# PAWApulse

# Special Edition Feb 2023

# DPTCon 2023

# 25th February,2023

# Polymer Technology one day conference at Karnataka (Govt) Polytechnic, Mangaluru In coordination with

# Polymer Alumni Welfare Association and Department of Polymer Technology


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# DPTCon. 2023

Polymer Alumni Welfare Association and
Department of Polymer Technology, Karnataka (Govt.) Polytechnic Mangaluru

*One Day Seminar on Polymer Science and Technology*

**Venue:** Auditorium, Karnataka Polytechnic (Govt.),
Kadri Hills, Mangaluru 575004, Karnataka

**Date:** Saturday, 25th February 2023

## Prelude

Department of Polymer Technology (DPT) was established at Karnataka Polytechnic Mangaluru in the year 1975. It has produced over 800 Polymer Technologists in last 4 decades, out of them; many have scaled great heights of success in their professional life. Polymer Alumni Welfare Association (PAWA) has been created and registered in the year 2017 by these professionals with the goal of joining hands with institution, for enriching the quality of Polymer Technology education in KPT. This well governed Alumni platform has been closely working with KPT to add value to the academics, improving the infrastructure, guiding & mentoring of the students, to be better professionals once they are out of their academics.

PAWA along with KPT conducted their first Polymer Technology Conference during the year 2017. Technology and Industry updates were brought to the table and discussed to enrich the Polymer Faculty and students. Engaging the Polymer Industries during the first conference, PAWA took the responsibility of improving the infrastructure of Rubber Technology Lab with additional equipment and refurbishments.

This being the second Polymer Technology Conference; PAWA is planning to take up similar responsibility of improving the infrastructure of Plastic Technology Lab. Through this conference, along with deliberations on the latest technology developments, we would like to engage the industries & donors to enhance the academic infrastructure. The estimated budget is over Rs. 15 Lakhs. With your active participation and whole hearted contribution, we are sure to meet our goal.

All are cordially invited to this milestone event. We plan to share YouTube link for the benefit of those who may be constrained to attend in person.

**"Let Us Polymerize"**

# PREFACE

"Greatest good for the largest numbers" is what drives our alumni association. It is in this spirit that our Polymer Alumni Welfare Association (PAWA) seeks to promote technical knowledge sharing exercise thereby creating career building avenues for outgoing Polymer technology Diploma holders (DPT) of our esteemed alma mater, Karnataka Polytechnic, (KPT) Mangalore. In order to achieve this broader objective, we at PAWA have set out to organise this second DPTCon -2023 on Saturday, the 25th February.

It is quite pertinent to remember here that in our first DPTCon held on 19th August 2018, we had set out to and succeeded in establishing a fairly well equipped Rubber Processing lab at KPT. During the daylong event, over 150 attendees including Alumni, students and industry representatives had witnessed various Technical presentations and inspiring talks despite extremely inclement weather conditions. We all can proudly declare that the memories of that occasion has remained fondly etched in our minds.

This time round, we have raised the bar and made some conscious efforts to bring in qualitative and quantitative improvements in several aspects. Whereas the favourable weather during this event is one of the definite positives, inclusion of multiple aspects like Guru Vandana, Poster contest, Plastic Processing Lab inauguration apart from presentation of technical papers from Alumni and a plenary session by experts has given a wider perspective to this conference.

We are happy that Dr. Aji is well known technical expert in Rubber mixing & processing accepted our invitation as chief guest of the day. We are equally blessed to have sponsorships of different kind from many leading organizations whose placards will be flaunting on the screens of the auditorium as well as in the pages of this souvenir.

A detailed program schedule and peep at the events planned is appearing in the next pages. Suffice to say that going through this issue will be an experience to cherish for all of us. There are conference proceedings & paper abstracts are published for the benefit of the fraternity.

It is a great honour for me to be actively involved in organising this pleasant event which will also be live streamed thanks to Suddi Bidugade press team.

The souvenir will be published in our web page www.kptpawa.org along with updates from the DPT Con 2023 updates . Our page contains activities of PAWA & members list who are among the stalwarts of many industries & young / energetic young achievers too.

We request everyone to read this souvenir & give feedback to editor through email ……..or to our secretariat email…….

Lastly, we heartily thank each one of you who are directly or indirectly involved in making mega event a success story.

Happy Reading

M. Gopalakrishna Bhat
Joint Secretary. PAWA

Senior Manager – Technical BKT, Bhiwadi

# Program Schedule

| Sl. No | Time | Event | Responsibility |
|---|---|---|---|
| 1 | 9:30 to 10.30 | Guest Invite with brief introduction | MC |
| 2 | | DPTCon Inauguration -Prarthane | Students |
| 3 | | Welcome Note | GKB |
| 4 | | Lightening the Lamp | Chief Guest |
| 5 | | Awarding students for academic achievements | Principal |
| 6 | 10:30 to 10:45 | Secretary Updates | Sanjay Rao |
| 7 | 10:45 to 11:00 | Polymer Laboratory Opening | Principal and Ex. Principal |
| 8 | 11.00 to 11.15 | *Tea Break* | |
| 9 | 11:15 to 11:30 | Souvenir Launch | Chief Guest / PAWA President |
| 10 | 11:30 to 12:00 | From the Cash Keeper's books | Ashwin Shetty |
| 11 | | Current DPT Academic Affairs | Santhosh Kumar (HoD) |
| 12 | 12:00 TO 13:15 | President Speech | Sri Ganesh |
| 13 | | Chief Guests speech | Chief Guest |
| 14 | 13:15 to 14:00 | *Networking Lunch* | |
| 15 | 14:00 to 15:00 | Cultural Program by Students and Alumni Members | |
| 16 | 15:00 to 16:30 | Technical Paper Presentations by various scholars and experts (inclusive Tea Break) | |
| 17 | 16:30 to 17:15 | Plenary discussions and Way-forward plans | |
| 18 | 17:15 to 17:30 | Valedictory | MC |

**Note: Poster contest will run in parallel in adjacent hall**


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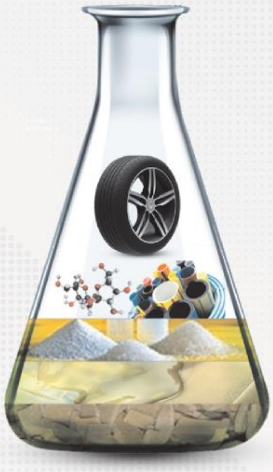

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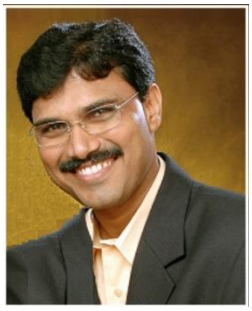
## Greetings from the desk of KPT Principal



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Karnataka Government Polytechnic popularly known as KPT a beacon of knowledge and excellence. It can truly claim to be shaping the future while preparing the technocrats of tomorrow. With all other popular diploma courses, it is the one and only polytechnic in the state having a special diploma course called Polymer Science and Technology. With this introduction about KPT today I am very much privileged to address on the eve of "DPTcon 2023", a Seminar on Polymer Science and Technology by Polymer department alumni PAWA. Here let me take this opportunity also to mention my deep sense of appreciation for the PAWA members who planned this great event second time.

Now in this address from the academic point of view think it is the right time to share my experience concerned to the topic during recent admission time after me taking the charge of Principal. What is Polymer? what my son can do after completing this course in which he is not interested because it is his last choice. This is the query from one of the parents during admission of their son who got Polymer Course as of no other choice. This query made me to explore the Polymer Science and Technology first time where my field is related to Electronics and Computers. In this quest got fascinated after exploring the world of Polymer by googling for several hours just to answer to the query of that parent. But after that the question raised within me is why this great course is not the first choice for admission and not mesmerizing and attracting the budding aspirant in the field of technical education. Why today's society not aware of the role played by Polymer Science and Technology in everyday life. Is it because for them the Polymer world is just limited to plastic and rubber. Why is it not familiarized in educational society that the concept of the polymer is one of the great ideas of twentieth century chemistry which is nothing but macromolecule and even spread rapidly into many areas of the natural sciences and technology. Even though within the life sciences it fostered the emergence of molecular biology through the study of natural macromolecular substances such as proteins, nucleic acids, and polysaccharides and even in engineering, a series of successes in commercial polymer synthesis established a new sector of the international chemical industry, devoted to producing and applying many more polymeric materials why we failed to attract the students into this field of study.

Recent years the department of technical education in Karnataka started many new diploma courses in the field of emerging technologies based on popularity within the student community. But why it is leaving behind the great emerging Polymer Technology. Is it because it failed to gain popularity? If so, then what are the reasons. Let me take this opportunity and present this challenge in front of our experts and alumni during coming seminar to discus and analyse the status and to come out with ideas to make the Polymer Science and Technology is the most popular domain in the campus of technical education. Hope this DPTCon-2023 with all its vision will be a great opening for this too with grand success.

With these words let us Polymerize the future.

Thank You and Looking forward with great hope to the polymerized future.

## From the desk of Head – Department of Polymer Technology, Karnataka (Govt) Polytechnic, Mangaluru

**Mr. Santosh Kumar – B.E. (Polymer Science and Technology – SJEC, Mysore); D.Polm.Tech.**

It gives me immense pleasure that **Department of Polymer Technology** and **Polymer Alumni welfare association (PAWA)** is jointly organizing a National Conference on February 25th @ **Karnataka (Govt) Polytechnic**, Mangalore.

I am extremely happy to be an integral part of DPTCon 2023 Conference as a Faculty coordinator and one of the trustees of PAWA. I am very much pleased to pen down few lines on Department of Polymer Technology and the journey of PAWA in uplifting and supporting the Department and Institution.

**Diploma in Polymer Technology** was started, in our state in the year 1975, and Karnataka (Govt) 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, hence it has produced technically sound Polymer Technologist who have reached many top positions in the field of polymers. Polymer Technology is one of the emerging courses, with great opportunities for Research, Employment and Entrepreneurship.

**Polymer Alumni welfare association (PAWA)-**

"**Alumni are our most valuable supporters and our best ambassadors**."

**PAWA** registered in 2017 is a platform created by like-minded Alumni for this polymer community from this Diploma course to enhance the theoretical and practical skills amongst the new generation students with value addition on technologies like Rubber, Plastic, composites and adhesives and to take the department to still greater heights. PAWA is governed by a very dynamic and vibrant Alumnus team having a clear vision and mission of meeting the growing requirements in overall growth of the students as per the industry requirements. In terms of providing scholarship for the deserved students, providing polymer related books, Articles, Magazines, Study materials, providing AMC for laboratory, giving technical talk by the experts, upgrading the labs with advanced machineries and testing equipment's.

I am confident that this conference will indeed generate a lot of interest among the students to explore and pursue their carrier, thereby bringing laurels to our Department, Institute and developing our society as a whole.

I hope in future the new generation of PAWA will join hands for the enrichment of PAWA and our Department.

**"Special Thanks to the entire team of PAWA"**

**Best Wishes**,

**Santhosh Kumar**

**Message from founder – President PAWA and Chairman Technical Committee DPTCon Feb 25th**

**Mr. Vasudeva Rao** – ***D. Polm. Tech Rubber, L.P.R.I (London); M.A (Socio), FIRI***
***Former D.G.M. Technical- JK tyres, Mysore unit; Former Secretary General – Indian Rubber Institute.***
***Presently: Advisor -Indian Rubber Institute***

I am extremely happy to be an integral part of DPT Con 2023 Conference which is jointly organized by Polymer Alumni Welfare Association (PAWA) and Dept of Polymer Technology, Karnataka (Govt) Polytechnic, Mangaluru (DPT-KPT). This one-day conference is organized on 25th Fab, 2023 with the wholehearted support of all the Rubber & Plastic fraternity while establishing the full-fledged Plastic Process laboratory in the premises of Dept of Polymer Technology for the benefit of upcoming students. The proceeds being collected in the form of Donations / Sponsorships will be utilized for this noble cause. To achieve this target all our beloved Alumnus both from India and abroad are exercising continuous efforts and it is my prime duty to convey my sincere gratitude to those who supported this event physically & financially. It is learnt that the helping hands of donors are being extended generously by Rubber Community and this way indeed, the PAWA could focus to achieve their main objective and mission of establishing the Plastic Processing Lab in association with the Dept of Polymer Technology. I wish DPT Con 2023, a resounding success.

With Warm Regards,

S. Vasudeva Rao

## Message from the desk of President PAWA

## Mr. Sriganesh U.P.

**Regional Head –RheinChemie – Lanxess – Rubber Additives Division.**

I am extremely happy to be associated with DPT Con 2023 conducted jointly by Polymer Alumni Welfare Association & Department of Polymer Technology **(DPT),** Karnataka Polytechnic, Mangalore being held at KPT Auditorium on 25th Feb 2023.

Polymer Alumni Welfare Association (PAWA) is governed by a non-profit trust (PAWT) & active since Year 2017. It is the organisation run by Alumni members of Polymer Technology, KPT Mangalore for the benefit of students from Diploma in Polymer Technology. PAWA is supporting students to gain expertise in the field of Polymer Science & Technology by setting /Upgrading available labs, Conducting skill development activities, Online Lectures, Communication programmes for the students by experts & Alumni members. The first of its kind DPT Con was held in year 2018 & the funds generated was used to develop & Upgrade Rubber Processing lab at the Institute. PAWA also started providing scholarships to the needy students of Diploma in Polymer Technology.

With the help from the institute Principal **and** PAWA managed to get unused Plastic processing equipment from the department of Industrial Training **Institute (ITI),** Mangalore with due approvals from Department of Technical Education, Bangalore. With PAWA taken responsibility to refurbish this equipment for the benefits of students & therefore organising one day conference DPT Con 2023 to support this noble cause & encourage student to participate /enhance their capability to be ready for Industrial deployment. I am glad that there are several technical talks, Workshops, Poster Competition, Plenary session is organised for the day.

PAWA is thankful to all Donors, Sponsors, and Supporters & Well-wishers who came forward for this noble cause. We welcome continuous support, advice & guidance from all Polymer fraternity for the success of students of DPT at Karnataka Polytechnic, Mangalore.

I convey my good wishes to all Alumni members & the participants associated with DPT Con 2023.

Sriganesh U P

President

PAWA, KPT Mangalore

**Message from Chief Editor "PAWApulse" and General Secretary –PAWA-I term (2016 -2020)**

**Er.Anil Pais** – ***D.Polm. Rubber; D.I.R.I.; A.M.I.E.(I); M.I.E.; C.E. - Mech. Engg.; M.S.-Quality Management (BITS,Pilani); Former Head – Quality Assurance – Apollo Tyres,***

It indeed gives me immense pleasure to say that we, PAWA in collaboration Department of Polymer Technology of Karnataka (Govt) Polytechnic would be conducting second DPTCon on 25th February,2023. The Motive behind the conference is to raise the fund for the upliftment of Polymer Lab for the benefits of the students and also to have all the polymer fraternity to gather together for a day to share the technological innovations, improvements, Products related to polymers. The conference shall also make a platform to have contact between Polymer Science department and various technocrats running their businesses or services across the globe. This contact would benefit students passing out of college to get better career opportunities among all organizations. I thank all the individuals, institutes, organizations for contributing for the noble cause in the form of donations, services rendered for the conference. I wish all the best to the polymer technology alumni and Karnataka (Govt) Polytechnic for the conference.

With Best Regards,

Er. Anil Pais

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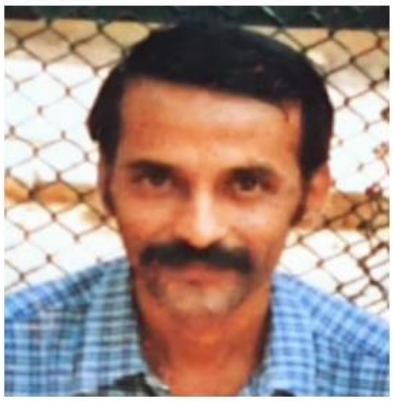

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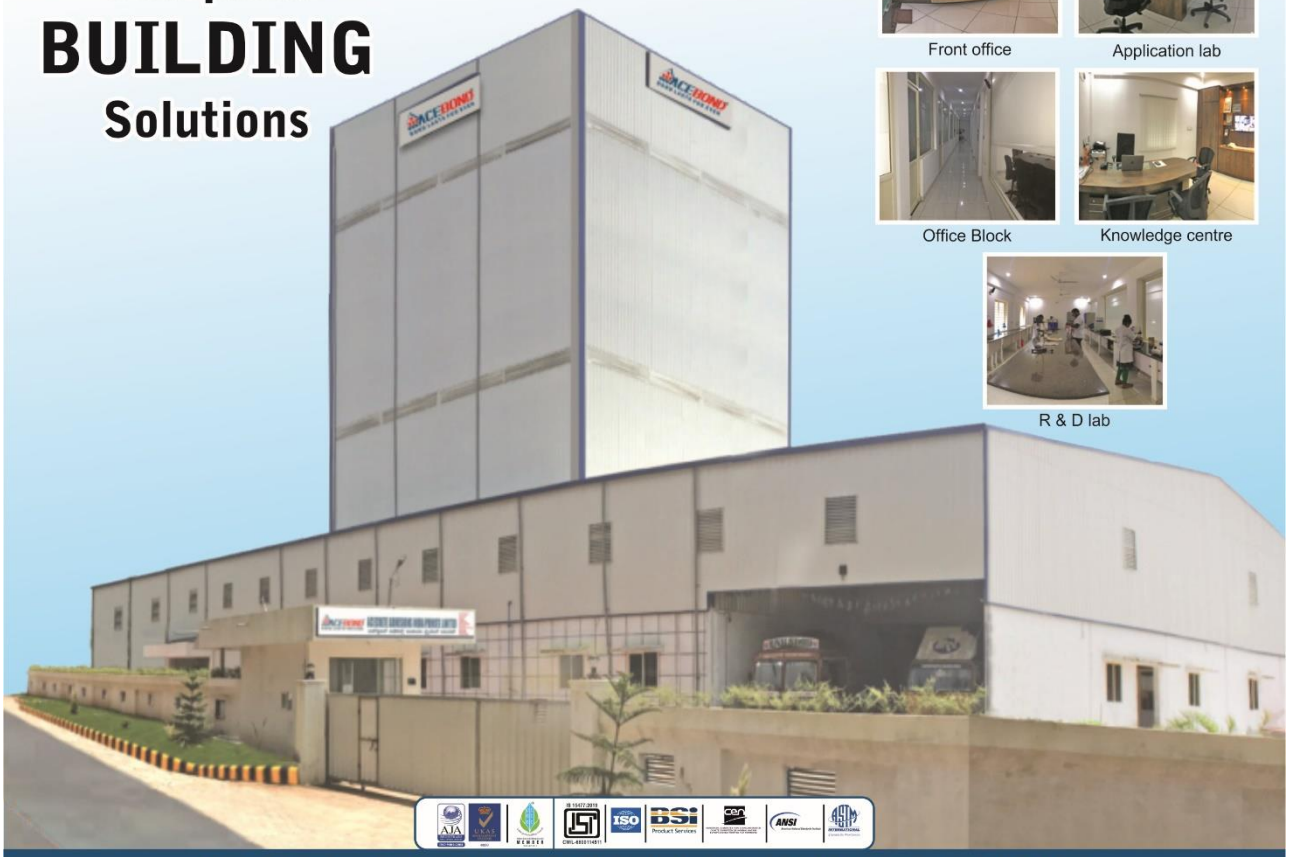

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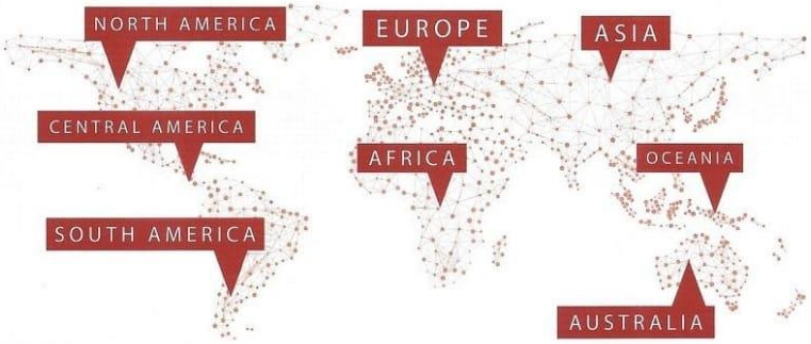


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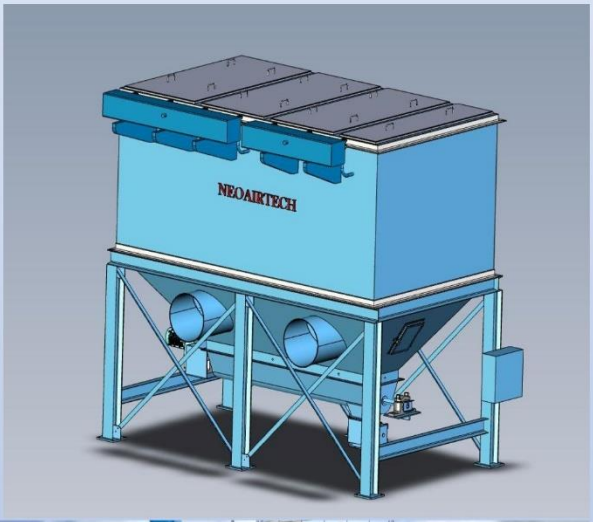


Cartridge filter for Banbury Mixer

Filter system installation picture

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# Brief About Historic city of Mangaluru

Mangalore, officially known as Mangaluru, is a major port city in the Karnataka State. Mangalore was named after the deity Mangaladevi, the presiding deity of the Mangaladevi. Mangalore is located between the Arabian Sea and Western Ghats about 352 km west of Bangalore, the state capital, 20 km north of Karnataka – Kerala border, 297 km south of Goa. Mangalore is the state's only city to have all four modes of transport – Air, Road, rail and sea. The city developed as a port in the Arabian Sea during ancient times, and has since become a major port of India that handles 75% of India's coffee and cashew exports. It is also the country's seventh largest container port. Mangalore has been ruled by several major powers, including the Kadambas, Alupas, Vijayanagar Empire, Keladi Nayaks and the Portuguese. The city was source of contention between the British and Kingdom of Mysore rulers Hyder Ali and Tipu Sultan, and was eventually annexed by the British in 1799. Mangalore remained part of the Madras Presidency until India's independence in 1947 and was unified with Mysore State, now called Karnataka in 1956.

Mangalore is one of the fastest developing cities in India and also the administrative headquarters of the Dakshina Kannada (South Canara) District. It is a commercial, industrial, business, educational, healthcare, and start-up Hub. The city's international airport is the second – largest and second – busiest airport in Karnataka. Its landscape is characterised by rolling hills, coconut palms, rivers, and hard laterite soil. It is the richest city in Karnataka after Bangalore. Mangalore ranked India's 13$^{th}$ place in top business destination and in Karnataka after Bangalore. Mangalore is growing like Dubai of South India in terms of Highrise Buildings & Skyscrapers. The city houses some of the tallest buildings in South India. India's first 3D planetarium with 8K resolution display is located in the city. Mangalore is included as one the cities in the smart cities mission list and above mean sea level. It has tropical monsoon climate and is under the influence of the southwest monsoon. In 2017, Mangalore was ranked 48$^{th}$ best city in the world to live in by a US survey, and the only Indian city in the top 50.

Mangalore is considered the heart of a distinct multi-linguistic cultural region, the homeland of the Tulu – Speaking people. Mangalore is a multi-lingual city where several prominent regional languages such as Tulu, Konkani, Kannada, and Beary are spoken. The city is known as Kudla in Tulu, Kodial in Konkani, Maikala in Beary, Mangalapuram in Malayalam, and Mangaluru in Kannada.

The districts of Dakshina Kannada and Udupi are considered to be a major education corridor in India. Kasturba Medical College which was established in 1953, was India's first private medical college and Manipal College of Dental Sciences was established in the city in 1987.

**Mangaladevi Temple and Godess Mangaladevi in Mangaluru**

**The Beautiful Mangaluru city along with Arabian sea**

# Karnataka (Govt.) Polytechnic – KPT

Karnataka (Government) Polytechnic known as KPT was established in 1946 in a rented building in Pandeshwar under the government of Madras State. Since 1954, Polytechnic has started functioning at its present campus in Kadri Hills, Mangalore. There were four main three-year diploma programmes in civil engineering, mechanical engineering, electrical engineering, and automobile engineering at the time of starting. Later, the current courses were supplemented with the diploma programmes in Chemical Engineering, Polymer Technology, Electronics and Communication, and Computer Science. The polytechnic's campus spans 19 acres in total. The institute benefits the public by providing engineering education. Karnataka Polytechnic College is one of the oldest technical Colleges in the region.

A glimpse of Karnataka (Govt.) Polytechnic, Mangaluru

# Department of Polymer Technology – a brief history on formation of the course and memories of students of earlier few batches

After establishment of Karnataka (Govt.) Polytechnic in 1946, Only four major Diploma in engineering courses such as Mechanical Engineering, Automobile Engineering, Civil Engineering and Electrical Engineering had been introduced. Later on, as years passed by a need was felt to introduce chemical engineering and Polymer Technology courses since these engineering disciplines also formed a major core engineering course.

Needless to say, the polymers cover every nook and corner of the globe, take it in paint industry, Rubber Industry, Composite industry, Plastic industry. One would find at least one out of two parts / products made from polymers, say household items to healthcare systems to high rise buildings to roads, rails to automobiles to air crafts to space crafts. The growth of polymer products had been forecasted in early seventies and thus Diploma in Polymer Technology course came into existence in 1975 keeping in mind the future developments for next fifty years. And first batch of Polymer Technology got introduced in Karnataka Polytechnic in the year 1975. Surprisingly, the course was introduced without any necessary infrastructure and teaching staff. The course was declared open in the year 1975 and admission was given to twenty students for the first batch. The course duration was three and half years unlike other branches which had duration of three years. The polymer technology course was different from other courses, where former offered in semester mode with seven semesters. The polymer Technology course was blending of theoretical classes as well as industrial hands-on training during course often called as Sandwich course. The first two semesters were of theoretical classes taught by faculty of chemistry department and during third semester, students needed to visit local small scale rubber and plastic industries to understand the various products and manufacturing processes. In the sixth semester, students assigned to attend training with large scale rubber or plastic product manufacturing industries for the sixteen-week period, during which students were eligible for stipend.

## Faculty of Polymer Technology Department

Initially, since the Diploma in Polymer Technology course was newly introduced, it was a herculean task to find out experts in polymer technology course or professors who were experienced in this discipline. And because of this, the students of first few batches had to face difficulties in getting proper guidance, lecturers and infrastructure like classrooms, well equipped polymer / chemical laboratories unlike today. The students had to depend on only very few Rubber Technology / Plastic Technology books available in library and make a copy of that for self-study. Students also had to depend on couple of reference books from USA, which they got as complimentary copies through individual interactions and follow-ups. The best part of the course was that the students had to undergo sandwich training in industries during the course where they would get hands-on experience on rubber technology and plastic technology under the guidance of experienced industry personnel.

It would be unfair if we don't mention the name of Dr. S.M. Shetty then called "Prathama Guru" of Polymer Technology Course by students of first few batches. Dr. Shiva M Shetty who was working as technical director at M/s Canara Rubber, Mangalore voluntarily agreed to deliver lectures on rubber technology and manufacturing as visiting lecturer. It is he who conceptualized this course. As he was working with the above mentioned organization, he had to take classes late in the evenings for the students of polymer technology. Students were eagerly waiting for his classes from 5pm to 7pm as he was only a sole lecturer in Polymer Technology. In the later batches, Late R.P. Haran had been appointed as department head in 1977 after continuous follow up of students and principal with the technical education board. After untimely demise of Prof R. P. Haran, Mr. Babu Devadiga who had completed his diploma in polymer technology in 1981 got appointment as a full-time lecturer and Head of Polymer Technology department.

During tenure of Mr. Devadiga as a department head, Mr. Dinesh Shenoy (DPT 1987 Batch), Mr. Shubhakar Nayak (DPT 1982 Batch) and Mr. Naveen Bangera (DPT 1982 Batch) served the department as a guest lecturers, and Late Mr. Amin and Late Mr. Laxman served in Polymer lab. Later, when Mr. Devadiga got promotion as Principal, the HOD post was filled by then dynamic and vibrant Sushanth who had completed his B.E. in Polymer Science and technology from SJCE, Mysore. During his tenure, the polymer technology started seeing some improvements and momentum and he managed to bring some old students and seniors into his network and confidence igniting boom at DPT.

While, it was his vision and foresightedness that envisaged the brighter future of DPT, the fate had something bitter for Sushanth who met with a sudden road accident and later succumbed to his injury.

The gap of class room training, lack of infrastructure in terms of practical through polymer labs felt by the polymer professionals who had completed their diploma in polymer technology from 1978 to 1999, they as a alumni wanted to facilitate the students of later years after 2016 to get proper guidance, training and mentoring so that they would develop necessary skills, training and knowledge at par with other institute / industry. And hence, few alumni of polymer technology came together and thought that they need to help the student polymer technology to get the facility which they hadn't got during their college days, and formed "Polymer Alumni Welfare Association" shortly called as "PAWA" after sudden, untimely, unfortunate demise of then head of the department Sushant and Thus PAWA came into existence in the year 2016. The active members of PAWA voluntarily came forward to build the PAWA and Mr. S. Vasudeva Rao – President, Mr. Purushotham Kini – Vice President, Mr. Anil Pais – General Secretary, Mr. Ashwin Shetty – Treasurer, Mr. Santosh Kumar, Mr. Gopalakrishna Bhat, Mr. Sriganesh U.P., Mr. Rajesh Phadke – Members served PAWA relentlessly and formed a good foundation for PAWA. During Corona Pandemic, Mr. Manoj Lobo served as office bearer from PAWA and worked in DPT campus on behalf of PAWA for upkeeping the documents.

The momentum initiated by late Sushanth continued with full vigour by Present HOD, Mr. Santosh Kumar P. who has also done his B.E. in Polymer Science and Technology from SJCE, Mysore and Diploma in Polymer Technology, KPT. By active involvement of Mr. Santosh Kumar and with the full support of Mr. Harish Shetty as a Principal of Karnataka Polytechnic, active involvement of senior alumni professionals, the Polymer Technology Department has seen rapid development from 2017 in terms of facilitating lecturers, refurbishment of Polymer Lab, Composite Lab and now the newly developed Plastic lab and also conducting online classes during COVID era and physical classroom training post COVID. Thus ends the ode to a dream come true unfolding of Polymer Technology story.


The rare photographs of first batch of Polymer Technology Course in 1978

*Note: This information is purely based on facts and memories of earlier batches students Mr. S Vasudeva Rao (1978 batch), Mr. Yashavantha Katte (1978 batch), M.Gopalakrishna Bhat (1981 Batch), Mr. Raghavendra Udupa (1983 Batch ) and collection and edition of information to a readable write up by Er. Anil Pais (1995 Batch).*

## Thanksgiving and Gratitude message to our valuable team.

An Inspirer. An Empower. An Engager. These three characteristics are just a short sample of the many you demonstrate with your selfless support, guidance and giving your precious time in overall development of our department.

Too often we progress through the 'ropes of life,' and do not invest the time to express our gratitude and authentic value for the support which you so eagerly share for the development of our Polymer Department.

I hereby take this opportunity to share my gratitude to all my teaching and non-teaching staff for your valuable support which you have bestowed in developing our department as one of the best. With heartfelt gratitude I thank our present and past teaching staff- Mr. Shubhakar Nayak, Mr. Dinesh Shenoy, Mr. Naveen Bangera, Mr. Manoj Lobo, Mrs. Savitha Priya Pinto, Mrs. Sreeja M R, Mrs. Asha, Mrs.Preethi Shetty, Mrs. Shruthi.

And non-teaching Staff-Mr. Laxman Bira, Mr. Prajwal, Mr. Giriyappa.

It makes me feel authentically supported when you say, "Please let me know how I can be helpful" and genuinely mean it.

Thank you for being genuine.
With Gratitude and Thanks,

**Santhosh Kumar P**
Head of the Department
Department of Polymer Technology
Karnataka(Govt)Polytechnic,Mangalore.

# Polymer Alumni Welfare Association – PAWA


PAWA "Polymer Alumni Welfare Association", What we proudly call as PAWA. After untimely demise of Sushant in the year of 2016 who was then the head of the department of polymer technology, Karnataka polytechnic, A thought process came into the mind of many senior members of the alumni of Diploma Polymer Technology, Karnataka polytechnic that they should contribute something back to the polymer technology department from where they had started their career after completing diploma.

The main purpose of the Polymer technology alumni was that whatever they had gained during their work experience should be shared back to the department so that the students pursuing diploma in Rubber / Plastic Technology would get the maximum benefit by exposure to the existing updated technology in the field of polymer, professional experience gained, and also uplifting of polymer department.

With this in mind, fifteen number of alumni came together, donated / contributed predetermined amount of funds and **Polymer Alumni Welfare Association** came into existence in December, 2015. The initial members not only started contributing to the department by meetings, training and interaction with the students, but also started gathering contact information of all students who had passed and had completed diploma in polymer technology to increase strength of PAWA. After getting sufficient strength of members, PAWA was officially formed on 14th July of 2017 at office of Assistant commissioner for associations, Dakshina Kannada District, Mangaluru.

With the 15 Members in 2016, now the PAWA has shown the full-fledged growth to 350 members within a span of seven years and is growing exponentially.

During these years, PAWA has contributed mainly in terms of investment on time/Money & other resources:

1. Library enhancement, many members donated Rubber Technology, Plastic Technology Books, Polymer Technology Magazines, Soft Copies of Polymer technology articles. This helped the students to get access to the books which are unavailable in the main library, and gained knowledge.
2. Infrastructure like table, chairs and book shelfs.
3. Renovation of Polymer Technology class room by painting, and procurement of furniture.
4. Restored old non-operational machines, equipment in lab, by hiring specialized personnel in the mechanical and electrical field. PAWA borne expenses incurred for restoration of laboratory. The restoration of machines helped students to actually learn practically by operating machines in the lab.
5. One LCD projector donated to the department so that students can get the benefit with knowledge from the power point presentations during work shop and or training programs.
6. Polymer Technology conference named DPT Con conducted successfully in Karnataka Polytechnic Auditorium in the year of 2018. The students got the chance to interact with delegates from various polymer industries and got exposure to their technical talks. The main purpose of conference was to raise fund and interaction of students with industrialists and delegates.
7. Polymer Technology Alumni who have experience in the field of Rubber, Plastic, Fibre, Adhesives industries visited college on regular basis and shared their experience and knowledge with the students by interaction and training sessions from 2016 to 2021. The current pandemic situation also did not deter determination of PAWA, the members of PAWA continued training and interaction with the students in virtual mode.
8. As a special gesture during COVID 19 pandemic, PAWA donated two temperature sensors to the college.

9. The building which is allocated to run the Polymer Technology Department is old and in bad shape in college. PAWA with interaction with Head of the department and Principal, coordinated for the assessment of stability of building with the external agencies.
10. With the information of discontinuation of plastic technician course in adjacent ITI institution, and auction of old plastic machines and equipment, Core members of PAWA met related authorities in Bengaluru and persuaded for the approval to transfer the machines / equipment to polymer technology department. The machines are tentatively planned to be shifted and commissioned in September, 2021. The cost of transfer, restoration by repair shall be borne by PAWA.
11. Based on requirement of the college, and request from the principal, PAWA donated six desktop computers to the department.
12. In order to encourage meritorious and financially backward students, PAWA started Scholarship program from 2017 onwards. Three students are selected for each year and rupees 5000 shall be given to the students in the form of scholarship. So far Six students have been awarded with scholarships (Topper from each academic year)
13. In order to have easy access to the webinars, contacts with the alumni, research publications, openings in the industry, a website (www.kptpawa.org) is specially designed and successfully launched in February, 2021. The students who are pursuing polymer technology course and students who have just completed the course shall definitely get benefitted by the direct access to the required information from website sitting anywhere in the world.
14. Apart from this, PAWA is getting unstoppable with the commitment, dedication and never die attitude of many of the core members. The PAWA has planned a full-fledged conference DPT Con program in 25th Feb, 2023.
15. PAWA has also started its own quarterly newsletter named as PAWApulse from March 2022 and already published four newsletters. All the editions of the newsletter is available in the website.

In short, PAWA is a non-profit organization having received 12 A approval from IT dept. mainly formed to have connection between all the students, alumni of polymer technology from Karnataka polytechnic having a mission, vision and objectives as given below.

**Mission**

- To contribute to quality education in Polymer Technology through a well-structured curriculum and well-designed training programs, established through coordination between the Department of Polymer Technology and Alumni.
- To equip the students with recent trends in the development of polymers and polymeric products using appropriate techniques and software.
- To promote engineering spirit for product development through effective integration of design engineering and material technology.
- To develop analytical skills, leadership quality, and team spirit through a balanced curriculum and a judicial mix of co-curricular, extra-curricular, and professional society activities history.

**Vision**

To develop and strengthen ties between our Alumni and Department of Polymer Technology in KPT, by providing diverse tangible benefits including advanced technology inputs, career services, networking opportunities, special events & lectures, latest industry information thereby inspiring and enriching the students.

**Objectives**

- Establish a sustainable network of globally spread DPTians.
- To provide the liaison between the alumni & the college.
- To enable the alumni to participate & contribute to the overall development of the Polymer branch.
- To award 'Scholarship' to the deserving & needy students.
- To contribute scientific & technological advancements such as a fully functional machine lab.

**Activities and Improvements carried out by PAWA for DPT – KPT, Mangaluru**


**Refurbishment of Polymer Lab with the help of PAWA**

**Inauguaration of refurbished polymer lab and Visit by PAWA members to the lab**

**Glimpses of refurbished polymer lab**

## Classroom Lectures / Training by PAWA members at Department of Polymer Technology, KPT, Mangaluru.

S. Vasudeva Rao and Rajesh Rao delivering classroom lecture about Rubber Technology


Ashwin Shetty and Manoj Lobo delivering classroom lecture about Plastic and composites

## Glimpses of first Dptcon held in September,2018


S.Vasudeva Rao and Gopalakrishna Bhat giving speech during opening ceremony of Dptcon 2018


Initial Speech of Dr. S.M. Shetty and a Chat with Mr. Ajit Rai – MD of United Rubbers – Mumbai during DPTcon 2018

Anil Pais and Ashwin Shetty delivering technical talk


S. Vasudeva Rao and Rajesh Rao delivering technical Talk


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Ex Vice President : SCDCC BANK, Mangalore
Founder & President : Adarsha Vividhodhesha Co-operative Society Puttur, D.K.
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Mr K Seetharama Rai Savanoor
Correspondent & Managing Trustee
Er Ashwin L Shetty
B.E., M.B.A., M.S., D.P.T.
Son in Law of Founder
Administrator :
Student of Sri Sathya Sai Loka Seva Vidyakendra ALIKE
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Ex-Nato Defence Expert
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**First Term governing council members of PAWA – 2016 to 2021**

1. S. Vasudeva Rao – President
2. Purushathama Kini – Vice President
3. Anil Pais – General Secretary
4. Gopalakrishna Bhat – Joint Secretary
5. Ashwin Shetty - Treasurer
6. Sriganesh U.P. - Member
7. Santosh Kumar P - Member
8. Rajesh Phadke - Member
9. Rajesh Rao – Member
10. Sanjay Rao - Member
11. Dinesh Aithal – Member
12. Shubhakar Nayak – Member
13. Yashavantha Katte - Member

**Second Term Governing Council Members of PAWA – 2021 to date**

1. Sriganesh U.P. – President
2. Rajesh Phadke – Vice President
3. Sanjaya Rao – General Secretary
4. Gopalakrishna Bhat – Joint Secretary
5. Yashavantha Katte – Joint Secretary - Local
6. Ashwin Shetty – Treasurer
7. Santosh Kumar P – Joint Treasurer
8. Anil Pais - Member
9. Vijaykumar Shetty – Member
10. Leo Sequiera – Member
11. Rajpal Singh – Member
12. Prasad Gunjikar
13. M.R. Prabhu

**PAWApulse – A quarterly newsletter – Editorial Board**

1. Anil Pais – Chief Editor
2. S. Vasudeva Rao – Advisor
3. Sriganesh U.P. - Member
4. Gopalakrishna Bhat - Advisor
5. Sanjaya Rao – Member
6. Rajesh Rao - Member
7. Santosh Kumar P - Member
8. Raghavendra Udupa - Member
9. Ashwin Shetty - Member

# Journey behind establishing the "New Plastic Processing Lab"

Since 1978, the inception of the Polymer Technology Diploma course at KPT Mangalore, there was no Plastic Processing Lab in the Department. The only machine available was a Screw type Injection moulding machine, which was procured by the Purchase section of DTE in 1988.

Though the faculties were interested to establish a new Lab, there were no funds from the Govt. In the year 2020, there was a public auction of unserviceable machineries about to be held in our neighbour Institute, Govt. Industrial Training Institute Kadri Hills Mangalore. After discussing the need for the Plastic Processing Lab with the PAWA President and members, Mr Santhosh Kumar HOD of Polymer Department, and I approached to then Principal Sri Giridhar Salian of Govt. ITI and requested him to hand over / transfer all the Plastic processing machines of worth Rs. 21 lakhs (Purchase cost when procured in the year 1992) by paying the scrap value. Since both, the Institutes come under different Government Departments. there was a problem of seeking permission from the higher authorities and approval from the government. We collected the list of available machines and equipment and approached Mr Babu Devadiga, the then Principal of KPT Mangalore to write an official request letter to the Principal of Govt. ITI. The copies were sent to the Commissioners of both the Depts. for seeking permission. Since there was delay in response from the Commissioners, our PAWA President Sri Ganesh, Joint Secretary Mr Sanjay Rao, Governing Council Member Sri Rajesh Rao met the Commissioner of Colligative and Technical Education, Mr Pradeep IAS and also met the Commissioner of Dept. of Employment and Training Mr Harish IAS for official permission.

Again, after a month, our Team of PAWA met the above officials again seeking official approval. Ultimately by the regular follow up from our

team we were successful in seeking the permission, to transfer all Plastic processing machines available in Govt.ITI for free of cost.

Our beloved Principal Sri Harish Shetty allotted a space of 1,700 sq. feet and provided funds for shifting work of the said machinery. All the machines were shifted and erected at the new lab. Due to the Covid-19 pandemic, we could not raise much funds for the refurbishment of the machines. But after the post-pandemic, DPT Con 2023 was decided and to focus on refurbishment of all the machines with an estimated cost of Rs. 12 lakhs.

Mr Manjunath N. R. (Batch 1987) Alumni of PAWA donated one Plunger Type Injection Moulding machine, which is a new feather to the Lab. In addition, our present final year students and with the donor's contribution decided to donate a Rotational moulding machine to this Lab.

This new lab got the shape and was established with the great support of Mr Harish Shetty Principal of KPT Mangalore, and the President & GC members and all members of PAWA.

I am pleased to thank each and every one who directly and indirectly supported this noble cause.

By Shubhakar Nayak ;
( DPT 1982 Batch), B.E. (Chem. Engg.)
Lecturer
Department of Polymer Technology
Karnataka (Govt.) Polytechnic,
Mangaluru.

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High Speed Twin Die Head Polypropylene Blown Film Plant


Polypropylene / LDPE / LLDPE Film Plant with Opening Attachment


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Multi Layer A-B-C Blown Film Plant with haul off attachment


Three Layer with Stripped HMHDPE/LDPE/LLDPE Blown Film Plant


Three Layer HMHDPE/LDPE/LLDPE Blown Film Plant with Haul off Attachment


Two Layer with Three Layer (A+B+A) & (A+B) Single Die Head HMHDPE Blown Film Extruder


Two Layer Polypropylene Single Die Head Blown Film Extruder with Rotating Die Attachment


Two Layer with Three Layer Twin Die Head HMHDPE Blown Film Extruder


Rotating Guzzetting Machine


Pneumatic Punching Machine


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Cell No.9011008061
E-mail : lalit.tawde@lanxess.com


Kushakar Shetty
Partner
Mob: 9886362453
Nandakishor M
Partner
Mob: 8867820014
KNWOOD INDUSTRIES
(Manufactures of PVC Shoe sole)
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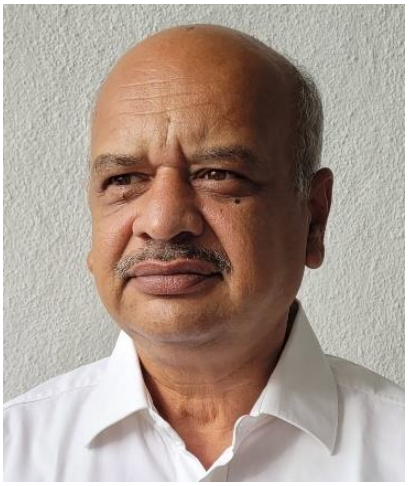
# Abstract of Technical Papers

**DPTCon – 25th February,2023.**

## A Note on Biodegradable Polymers by Dr. Ajay Karmarkar



Dr. Ajay Karmarkar is presently associated with KONSPEC as a Technical Director having more than thirty years of experience in polymer industry. Dr. Karmarkar has completed his MSc in Physics from Bhopal University and later on completed his MSc in Chemical Engineering from premier institute – Indian Institute of Science, Bangalore, later he pursued his doctoral degree PhD in Chemical Engineering from Indian Institute of Science, Bangalore.

Dr. Karmarkar had initially worked as a scientist with Institute of wood science and technology, bangalore from 1992 to 2014, before joining as a Director Technical with Konkan Speciality Polyproducts Pvt Ltd, Mangalore in 2014.

Dr. Karmarkar has his research interests in the areas of Natural fibre filled composites, Biodegradable Plastics blends and alloys, Starch based Plastics, Functionalization of Polymers, Reaction Engineering.

Dr. Karmarkar can be reached on his mobile number +91 9980606406/+91 9341239241 and or e-mail "ajay.karmarkar@konspec.com"

**Abstract - A note on biodegradable polymers, alloys and master batches for injection moulding, thermoforming, biaxially oriented films, and for blown film applications**.

Biodegradable polymers are plastics which can be used as conventional plastics. The degradation of the polymer on disposal in composting environment results in the formation of natural byproducts such as oxygen, nitrogen, carbon dioxide, water, biomass, and inorganic salts and will not leave any persistent or toxic residues. The decomposition is caused by the action of microorganisms commonly existing in natural

environment and do not require special treatments like use of enzymes. Such plastics will have reasonable shelf life and will degrade only when disposed in a composting environment. There are several national and international standards for certifying biodegradable and compostable plastics like ASTM D 6400, EN 13432 and ISO 17088. India has adopted ISO 17088. A common misperception is that "biobased" and "biodegradable" are related. They are not. A biobased plastics, also sometimes referred as 'bioplastic' has all of its carbon produced from a renewable plant (or sometimes animal) source, but it may not be necessarily biodegradable (e.g. Bio-PE), and a biodegradable plastic may not necessarily be biobased (e.g. PBAT), but some biodegradable plastics may entirely be made from renewable carbon (e.g. PLA).

As per IS 17088, COMPOSTABLE PLASTICs are defined as plastic that undergoes degradation by biological processes during composting to yield $CO_2$, water, inorganic compounds and biomass at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue.

To summarize, biodegradable plastics are those that degrade into carbon dioxide, methane, water, biomass and inorganic salts etc. through biological action in a defined environment and in a defined timescale (>90% conversion of organic carbon into carbon dioxide within 180 days as per all standards). This does not mean that remaining 10% can be non degradable plastics. The standard requires that for organic constituents that are present in the material at a concentration between 1% and 10% (by dry mass), the level of biodegradation shall be determined separately. The biodegradation test includes the conversion of the polymers into biomass and humic substances in addition to carbon dioxide. The standard prescribes a maximum concentration of regulated metals and other toxic substances. It also mandates separate tests of finished compost to ensure that there is no adverse effect on ability of compost to support plant growth.

Biodegradable polymers have gained considerable amount of interest in last two decades, predominantly due to two major reasons: firstly environmental concerns, and secondly the realization that our petroleum resources are finite. The development of biodegradable and compostable polymers using monomers from natural resources provides a new direction to develop materials which are - 'eco-friendly'. The polymers which have seen early commercial success are (1) polylactic acid (PLA), (2) poly(butylene adipate-co-terephthalate) (PBAT), an aliphatic–aromatic copolyester, (3) polyhydroxybutyrate (PHB) and their analogs, essentially produced from microbial fermentation. All these classes of plastics are biodegradable and compostable (as per ASTM D 6400 and EN 13432 ISO 17088 standards) and are ideal material for variety of applications like food packaging (thermoformed containers), carry bags, moulded products, mulching films, biaxially oriented films, etc. Replacing conventional plastics with bioplastics provides great opportunity to

reduce usage of petroleum based resources and to provide customers with an option to go green and be seen as responsible. These material attain special importance in cities where plastic products like carry bags and disposables are getting banned.

One of the main disadvantages of biodegradable polymers obtained from renewable sources is their unsatisfactory mechanical properties for specific usage. Another major factor which reduces the usage of such material is the cost. KONSPEC has developed bioplastic alloys and masterbatches which are made from completely biodegradable and compostable plastics and can meet technical requirements for various applications. Depending on the application and type of processing equipments, polymers as supplied by manufacturer can be used with KONSPEC master batches of specially designed compounds may be more suitable for certain specific requirements. KONSPEC has developed:

- Compounds for injection moulded products requiring high impact strength
- Compounds for high heat resistance for thermoformed food containers, moulded containers, coffee cups, and other products like cutlery
- Compounds for film applications where certain specific properties are required
- Compounds for highly transparent biaxially oriented films
- Compounds for high heat resistance (it will be opaque) cast films

These compounds can be processed on regular processing instruments with slight changes in processing parameters.

*Not to confuse with Oxo-biodegradable plastics. They are made from conventional polymers such as PE (polyethylene), PP (polypropylene), and PS (polystyrene), to which extra ingredients are added, generally, small amounts of metal salts (not heavy metals) and tested according to ASTM D6954 or BS8472 or AFNOR Accord T51-808 to degrade. They are not bio-degrade in the environment.*

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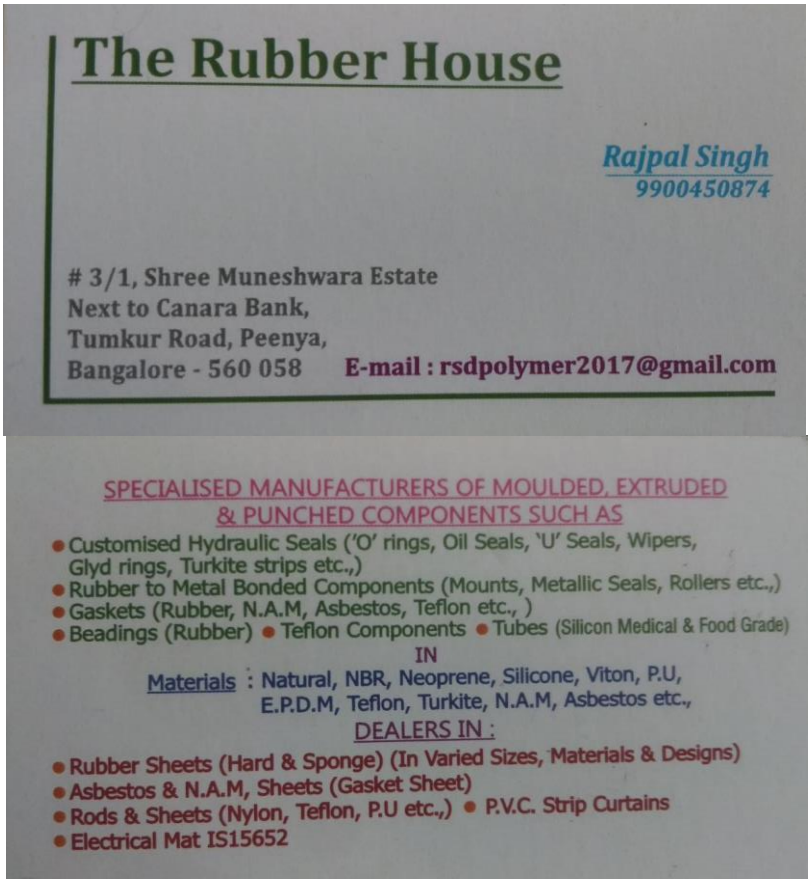

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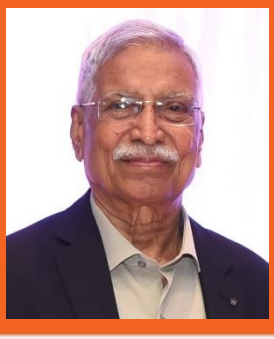
# Recycling of vulcanized rubber scrap by devulcanization process



By
Mr. P. Selvam - M. Tech ( Rubber technologies, IIT Kharagpur)
Dr. S. M. Shetty - Ph.D (UDCT, Mumbai)

## Summary

A new type of devulcanizing product (DV5) has been developed for recycling all types of scrap rubber obtained from processes like moulding and extrusion. This material is in white powder form. It is used in all form of rubber namely FKM, SBR, HNBR, NR, ACM, Silicone, AEM, Butyl Rubber, Neoprene, XNBR, NBR, CIIR, NBR/PVC, EPDM etc. The recycling is done by mixing scrap rubber and DV5 chem on a mixing mill. The recycled rubber made from DV5 gives properties of almost that of the original compound from which the scarp has been obtained. The recycled rubber can be used upto 20 parts in the fresh compound without significantly affecting the properties of the compounded material. The cost of recycling is very economical. DV5 is already commercialised.

## Abstract – Polymer materials in Modern Electric Vehicles by

## Er. Vijaya Kumar Shetty – Senior Manager – Sales – Chem-trend.

Mr. V.K. Shetty – He is an Alumnus of KPT Mangalore having completed his diploma in Polymer technology – Rubber and B.E. in Polymer Science and technology from SJCE, Mysore and MBA in Marketing Management from "WeSchool", Mumbai. He has more than thirteen years of experience in sales and marketing, technical service, and quality roles. Mr. Shetty had had presented on technical topics in three major rubber conferences conducted in different parts of south India. Mr. Shetty is a certified six sigma green belt from ISI, Bangalore, Internal auditor for ISO 9001: 2015. Mr. Shetty has worked with various organizations such as Suzlon Energy, Athena India, Lord Corporation and is currently associated with Chem-Trend as a Sales Manager Rubber.

**Overview** – Use of polymers in batteries of EV vehicles – Types of Materials used – Basics about batteries – Types of Batteries – Battery pack assembly – Purpose of Polymers – Thermal Management – Polymers used.

## Abstract – Role of Polymers in Construction chemicals and new trends and innovation in Construction chemicals

## by Er. Sandeep Shetty.

**Mr. Sandeep 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.

**Abstract –** Conventional tile fixing system V/s Polymer modified adhesive for tile / stone fixing and waterproofing, floor coatings, tile, stone and wall cares.

# Abstract – Design Thinking

**by Er. Ashwin Shetty** – *D.Polm Tech. B.E.- Polymer Science and Technology – SJCE, Mysore, M.S. Materials – Australia; MBA – Project Management. Former Engineering Manager – Airbus – Australia,* Europe and China

**Abstract - Design Thinking**

Design thinking is a human-centered approach to problem-solving that involves understanding the needs and perspectives of end users, prototyping and iterating solutions, and testing them in the real world. It was originally developed at Stanford University's D. school and has since become a popular methodology in many industries. Design thinking encourages empathy, creativity, and experimentation, and can be applied to a wide range of challenges, from creating new products to improving processes in business and government.

The five stages of the design thinking process are

1. Empathize,
2. Define,
3. Ideate,
4. Prototype, and
5. Test.

This process helps teams to better understand the problem they are trying to solve and to generate a large number of ideas for potential solutions. Through prototyping and testing, teams can quickly iterate on their designs and improve upon them, leading to better outcomes. Design thinking has been adopted by organizations of all sizes and industries because it provides a structured approach to innovation, helps teams work together more effectively, and leads to better solutions for customers.

## Abstract - Polyurethane a versatile product which can be a solution for various challenging applications like Mining, Construction, Oil & gas, Automotive, coatings, Adhesives and Sealants

**Tulasi Chandra Thejaswi**
Head – BU URETHANES SYSTEMS
India and Middle East

Mr. Tulasi Chandra Thejaswi has completed masters in science in 2010 and master's in business administrations in 2014. Started career as a paint technologist with AkzoNobel in 2010, later worked in several areas like quality control, new product developments and technical services till 2014.

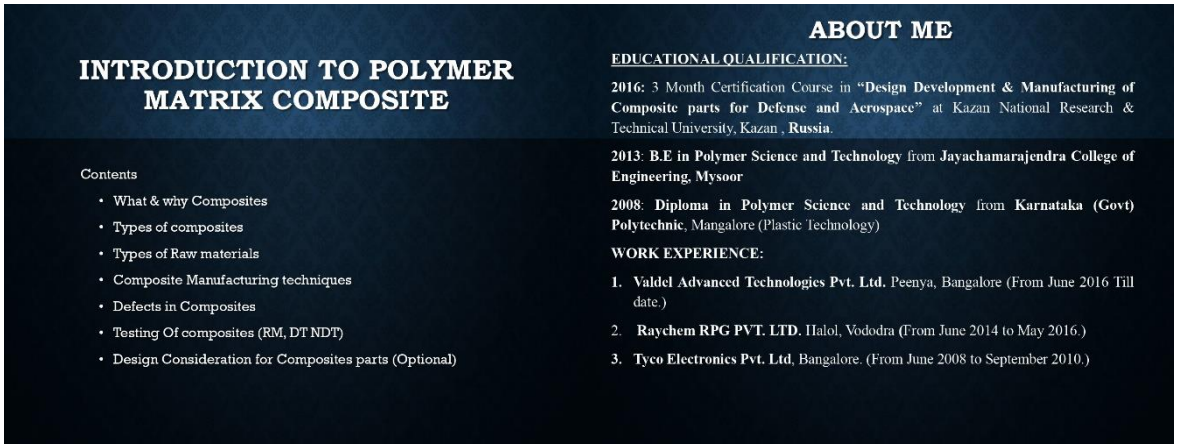
Joined Chemtura specialities in 2014 as a technical service manager to support technical activities and set up a lab and later moved to commercial responsibilities in 2017 for India business.

Currently heading BU Urethanes systems in India and middle east.

Due to their distinctive qualities and structure, polyurethanes (PUs) are regarded as significant materials that have been extensively used in numerous fields. PUs offer outstanding chemical and physical characteristics. In terms of overall resistance to abrasion, heat, solvents, oil, acid, and other adverse environmental variables, polyurethane consistently beats plastic, rubber, and steel. Additionally, polyurethane is the preferred material in chain-drive designs, conveyor belt systems, and assembly line conditions due to its noise-canceling properties. There are a lot of physical characteristics of polyurethane. Hardness, tensile strength, compression strength, impact resistance, abrasion resistance, and tear strength are among the qualities that polyurethane exhibits well. Types of polyurethane consumption are Flexible Polyurethane Foam, Rigid Polyurethane Foam Coatings, Adhesives, Sealants and Elastomers (CASE),Thermoplastic polyurethane (TPU) ,Reaction Injection Molding (RIM),Binders, Waterborne, Polyurethane Dispersions (PUDs) Polyurethane has wide application – Due to its excellent load-bearing and shock absorbing qualities of urethane, make it the material of choice in the manufacture of escalator and elevator tire tread Cutting sticks and die-cutting pads for use in printers, paper cutters, and embossing machines are made from polyurethane instead of wood and plastic elastomers.

Polyurethane is a great choice for chain-drive design in small business machines due to its lower production costs, enhanced wear and abrasion resistance, and noise reduction.

# Abstract: Polymer Matrix Composite by Vikhyat Halsnadu



# DPTcon- 2023 - An overview.

DPTCon 2023 was a technical conference on polymers and composites was organized by Polymer Alumni Welfare Association (PAWA) along with Department of Polymer Technology (DPT) at Karnataka (Govt.) Polytechnic, (KPT) in Mangalore. The conference brought together researchers, academicians, and industry experts on a platform at the nicely decorated Auditorium to share their knowledge and insights on the latest trends and advancements in the field.

This one-day event which started at 9.30 AM with a traditional welcome of dignitaries with Chende ( a typical traditional Mangalorean drum beats ) was followed by the inauguration of Plastics Processing Lab at the adjacent building. This lab has been set up at an estimated cost of Rs. 15 lakhs with generous contribution from PAWA members, industries and well-wishers. The Plastics Processing Laboratory with Injection molding machines, Blow molding machines, extruders, raw materials and finished products testing facilities could offer immense support to local industries and to the Plastics SEZ scheduled to be operational at Ganjimatta.

The technical program of the conference included sessions on topics such as,

01. Adhesives- By Sandeep Shetty of M/s. Ace Bond
02. Polymers in EV- By Vijaykumar Shetty of M/s. Chemtremd
03. Composites - By Vikhyath Halsnadu
04. Plastics - By Dr Ajay Karmarkar of M/s. Konkan Plastics
05. Polyurethane- By Tulasi Chandra Tejasvi of M/s. Lanxess
06. Nanotechnology - By Second year Student Mohammad Nabeel & Final year student Jganeshwar Acharya
07. A bird's Eyebvew of Rubber chemicals:- By Mr. Kishor Katkar of M/s. Finorchem

Followed by

08. A Plenary Session on Recycling of Rubber - Devulcanizing technology - By Dr. S. M. Shetty of DRAMA enterprises.

In addition, there was a poster competition where 6 teams comprising of students of Diploma in Polymer Technology which showcased their talent in presentation of posters on different polymer related topics. The event was chaired by the principal of institute Mr. Harisha Shetty and was graced by the presence of ex- Principal, Mr. Babu Devadiga, Ex-Principal of ITI Mr. Giridhar Salian and Chief Guest Dr. Aji M. N., Senior Manager at M/s. Indus UTH HF Mixing systems Pvt. Ltd. Bengaluru, one of the sponsors of the conference. The occasion was made memorable by formally

felicitating 3 erstwhile stalwart lecturers Dr. S. M. Shetty, Mr. Babu Devadiga and Mr. Naveen Bangera in an auspicious Guru Vandana program.

Conference witnessed nicely choreographed cultural programs presented by 2 groups of DPT students. Group 1 had staged a dance program to showcase the development of Rubber and Polymers in modern history. Group 2 staged a traditional dance and drum (chende) performance.

M/s. Acebond led by young entrepreneur and PAWA member Sandeep Shetty showcased various adhesives and polymers for construction industry in their stall during the event.

The conference had a clear objective to provide a platform for Polymer students, faculty, Alumni members and industry experts to network, collaborate and exchange ideas, as well as to promote the field of polymers and composites in India. Overall, DPT Con 2023 was a successful event that could contribute towards the growth and development of polymer segment in the coastal region and also foster knowledge building between Institute and industry.

**Few Glimpses of DPTCon 2023 Technical Conference held at KPT (Govt.), Mangaluru.**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TO
PROGRAM SCHEDULE

## Feed Back on the event by

**Dr. M. N. AJI**
**Global Process Technologist**
**HF Mixing Group India.**
**Bangalore, Karnataka.**

I was inspired by the motivation and intention of this technical event, which was to create awareness on polymers and to contribute towards the development of Laboratory that would serve hundreds of students in coming years. It is really a long-lasting plan from the PAWA.

In the whole country, the diploma/ degree courses on Polymer technology are hand few. Also, the right awareness about polymers in society is very limited. So, it is our responsibility to spread appropriate awareness about these wonderful materials. There are hundreds of polymer product manufacturing industries where in our diploma graduates can build their career. Also, the Multinational Companies in India and abroad, like DOW, Dupont, SABIC, ExxonMobil, Reliance, 3M, Michelin, Goodyear, Yokohama, and others are engaged in tremendous R&D works with polymers. This hints that there is a huge scope for polymer researchers having post graduate degree.

So, paving a way for this, the team with Mr. Santhosh, Head of the Department of Polymer Technology, along with the students, teachers, alumni (PAWA) and well-wishers, is doing a wonderful Job to set up the Rubber/Plastic Lab in the polytechnic institute. The support from Mr. Harisha Shetty, Principal, is beyond my words, it's amazing. I am thankful to Mr. Sriganesh, Sanjaya Rao and Rajesh Rao and the team PAWA for giving me an opportunity to be part of this. I am very much excited to inform PAWA that my Teacher Mr. Anupkumar VK Sir also was the Alumni of this institute from 1977 to 1980. I wish to emphasize this sentence by Sri Dalai Lama in everybody's life "When you talk, you are only repeating what you already know. But if you listen, you may learn something new"; "Share your knowledge and it is a way to achieve immortality".

Good wishes for this Nobel cause.

# Feed Back on the event by
## Kishor Katkar

**Director Marketing & Tech Services**

**Finorchem Limited**

It gives me immense pleasure to be part of the 2nd PAWA (Polymer Alumni Welfare Association) DPT conference jointly organized with DPT (department of Polymer Technology) / KPT, Karnataka (Govt.) Polytechnic, Mangalore.

It is highly commendable that many Alumni members of DPT have scaled great heights of success in their professional life. However, what's more important is that these alumni have got together under PAWA & have been helping DPT to enhance the skillset of students & give them a platform to face technology challenges in near future when they come out of DPT.

Today Automotive Industry is one of the fastest growing sectors & major contributors to Indian GDP along with Rubber/Plastic Industry who are the major suppliers to Automotive Industry. With Automotive Industry to grow 5 % & more, year on year, they will need skilled manpower to run the industry. DPT part of KPT Mangalore is doing a wonderful job by preparing qualified Polymer Technologists and keeping up with this growing demand.

Special Kudos to Mr. Sriganesh U. P. President of PAWA, his team & Mr. Harisha Shetty, principal of KPT Mangalore for organizing this 2nd Polymer Conference successfully. However, this is just the beginning & there is a long way to go. I am sure, Rubber Industry will be benefited more & more from your efforts.

Once again, my deepest & sincere thanks to PAWA for presenting Finorchem with the opportunity to be a part of your successful journey.

Dedication and hard work follow success. I hope you keep moving with passion, perseverance and integrity. Best wishes for the future path.

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