education has developed a new C-20 curriculum in partnership with industry that enables students to not just choose to become employees or engineering researchers, but also become employers. Diploma in Polymer Technology Students are 100% placed through campus placements.

The intake is 40+2 students every year.

Additionally, we have a well-organized old student's association known as PAWA (Polymer Alumni Welfare Association) which provides great support to the Department and its main vision is to provide Scholarship to the deserving students, providing books for the department library, lab equipment AMC, classroom and lab

restoration works, technical talk by Polymer alumni's, technical conference conducted once in every 3 years (DPTCON), etc.

Program Highlight

- Polymer Technology is one of the emerging courses, with great opportunities for Research and Employment.
- Choose your career pathway of becoming an employment, a researcher or an employer.

Employment Pathway

Develop depth of knowledge in any of the following 4 specializations to pursue your interests in your final year: Rubber Technology, Plastic Technology, Composite Technology, and Polymer Testing. This will be followed by industry exposure through a structured 6-month internships or an industry project

Research Pathway

Get trained as a researcher and do an action research project to solve an Engineering problem. This will be followed either joining an Engineering research establishment or pursuing higher education. You will gain advanced standing in Polymer Technology degrees at local universities and overseas institutions.

Entrepreneurship Pathway

Translate your idea into a prototype, get taught fundamentals of becoming an entrepreneur, develop an MVP with a business plan for your idea and finally get incubated

New Education Policy

What's New

1. ENGINEERING FOUNDATION & COMMUNICATION SKILLS

The basic concept for first year diploma curriculum is to provide basic engineering foundation and Communication Skills.

Courses Common to all Branches

Semester 1	Semester 2
Communication Skills Focused on communication than language along with learning the use of office productivity tools	**Engineering Mathematics** Focused on core and essential mathematical concepts
Statistics & Analytics Focused on statistical data collection& types, summarization of data and introduction to Python	**Computer Aided Engineering Graphics** Focused on basic elements of drawing, CAD interface, commands, projections & drafting.
Environmental Sustainability A standard curriculum prescribed by AICTE	**Project Management Skills** Focused on fundamentals of project management in planning, risk, budgeting, software, etc.
Fundamentals of Electrical & Electronics Fundamentals of electricity, safety	**Basic IT Skills** Focused on basics of coding, building websites, ERP, Cloud and Cyber Security.
Sports/NCC/NSS/Yoga	**Kannada**

Polymer Technology Discipline Foundation

Semester 1	Semester 2
Polymer Fundamentals & Processing ▶ Basic of Polymers ▶ Methods of Polymerization ▶ Classification of Polymers ▶ Basics of Rubber Materials ▶ Basics of Plastic Materials ▶ Basics of Polymer Processing	**Polymer Fundamentals & Processing Lab** ▶ Select hand tools and Machinery in different shop floor according to job ▶ Understand job work and complete jobs as per specifications in allotted time ▶ Inspect the job for the desired compounding of polymer materials and its properties ▶ Operate, control different machines and equipment's adopting safety practices.

2. POLYMER TECHNOLOGY CORE FOUNDATION.ENGINEERING FOUNDATION & COMMUNICATION SKILLS

The core foundation required for a Polymer engineer will be taught in this particular semester 3 & 4. As it is an integrated curriculum theory and practical's are blended together.

Polymer Technology Core Foundation

Semester 3	Semester 4
▸ Organic & Physical Chemistry. ▸ Polymer Material Technology. ▸ Polymer Compounding Technology. ▸ Elements of Chemical and Instrumentation & Process Control.	▸ Polymer Science. ▸ Rubber Processing Technology. ▸ Rubber Processing Technology. ▸ Mould & Die Design.

3. POLYMER TECHNOLOGY PATHWAYS & SPECILIZATION

In this particular 5 semester students have a liberty to choose 3 pathways according to his wish, and in 6 semester students has to work in any of the selected polymer industries and complete the training as per the guidelines provided and have to submit a training report.

1. Specialization Pathway.

2. Higher education Pathway.

3. Entrepreneur Pathway.

Specialization Pathway

Polymer product & manufacturing

Polymer product Testing

Specialized Polymer products

Student may select any one Specialization

Specialization Pathway in science and research

Specialization Pathway in emerging areas

Specialization Pathway in Entrepreneurship

The Student needs to select any one of the three pathways

Year 2 Core Curriculum

Year 1 Foundation Year

Prepared by

-Santhosh Kumar P

HOD. Department of Polymer Technology.

Karnataka (Govt.) Polytechnic. Mangaluru.

Renovation of Final year classroom and setting up new Composite Lab.

As the Quote says "When your environment is clean you feel happy motivated and healthy" When students are given a clean environment it automatically boosts their interest and gives them a positive attitude and mind set. Since the inception of PAWA - Renovation of classroom and any upgradation in the Polymer Department is one of the major aims and objectives of **Polymer Alumni Welfare Association.**

For the academic year 2021/22 Team PAWA has provided funds to the Department and with the help of **Polymer Department students** we have renovated polymer final year classroom and opened a new Composite and Adhesive Lab, the renovated classroom and Composite and Adhesive Lab was inaugurated on 13th March 2022 by Sri. Harisha Shetty, Honorable Principal-Karnataka (Govt,) Polytechnic, Mangalore.

The total expenditure of the Project is approximately 85000/- Renovation materials like paint, cement, metal framework etc. was funded by **PAWA and entire work was carried out by our polymer students.**

And all the electrification work of both classroom and lab was done by Department of Electrical and Electronic - KPT, on behalf of Polymer department and Team PAWA, I heartily thank **Sri Ravindra Keny HOD of Electrical Department for providing us students for the electrical work, and special thanks to the Final year students of Electrical Department.**

Renovation work by Polymer students

Inaugaration of Renovated Class and Composite & Adhesive Lab.

-Santhosh Kumar P

HOD. Department of Polymer Technology.

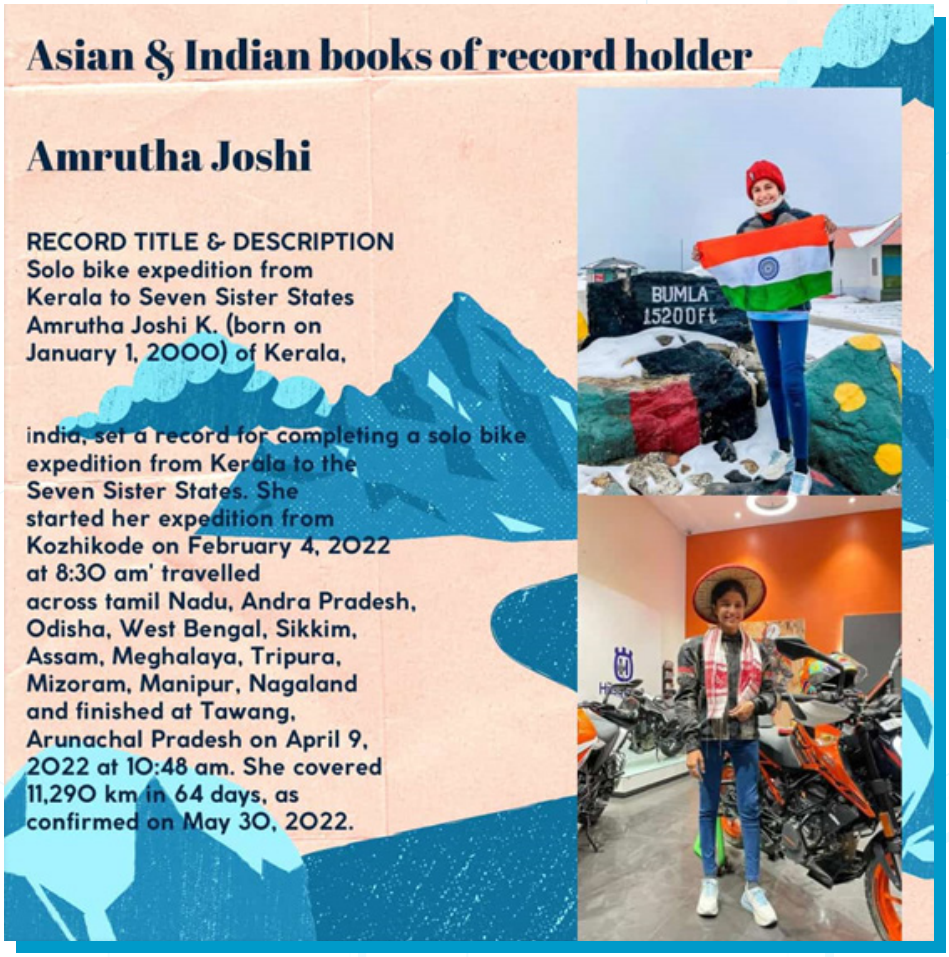
Karnataka (Govt.) Polytechnic. Mangaluru.

Amrutha Joshi – The Achiever

A very proud and elated moment to our Polymer Department and our prestigious college, KPT-Mangalore. Miss Amrutha Joshi, Batch of (2017-2019) has completed her studies in Polymer Technology and after completing her studies she went on to fulfil her spirited adventure and travelled 11290 km in just 64 days. And the most adventures and attractive part of the entire bike ride was, she had travelled the long distance entirely alone and it was a solo bike expedition. The expedition started from Kerala state covering states like Tamil Nadu, Andra Pradesh, Odisha, West Bengal, Sikkim, Assam, Meghalaya, Tripura, Mizoram, Manipur, Nagaland, and completed the expedition at Tawang-Arunachal Pradesh.

The achievement has been awarded with:

ASIAN and INDIAN BOOK OF RECORD



Message from team PAWA:

"You have the most dedicated hardship and determination to do whatever you can dream. You have inspired the young generation and sent a strong message that –Nothing is impossible if you have strong desire of faith and courage in yourself - We hope you feel proud today and confident in your ability to rise to your next challenge."

Congratulations and best wishes for your next adventure!

Stars of PAWA

Mr. Sandeep Shetty

Mr. Shetty is a young entrepreneur of Mangaluru who had studied in Karnataka Polytechnic and completed his diploma in Polymer Technology specialization in Plastic technology and later completed his M. Tech in chemical engineering. He worked as a research associate in Bostic India Pvt Ltd which is a France based organization and also worked as Senior Scientist with MYK Laticrete India Pvt Ltd which is US multinational. Later on, Mr. Shetty started his own company "ACECRETE ADHESIONS INIDA PVT LTD" (ACEBOND) along with other partners in Kundapura in Udupi district. He is heading technical and operations divisions and also serving as Senior Scientist in his company since 2013.

Mr. Shetty has received many accolades to his pocket such as a) The state award "Sir M. Visveswaraya Manufacturing Excellence award" – State Industrial award distribution function held at Vidhana Soudha, Bangalore, honoured by Hon'ble Chief Minister of Karnataka along with other Cabinet Ministers. b) Outstanding Achievement Award for Business Excellence in India", - A national level award function was held in Delhi, presided by the delegates from Govt.of India and other sector. c) Received award from Central Excise Department, Government of India as "EMERGING START UP" in the Year 2016.d) Business Transformation Award - 2020 from Drycotec Global, Mumbai. e) INDIA SME 100 Award-2021 from India SME Forum, Delhi.

Mr. Gangadhar Shetty

Mr. Gangadhar Shetty who is fondly called as "Gangu" during his college days has reached top of his career ladder where very few people reach. Mr. Shetty has more than twenty-six years of very rich experience in Rubber industries, and oil industries. He has exposure to operations, Sales and Marketing and commercial departments. He also has exposure in top management for over eight years as CCO and CEO.

Mr. Shetty completed his diploma in Polymer Technology specialization in rubber technology in 1995. After completing his diploma, He worked with Rubber Products Ltd and Vaid Elastomer Processes ltd as an executive for few years. In 2002, He joined "Integrated Rubber Products Nig PLC" in Nigeria as works Manager. In 2009, He worked with Presco PLC as Manager – Commercial & Logistics. In 2010, He joined again in Woodland Nig Ltd as Director – Operations and worked there till January 2014.

He shifted to Ghana in early 2014 and joined "Ghana Oil Palm Development Ltd" as a Chief Commercial officer. In the end of year 2021, Mr. Shetty got promoted to Chief Executive Officer in the same organization and working as CEO to date.

We all at PAWA are very proud to see the talent and achievements of both Shetty's. Congratulations to both of them and wish all the best from PAWA.

ಸುಪ್ರಭಾತ

ಕದಿರ ಕುಂಚವ ಪಿಡಿದು ರವಿ ಬರೆದ ಕಾವ್ಯವದು
ಇಬ್ಬನಿಯ ಹನಿಯಾದುವೊ!
ಮುದಗೊಳಿಪ ಮುಂಜಾನೆ ಕಂಡುಲಿದ ಹಕ್ಕಿಯುಲಿ
ಚಿಲಿಪಿಲಿಯ ದನಿಯಾದುವೊ!

ಹಸಿರ ಹಂದರದಡಿಯ ತರು ಕಂಬ ಕಂಬದಲಿ
ಲಾವಣ್ಯ! ಲತೆಯ ಲಾಸ್ಯ!
ಹೊಸದಿನಕೆ ಹೊಸತೊಂದು ಚಿಗುರು ಚಿಗುರಿದೆಯಲ್ಲಿ
ಸಾರಿತದೊ ಚೆಲುವ ಭಾಷ್ಯ!

ಮೂಡಣದ ಗಿರಿಪಂಕ್ತಿಯಂಚಿಂದಲಿಣುಕಿದನೊ
ತರಣಿಮಣಿ ತೆರೆದು ಕಣ್ಣ!
ಮೋಡಗಳ ಪೋಣಿಸಿದ ಆಗಸದ ತೋರಣಕೆ
ಬಳಿದ ಹೊಂಬೆಳಕ ಬಣ್ಣ!

ಗಂಧವನು ಪಸರಿಸಿಹ ಸುಮವೃಂದಗಳಿಗೊಲಿದು
ಹರಸಿರಲು ಅರಳುವಂತೆ!
ಸಂಧಿಸುವ ದುಂಬಿಗಳ ಝೇಂಕಾರದೋಂಕಾರ
ಹಬ್ಬುತದೊ ಧ್ಯಾನದಂತೆ!

ಸೌಂದರ್ಯ ಲಹರಿಯಿದು ಚರಿಸಲಿಚ್ಚಿಹ ಹೆಜ್ಜೆ
ಪಡಿಮೂಡಿಸಿರುವ ಗುರುತು!
ಹೊಂದಿ ಶೃಂಗಾರವನು ಶೃಂಗವಾಯಿತೊ ಮಹಿಮೆ
ವ್ಯಕ್ತವವ್ಯಕ್ತಗಳು ಬೆರೆತು!

-ಕೃಷ್ಣಪ್ರಸಾದ್

ಅನನ್ಯ

ಇತ್ತೀಚೆಗಂತೂ ಜಗತ್ತಿನ ಜೀವನದ ಈ ಒಂದು ಮಗ್ಗುಲಿನ ದರ್ಶನದ ಪರಾಕಾಷ್ಠೆಯೆಂಬಂತಿತ್ತು ಆ ಬ್ರಾಹ್ಮಣನೋತ್ತಮನೊಬ್ಬನಿಗೆ ಅವನ ಬದುಕು! ಅವನ ಹೆಸರು ಸುಧಾಮ! ಆದರೆ ಅವನ ಧಾಮವಾದರೋ ಅತ್ಯಂತ ಶೋಚನೀಯವಾಗಿತ್ತು! ಅನುಭವಕೋಣಗಳೊಡನೆ ಹೊಂದಾಣಿಕೆ ಮಾಡಿ ಮಾಡಿ ಹೈರಾಣಾಗಿ ಸಹನೆಯ ಕಟ್ಟೆಯೊಡೆದ ಹೆಂಡತಿ ಒಂದು ಕಡೆ! ತನಗದು ದೈವದ ವರವೋ ಅಥವಾ ಶಾಪವೋ ಎಂಬುದನ್ನು ಸರಿಯಾಗಿ ನಿರ್ಧರಿಸಲಾಗದಂತೆ ಹುಟ್ಟಿಕೊಂಡ ಏಳೆಂಟು ಮಕ್ಕಳು! ಆ ಮಕ್ಕಳೊಡನೆಯೆ ಹುಟ್ಟಿದ ಏಳೆಂಟು ಹಸಿವುಗಳು ತಮ್ಮಿಬ್ಬರ ಹಸಿವುಗಳೊಡನೆ ಸೇರಿಕೊಂಡಿದ್ದವು! ಹೊಟ್ಟೆ ಹಸಿವನ್ನು ತೃಪ್ತಿಪಡಿಸುವ ಕೂಳು ಕಾಳುಗಳಿಗೆ ಬಡತನ ತಪ್ಪಿರಲೇ ಇಲ್ಲ! ಇದಕ್ಕೊಂದು ಅಂತ್ಯವೆಂಬುದೇ ಇರಲಾರದೆ ಎಂಬ ಭಾವ ಪತಿ ಪತ್ನಿಯರ ಮುಖದ ತೇಜಸ್ಸನೇ ಕಬಳಿಸಿಬಿಟ್ಟಿತ್ತು!

ಇದು ಅನಂತ ಆಗಸವೇ ಮೋಡಗಳ ರೂಪುತಳೆದು ಸೂರ್ಯನ ತೇಜಸ್ಸನ್ನು ಕಬಳಿಸಿದಂತಹ ಭಾಸ! ಆ ಅನಂತ ಮೋಡಗಳರಾಶಿ ಎಂದಿಗೂ ನಿಲ್ಲಲಾರದ ತಡೆರಹಿತ ಬಿರುಮಳೆಯಾಗಿ ವಸುಧೆಯನ್ನಾವರಿಸಿದ ಭಾವ! ಎಲ್ಲಿ ಹೋಯಿತು ಬೆಳಕು? ಎಲ್ಲಿ ಮರೆಯಾಯಿತು ಅದರೊಂದಿಗಿನ ಆ ಸಂಬಂಧ? ಮೋಡವಾದ ನೀಲಾಕಾಶ ಮತ್ತೆ ಪರಿಶುದ್ಧ ಆಗಸವಾದೀತೆ? ಮತ್ತೆ ಶಶಿ ಸೂರ್ಯ ತಾರೆಯರೆಲ್ಲರು ಕೂಡಿ ಆಡುವ ಆಡುಂಬಲವಾದೀತ? ಇಂತಹ ಪ್ರಶ್ನಾರ್ಥಕ ಭಾವಗಳೊಂದಿಗೆ ಬಾಲ್ಯದ ಆ ಸುವರ್ಣಮಯ ಕಾಲದ ನೆನೆಪಿನಂಗಳದೆಡೆಗೆ ಸಾಗಿತ್ತು ಆ ಬ್ರಾಹ್ಮಣನ ಮನಸ್ಸು!

ಗುರುಸಾಂದೀಪರ ಆಶ್ರಮ. ಸನಿಹದಲ್ಲಿ ಪ್ರಶಾಂತವಾಗಿ ಹರಿಯುತ್ತಿದ್ದ ತೊರೆ!

ಆಶ್ರಮದ ಪರಿಸರದ ಪ್ರಶಾಂತತೆಗೆ ಅಡ್ಡಿಯಾಗದಿರಲೆಂದು ಆ ತೊರೆಯೂ ಸಹಾ ಯಾವತ್ತೂ ಶಾಂತವಾಗಿಯೇ ಹರಿಯುತ್ತಿತ್ತಂತೆ! ಸುರಿಯುವ ಮಳೆಯೂ ಬೀಸುವ ಗಾಳಿಯೂ ತನ್ನ ಹದವನ್ನು ಮೀರುತ್ತಿರಲಿಲ್ಲವಂತೆ! ಋಷ್ಯಾಶ್ರಮದ ರೀತಿನೀತಿಗೆ ಅಲ್ಲಿಯ ಪ್ರಕೃತಿಯೆಂಬುದು ಅಷ್ಟೊಂದು ಸಮನ್ವಯಗೊಂಡಿತ್ತು! ಸುಂದರವಾದ ಪರ್ವತಗಳ ಪಂಕ್ತಿ! ಅದನ್ನು ಸುತ್ತುವರೆದ ಹಸಿರುವನರಾಶಿ! ಉದುರುವ ಎಲೆಗಳೊಂದಿಗೆ ಚಿಗುರುವ ಎಲೆಗಳ ಸಮತೋಲನದ ಬೆರಗಿನ ವೃಕ್ಷಸಂಕುಲ! ಅದನ್ನು ಸುತ್ತಿ ಬಾನೆತ್ತರಕ್ಕೇರುವ ತವಕದಲ್ಲಿ ತಲೆಯೆತ್ತಿ ನಿಂತ ಕೋಣಲತೆಗಳ ವೃಂದ! ಪಕ್ಕದ ಅಬ್ಬಿಯೊಂದರಿಂದ ಅಡಿಕೆ ಮರವೊಂದನ್ನು ಸಿಗಿದ ದಂಬೆಯ ಮೂಲಕ ಆಶ್ರಮದವರೆಗೂ ಹರಿದುಬರುತ್ತಿದ್ದ ಗಂಗೆ!

ಅವನೊಬ್ಬನಿದ್ದ! ಸಾಂದೀಪಾಶ್ರಮದ ವಿದ್ಯಾರ್ಥಿ ಜೀವನದ ಸ್ನೇಹಿತನವ! ಮಹಾ ಪ್ರಚಂಡ ಬುದ್ಧಿವಂತ!

ಅದೆಂತಹ ತೇಜಸ್ಸು ಆ ಬಾಲಕನ ಮುಖದಲ್ಲಿ!

ಮುಂಗುರುಳ ಹೆರಳೊಡನೆ ನವಿಲಗರಿಗಳು ಸೇರಿ ಮಂದಮಾರುತ ಬೀಸಿನೊಳಗೆಂಥ ಲಾಸ್ಯ!

ಕಂಗಳವು ಕಂಗಳಂತರವಿಲ್ಲವೆನಗಂದು ಕಂಡಿತ್ತು ಸೂರ್ಯ ಚಂದ್ರರ ನಗುವ ಭಾಷ್ಯ!

ಇಂಗದಿಹ ನಗುವೊಂದು ಆ ಮೊಗದ ಬೆರಗೆನಗೆ ಕತ್ತಲನು ಮರೆಯಿಸುವ ಹಾಲ್ಬೆನ್ನ ತಂಪು!
ಪೊಂಗೊಳಲ ಪಿಡಿದವನು ನುಡಿಸುತಿದ್ದರೆ ಸಾಕು ಮನದ ಮಂದಿರ ತುಂಬುವುದು ನಾದದಿಂಪು!
ಹೌದು ಅವನೊಬ್ಬ ಜಗತ್ತಿನಲ್ಲಿಯೇ ಅತ ಶ್ರೇಷ್ಠ ಚೆಲುವನಂತೆ! ಎಲ್ಲರನ್ನೂ ಆಕರ್ಷಿಸಬಲ್ಲವನಾಗಿದ್ದನಂತೆ! ಸಜ್ಜನರನ್ನೂ ಕೊನೆಗೆ ದುರ್ಜನರನ್ನೂ ಕೂಡಾ! ಅದಕ್ಕೇ ಕೃಷ್ಣ ಅಂತಿದ್ದರಂತೆ ಅವನನ್ನ! ಅವನಿಗೊಬ್ಬ ಅಣ್ಣನಿದ್ದ! ಮಹಾ ಮುಂಗೋಪಿ! ಎಲ್ಲಾ ಸೇರಿ ಆಟವಾಡಿದ್ದೆಷ್ಟು! ನೋಟ ನೋಡಿದ್ದೆಷ್ಟು!
ಚೆಂಡೆಸೆದು ಮರಹತ್ತಿ ತೊರೆಯೊಳೀಜಾಡಿದುದು!
ಬಂಡೆಯೇರುತ ನಭದಿ ಹಕ್ಕಿಗಳನೆಣಿಸಿದುದು!
ಬಂಡಿಯಾಗಿಸಿ ಸಖನ ಬೆನ್ನೇರಿ ಚಲಿಸಿದುದು!
ಕಂಡು ಕಾಣದೆ ಕಣ್ಣಮುಚ್ಚಾಲೆಯಾಡಿದುದು!
ಅದೆಷ್ಟು ಚೆನ್ನಾಗಿತ್ತು ಕಾಲ! ಎಲ್ಲವೂ ನೆನಪುಗಳಷ್ಟೆ.

ಚಿಂತಿಸುವ ಬದಲೊಮ್ಮೆ ಚಿನ್ಮಯನನರೆಗಳಿಗೆ ಚಿಂತನೆಯೊಳಿರಿಸಿದರೆ ಚೆನ್ನಾಗದೆ ಎಂಬಂತೆ ಅರೆಗಳಿಗೆ ಚಿಂತನೆಯೊಳಿರಿಸಿದ ಕಾರಣವೋ ಏನೋ, ಮನಸ್ಸು ಅವನನ್ನೊಮ್ಮೆ ನೆನೆದುಕೊಂಡಿತ್ತು! ಪರಸ್ಪರಂ ಭಾವಯಂತಃ ಎಂಬಂತೆ ಅವನ ಪತ್ನಿಯ ಮನಸ್ಸಲ್ಲೂ ಆ ತನ್ನ ಬಾಲ್ಯ ಸ್ನೇಹಿತನೇ ಬಂದನೆನಿಸಿತ್ತು. ಸಹಧರ್ಮಿಣಿ ನುಡಿದಿದ್ದಳು ತನ್ನ ಪತಿಯತ್ತ "ಸ್ನೇಹಿತ ಸ್ನೇಹಿತ ಅಂತ ಹೇಳ್ತಿದೀರಿ. ಆಪದ್ಬಾಂಧವನಂತೆ, ದೀನರಕ್ಷಕನಂತೆ, ನೀವೊಮ್ಮೆ ಬೇಣಿಯಾಗಬಾರದೆ ಅವನನ್ನು"! ಹೌದು ಅವನಿಗೂ ಹಾಗೆಯೇ ಕಂಡಿದ್ದು ಹೌದು! ಈ ಜಗತ್ತಿನ ಕತೆ ಹೀಗೆಯೇ ಅಲ್ಲವೆ! ನೈಜ ಆಶ್ರಯದ ಸೂಚನೆಗಳು ಸಿಗುವುದು ಕೊಟ್ಟಕೊನೆಗಲ್ಲವೆ! ಅನುಭವಿಸಬೇಕಾದುದನ್ನೆಲ್ಲಾ ಅನುಭವಿಸಿದ ಮೇಲೆಯೇ ನೈಜ ಅನುಭಾವದ ಯೋಗ ದೊರಕುವಂತಹದ್ದು! ಈ ಬ್ರಾಹ್ಮಣನ ಕತೆಯೂ ಹೀಗೆಯೇ ಆಗಿಹೋದುದು ಸಹಜವೇ ಆಗಿತ್ತು!
ಅಂದು ಸಾಂದೀಪಾಶ್ರಮಕ್ಕೆ ಬರುವಾಗ ತನ್ನಮ್ಮ ಕೊಟ್ಟಿದ್ದ ಕುಟ್ಟವಲಕ್ಕಿಯನ್ನು ಸ್ನೇಹಿತರಾರಿಗೂ ಕೊಡದೆ ತಾನೊಬ್ಬನೇ ಕದ್ದುಮುಚ್ಚಿ ತಿಂದುದು ನೆನಪಾಯಿತು! ಹೌದು ಬಾಲ್ಯವೆಂದರೆ ಹಾಗೆಯೇ ಅಲ್ಲವೆ! ಅದೂ ತನ್ನ ಸ್ನೇಹಿತ ಅತಿಯಾಗಿ ಇಷ್ಟಪಡುತ್ತಿದ್ದ ಅವಲಕ್ಕಿಯದು! ಆಗ ಕೊಟ್ಟಿರಲಿಲ್ಲ! ಇದನ್ನೊಮ್ಮೆ ಪತ್ನಿಯಲ್ಲಿ ಹೇಳಿಯೂಕೊಂಡಿದ್ದ ಅವನು!

ಧನ ಧಾನ್ಯ ದಾರಿದ್ರ್ಯವೇ ಮನೆಮಾಡಿಕೊಂಡಿದ್ದ ಇಂದಿನ ಈ ಮನೆಯ ಮೂಲೆಯಲ್ಲಿದ್ದ ಮುಷ್ಟಿಗಾತ್ರದಷ್ಟೇ ಅವಲಕ್ಕಿಯನ್ನು ಹೊರಡುವಮುಂಚೆ ಪತ್ನಿ ನೆನಪಿಸಿ ಕೊಟ್ಟಿದ್ದಳು ನಿಮ್ಮ ಸ್ನೇಹಿತನಿಗಾಯ್ತೆಂದು! ಪತ್ನಿಯೆಂಬ ಪಾತ್ರದ ಘನತೆಯಿದು! ಪತಿಯು ಮಾಡಿದ ತಪ್ಪುಗಳನ್ನು ಸರಿಪಡಿಸುವೆನೆಂಬ ಭಾವ!

ಅದು ದ್ವಾರಕಾ ನಗರಿ! ಪ್ರೌಢಾವಸ್ಥೆಗೆ ಬಂದ ಶ್ರೀಕೃಷ್ಣಬಲರಾಮರ ರಾಜ್ಯ! ಧರ್ಮಸಂಸ್ಥಾಪನೆಯ ಸೂಕ್ಷ್ಮಾತಿಸೂಕ್ಷ್ಮ, ಗುಹ್ಯಾತಿಗುಹ್ಯ ಲೆಕ್ಕಾಚಾರಗಳಲ್ಲಿ ತೊಡಗಿಸಿಕೊಂಡಿದ್ದ ಪರಮಾತ್ಮನಿಗೆ ಆ ಸುಧಾಮನ ಆಗಮನ ಅತೀವ ಸಂತೋಷವನ್ನುಂಟು ಮಾಡಿತ್ತು! ಸುಧಾಮನಿಗೂ ಹಾಗೆಯೇ ತುಂಬ ಸಂತಸಗೊಂಡ! ತನ್ನನ್ನು ತಾನು ಮರೆತ! ದೇವರನ್ನು ಕಂಡಮೇಲೆ ಅವನಲ್ಲಿಯೇ ಎಲ್ಲವನ್ನೂ ಕಂಡಮೇಲೆ ಅನ್ಯಚಿಂತೆಗಳೆಲ್ಲಿ ಅಲ್ಲವೆ! ಬ್ರಾಹ್ಮಣ ತಾನು ತಂದ ಅವಲಕ್ಕಿಯನ್ನೂ ಮರೆತೇಬಿಟ್ಟಿದ್ದ! ಆದರೆ ಕೃಷ್ಣ ಮರೆಯುವನೆ! ಸಂಬಂಧ ಅಷ್ಟು ಸುಲಭವಾಗಿ ಸಡಿಲವಾಗುವುದೆ! ಹಿಂದೆ ತನಗೆ ಕೊಡದೆ ತಂದ ಅವಲಕ್ಕಿಯನ್ನೂ, ಇಂದು ಕೊಡಲು ತಂದ ಅವಲಕ್ಕಿಯನ್ನೂ ನೆನಪಿಸಿದ! ತಾನೇ ಆ ಗಂಟನ್ನೆಳೆದು ತಿಂದ! ತನ್ನ ಪತ್ನಿಯರಿಗೂ ತಿನಿಸಿದ! ರುಕ್ಮಿಣಿ ಭಾಮೆಯರೀರ್ವರೂ ಈ ಸಂತಸದಲ್ಲಿ ಪಾಲ್ಗೊಂಡರು! ವರಮಹಾಲಕ್ಷ್ಮಿ ಸದೃಶರಲ್ಲವೆ ಅವರು! ಮನಸಾರೆ ಸ್ನೇಹಿತರಿಬ್ಬರೂ ತಮ್ಮ ಬಾಲ್ಯದ ಘಟನೆಗಳನ್ನು ಹರಟಿದ್ದೇ ಹರಟಿದ್ದು! ಆದರೆ ಏನು ಆಗಬೇಕಿತ್ತೋ ಅದು ಆಗಿಹೋಗಿತ್ತು! ಕೊಡೆನೆಂದು ಅಡಗಿಸಿದುದು ಕೊನೆಗೂ ಒಡೆಯನಿಗೆ ಸೇರಿತ್ತು! ಅನಂತದಂತೆ ಭಾಸವಾಗುತ್ತಾ ಮೋಡವೆನಿಸಿದುದು ಮತ್ತೆ ಆಗಸವಾಗಿತ್ತು. ಮೋಡ ಕಬಳಿಸಿಯೇ ಬಿಟ್ಟಿದೆಯೆಂದುಕೊಂಡ ಸೂರ್ಯ ಮತ್ತೆ ಹೊಂಬಿಸಿಲನೊಡನೆ ನಗಲಾರಂಭಿಸಿದ್ದ! ಆಗಸದ ಅಂಗಳ ಹುಣ್ಣಿಮೆಯ ಚಂದ್ರನಿಗೆ ಕೋಟಿತಾರೆಗಳ ಕಲರವಕ್ಕೆ ಮತ್ತೆ ಸಿದ್ಧವೆನಿಸಿತ್ತು! ವಸುಧೆಯನ್ನು ಆವರಿಸಿದ್ದ ಬಿರುಮಳೆ ಶಾಂತವಾಗಿ ಹಸಿರ ಸಿರಿ ಸಮೃದ್ಧಿಯಾಗಿತ್ತು! ಅನ್ಯ ಚಿಂತೆಗಳು ಅನನ್ಯದಲ್ಲಿ ಕರಗಿ, ಅನನ್ಯವೊಂದೇ ಉಳಿದಿತ್ತು! ಅನ್ಯವಲ್ಲದ ಅನ್ಯವಿಲ್ಲದ ಅನನ್ಯವೊಂದೇ ಹೊಳೆಯುತ್ತಿತ್ತು!

-ಕೃಷ್ಣಪ್ರಸಾದ್

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Bladder Manufacturing – Part 1

Introduction:

Tyre curing bladder is used in tyre manufacturing process as curing medium. Curing bladder is very important component of tyre curing press. It is the rubber membrane between tyre inner part and steam or water. Steam is passed through bladder and temperature is transferred through bladder to the tyre in curing. Bladder undergoes severe expansion and contraction, temperature changes during tyre curing process. Bladder has to withstand these variations without puncture or failure for several tyre curing cycles. Hence, curing bladder manufacture and use plays very vital role in tyre curing process.

Butyl rubber is widely used for bladder manufacturing due to its high temperature resistance, low permeability gases and water vapours. It also has good oxygen / ozone resistance. The proper selection of butyl polymer, compounding materials in the bladder formulation, tighter process control is required for having high durability, service life of bladder.

Performance of tyre curing bladder plays very important role in tyre curing. As the performance of bladder is improved, factors such as a) tyre curing efficiency b) tyre curing productivity c) durability of bladders could be maximised. Any premature failure of bladder costs scrapping of several tyres, loss of productivity.

Types of curing bladders

Cylindrical type

Barrel

Omega type

Omega

Torroidal type

Torroidal

Conventional wall type

Torroidal type

Closed end type

Cylindrical type bladders normally used in bias type tyres.

Omega shape bladders are used in truck radial tyres

Torroidal shape bladders are used in passenger radial tyres

Bladder design also based on tyre curing presses – Slide back press or Auto form bladders and Tilt back press or Bago Matic press bladders

Bladders are manufactured by compression moulding and injection moulding.

Curing bladder performance requirements

Curing bladder is a cylindrical bag of rubber is mounted on the lower section of the tyre curing press and forms part of the press and mould assembly. The green unvulcanised tyre is placed on the bladder in the bottom half of the mould. When press is closed, bladder is expanded and green tyre is pressed against the wall of the tyre mold. Bladder expansion takes place by supply of high-pressure steam, high pressure water, air or inert gas such as nitrogen. These curing media is introduced systematically by the programmed sequence in the press. The bladder

thus helps tyre to get shape of the mould and crosslinking of rubber by transferring heat from curing media to the tyre.

Normally three types of tyres curing cycle used in tyre curing process. a) Steam – high pressure hot water curing cycle b) Steam – inert gas curing cycle c) Steam – Steam cure cycle. Dome temperatures reach up to 190-200°C and bladder temperature up to 220-225°C.

Since bladder undergoes high pressure and high temperature, expansion, contraction during multiple cycles, bladder need to fulfil following properties.

a) A homogeneous, well mixed compound for ease of processing

b) High heat aging resistance

c) Resistance to degradation

d) Excellent flex and hot tear resistance

e) Low tension and compression set properties to maintain high elongation properties

f) Resistance to permeability to air, inert gas, and water vapour.

When above properties are achieved, bladder tend to give adequate service life which is measured as number of tyre cure cycles and it could be referred as pull-point where the bladder is removed before failure.

To be continued in next edition

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