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TyreTrends

Treading New Terrains



**EXCEEDING
EXPECTATIONS
AND SYNERGISING
SUSTAINABILITY**



► COVER STORY

EXCEEDING EXPECTATIONS AND SYNERGISING SUSTAINABILITY

TWC Group is a technology leader in speciality resins, bonding chemicals, processing additives and ozone protection waxes in the Indian subcontinent.

In the last three decades, TWC Group (Techno Waxchem Pvt Ltd, Kolkata, and Rajsha Chemicals Pvt Ltd, Vadodara) has emerged as an eminent technology leader in manufacturing niche speciality rubber chemicals encompassing adhesion promoters, homogenisers, processing additives, ozone protection waxes, performance-enhancing and sustainable resins and polymer-bound chemicals.

Starting from a small makeshift plant in Kolkata in 1991, Sushil Agarwal, Founder and CMD of TWC Group, has not looked back. The journey that started with a base in Kolkata, East of India, has now even spread to the West of India – Vadodara. By the end of 2023, his speciality chemicals empire has grown to around 70 KTA, encompassing 19 product verticals, including 70 products.

Today, the group has three manufacturing sites, two in Kolkata and a consolidated one in Vadodara. With its product offerings and manufacturing capabilities, one can consider



Rajsha Chemicals Pvt. Ltd. Vadodara complex

it an 'Exclusive One-Stop Outlet for Various Speciality Rubber Chemicals'.

What a journey

Recalling the humble start of the company, Agarwal says, "My father, late Shri Jamuna Das Dhanania, had a great contribution in establishing me in the supply chain group for erstwhile tyre leader Dunlop India during 70s & early 80s. In 1991, I started a small make-shift factory in Kolkata to manufacture speciality chemical products for Dunlop India. I started this journey by producing Resorcinol and HMT dispersions. I mainly targeted products that were being imported into India. Our foundation in 1991 was to contribute to making India self-reliant in speciality chemical production for the rubber industry."

And the hunger for growth led Agarwal to venture into multiple rubber segments, including tyre companies in India. With a focus on discovering viable opportunities for manufacturing and developing new products, TWC gradually became a venture for import substitution

for Indian customers. "When I started my journey, the Indian tyre industry was transitioning PCR tyres from bias to radial, and the drive was also being tried for truck tyres. For radial tyres, demand for HMMM was growing, which allowed us to start research into developing the product. It took us some years to be able to fix up a complete process of manufacturing HMMM, which became a breakthrough for us to establish TWC's development and manufacturing capability to cater to the demand of the tyre industry. With the support and great understanding of our esteemed customers, today we have 19 product verticals with almost 70 products. As indicated by me earlier, most of these products have been developed as import substitutes through in-house R&D. The journey continues, and so is the growth of the customer base," says Agarwal.

To meet the growing demand for its products, TWC Group has an immediate capacity enhancement mission for 2025, which will take the total production capacity to around 100 KTA.

Today, TWC has been successful in developing and commercialising speciality rubber chemicals with great patronage and mentorship from its customers. The group aspires to enter into new speciality chemicals, which include curatives – accelerators or retarders, anti-oxidants or antiozonants and additives for lubricants and polymers.

Though the initial thrust was to have a Made in India approach for substituting chemicals being imported, the organisation has spread its horizons from being local to global under Agarwal's visionary approach, which has been aptly supported by his sons Abhishek and Ashish.

According to Agarwal, the cumulative effort was executed well by his TWC trusted family, which has led to achieving multiple breakthroughs during the journey and cementing the company's credential as a trusted partner in the tyre industry. "One of the noteworthy milestones was the successful development and commercialisation of Technic KR140 super-tackifier, an





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equivalent of monopolistic global resin, benchmarked for more than six decades. After this product, we have practically developed and commercialised more than two new molecules every year," adds Agarwal.

Homologation in the tyre industry is a long process, as the safety of vehicles is most dependent on tyres and developing new molecules and getting it commercially homologated with the tyre industry demands lots of patience. "You can now imagine how closely we, TWC Group, have associated ourselves and have had developmental synergy with our customers. Yes,



Few product verticals TWC GROUP offers include

Adhesion Promoters & Dipping Resins for imparting bonding between two substrates – Rubber with reinforcing steel cords / textiles:

- Resorcinol Dispersions
- Resorcinolic Resins
- HMMM Resin & Dispersions
- HMT Dispersions
- Dipping Resins

Tackifier Resins for providing tack to rubber products for processing or performance:

- Super Tackifier
- General Purpose Tackifier

Homogenisers for improving quality consistency of compound containing multiple elastomers:

- Black Homogeniser
- Non-Staining Homogeniser

Process Aids for smooth processing with reduction in energy (mixing of black and non-black fillers / dispersion / extrusion / calendaring / moulding, etc.):

- Zinc based activators
- Dispersants for silica
- Process additives
- Zinc Free process additives and dispersants

Tread Performance Enhancement Resins helping achieve much needed properties of Tyre Regulations (around wet traction and rolling resistance) :

- Poly AMS Resin
- Terpene Phenolic Resin
- Poly-Terpene Resin

Non-Cobalt Adhesion Promoters for possible substitution of Cobalt base promoters:

- Zinc tetrahedral base adhesion promoters

Carbon Coupling Agents for enhancing interaction between carbon black and natural rubber for reducing rolling resistance:

- Hydrazide Compounds

Ozone Protection Waxes for imparting static protection against ozone attack on rubber:

- Mono-Modal Waxes
- Bi-Modal Waxes
- Plateau Wax

Cut & Chip Resistance Resins for improving resistance against cutting and chipping, especially in off-road tyres:

- Modified DCPD Resin

Reinforcing Phenolic Resins for imparting stiffness to rubber compound:

- Tall Oil modified PF Resin
- CNSL modified PF resin
- Straight PF Resin
- Alkyl Phenol Mod PF Resin

Sustainable Modified Gum Rosin in free-flowing pastilles form:

- Colophony

Resins for Paint & Coating Industry:

- Amino resin

Resin for Chloroprene Adhesives:

- Rubbond PB 110

Polymer Bound Chemicals:

- Resorcinol80, PbO80, HMT80, etc.

when we grew, we ensured that our all-manufacturing facilities strictly adhered to the highest quality and strived to deliver the best to its customers. We believe in quality products, executed through the best supply logistics at a competitive price with minimal inventory cost to our customers. We also believe in one philosophy – to work closely with our customers, satisfy their expectations and thus grow with our customers. Regarding growth, I follow Robert Frost’s famous line – I have miles to go before I sleep. In short, the sky is the limit. Having said this, I also

believe in enjoying the journey rather than worrying about the destination. I always advocate for my children and TWC family to aim for the sky but enjoy every moment of success on the journey, learn from every setback and ensure to create value for the organisation and society,” says the TWC CMD.

Aiming High

TWC Group has grown in all spheres of business – revenue, production capacities, manufacturing locations, customer base – local to global, product verticals and number of products in each vertical, employee strength and ESG responsibility etc. “Looking at the journey and achievements till today, I see annual compounded growth of around 25 percent YOY. We are not stopping here and are eyeing a bigger and still more challenging vision by enhancing our volumes and coverage with improving ESG contribution and creating value for all related parties,” predicts Agarwal.

“All the above does not come just from plan and association. The products have to be successfully developed and then produced with consistent quality to exceed customer satisfaction,” says Abhishek Agarwal, elder son of Sushil Agarwal and Executive Director & CEO of the group.

“As we know, speciality chemicals impart functional and processing capability to rubber. Our role is to bring out such magical products. We feel that we are working like an octopus, operating in all directions. Many are successful and some are in progress. I am happy to state that we have established various new molecules commercially, which include the replacement of cobalt adhesion promoter, combination of resins for better adhesion, helping in the longevity of tyres, process aid for the improvement of filler dispersion and processability ease there by reduction of energy consumption at customers’ end, chemicals for better interaction of filler and rubber for improvement of fuel economy, and resins for improvement of traction of tyre treads leading to tyre safety,” explains Abhishek.

Quality & Safety First

TWC is an ISO 9001: 2015, ISO 14001:2015, ISO 45001: 2018 and IATF 16949:2016 certified organisation adhering to best quality standards. The company’s ISO status is certified by DNV.

“Quality certification had always been of paramount importance, with ISO becoming a benchmark for major industries. We see an improvement shift in quality certification, and our QA team is putting in our best effort to stay ahead of our industry average,” says Abhishek.



Abhishek Agarwal,
ED & CEO, TWC Group



Reactors Train at Vadodara complex



SUSHIL AGARWAL, FOUNDER OF TWC GROUP, UNVEILS A SUSTAINABLE ODYSSEY IN INNOVATING SPECIALITY CHEMICALS FOR TYRES BY 2030

In the ever-evolving landscape of the tyre and rubber industry, where innovation, sustainability and resilience are the driving forces, one name stands out as a beacon of success – Sushil Agarwal, the visionary Founder and CMD of TWC Group. With a career spanning of over three decades, Agarwal has played a pivotal role in steering the TWC Group towards becoming a global player in the specialised domain of speciality chemicals, particularly in the field of tyres and rubber.

Looking ahead to the future, Agarwal shares a compelling vision for TWC Group by 2030. The group aims not only to sustain its growth trajectory but also to be at the forefront of developing and commercialising new chemistries in the realm of speciality chemicals. With a focus on sustainability, TWC Group envisions a significant reduction in emissions and investments in renewable energy, exemplified by the ambitious target of increasing solar capacity to around 10MW.

Excerpts from the Interview:

How have you observed the tyre and rubber industry evolving over the past few years, and what trends and/or specific advancements of significant impact do you anticipate in the near future?

I am not a tyre and rubber expert. However, I have seen several changes in my

Sushil Agarwal, Founder & CMD, TWC Group

journey so far – from tube-type tyres to tubeless tyres, bias tyres to radial tyres, using various textiles in the tyre and rubber products, such as cotton, nylon, rayon polyester, steel, etc. I also witnessed the change from hot camel-back retreading of tyres to today's pre-cured retreading that is moving towards ring retreads. I also feel that the opening up of the economy and several tax reforms have come in handy for us and have brought in significant growth in the Indian market. Today, India has become a big hub of the tyre industry.

New molecules are even developed proactively by us to take care of customers' immediate and futuristic demands. One such example would be the development of tread performance enhancement resins. We, in the recent past, have also successfully developed and commercialised carbon coupling agents. Such

chemicals are helping sustainability drive besides enhancing the performance of end products. Our quest for developing new molecules is ever-persisting and it propels us to pro-actively explore developing new molecules.

We have some great minds globally and even in India setting targets and driving the move. Sustainability is the recent buzz word, and all of us are working towards making our product more sustainable – to us and also indirectly to end consumers.

Please tell us about challenges faced in the tyre and rubber industries and how TWC Group is managing and sailing in the turbulence.

The global market has seen a lot of changes, much more in the last five years with the unprecedented Covid surge, issues with a vessel in the Suez Canal sending repercussions for a year over the sea movement of goods, increasing freight and transit time, geo-political issues in CIS nations, geo-political tensions in the Middle East and the Red Sea issue.

We have seen industries going back and forth, from local to global and global to local. We take pride in our customer reach, representation in multiple countries, maintaining stocks at strategic locations and offering solutions that become a win-win solution for us and our customers, which helped us through the tough times and allowed us to soar heights.

Trust and reputation among global tyre players helped us push our new offerings with ease. We have dynamic plans to sail over, which include a few critical parameters. Let me speak about a few ones. I feel that research and development coupled with an excellent manufacturing setup is the only mantra to be competitive and thrive in the industry. Staying ahead of the competition always makes us occupy the pole position

Techno Waxchem Pvt. Ltd. Kolkata complex



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and exceeding customers' expectations makes us a preferred vendor partner. One cannot do it alone, and thus collaboration with customers is very important for the enrichment of knowledge.

Speciality chemicals in the tyre industry are very small in number but high in performance. Many times, replacing an established product with an improved version is a challenge, as the industry does not wish to spare required resources for a variety of reasons, like priority for projects where, at times, firefighting projects are obviously given weight. Moreover, the subject being new, priority needs to be driven by a technically savvy team, and such subjects might impact basic material costs.

We have experienced that the industry typically asks for a drop-in replacement of an existing product, which can be quickly implemented. We are lucky to have few customers who work with us even on new molecules, and that's how we have been able to develop not just a drop-in replacement product but even new molecules. Our ability to customise as per customers' requirements makes us stand out.

Where do you see TWC by 2030? Are there any particular projects or developments that you are excited about?

TWC will continue to grow by leaps and bounds. By 2030, we have few focussed deliverables. We target to continue being a global player not only in our current portfolio but also develop and commercialise new chemistries in the field of speciality chemicals. The development of sustainable products will be the governing strategy.



Kolkata Head Quarter



3D image of Rajsha Chemicals Pvt. Ltd. Vadodara

By 2030, we also target to reduce our Scope 1 and Scope 2 emissions by 50 percent and Scope 3 intensity by 30 percent. Our investments in renewable energy are ongoing, and we target increasing our solar capacity to around 10MW.

We are one of Asia's leading HMMM resin manufacturers. The product has always been very close to me because I have struggled six years in R&D of the same. We started with a capacity of a few hundred TPA and shall be reaching 24,000 TPA by mid-2024. With the increase in our HMMM capacity, we have also ventured into manufacturing formaldehyde as our backward integration strategy towards sustainable growth. This is also going to ensure customers' uninterrupted supply of consistent-quality material.

With the advent of bio-methanol in India, we intend to use bio-methanol to produce our formaldehyde in years to come. This major sustainable drive will soon be tried once bio-methanol becomes price competitive.

I take pride in stating that both our organisations, Techno Waxchem and Rajsha Chemicals, are expanding capacities to the best of our ability to meet the growing requirements of all our valued customers.

As of now, we have been a solo player. We are looking for partnerships, synergising our credentials and proposed partners' capabilities, to strengthen our motto of self-reliant India, meet the requirements of Indian industry and make India an export hub, thereby propelling our growth trajectory. ■

REACH compliance had been mandated by the EU, wherein the responsibility of registration lies on the manufacturer. Being a global player, TWC has invested in multiple products with REACH registration for EU exports and the majority of its products are EU REACH compliant. "These paves a clean competitive field, enabling us to compete with the best of our ability for customers' requirements," adds Abhishek.

Going Forward

Being a maker of speciality chemicals for the niche segment in the rubber industry, TWC has witnessed growth over the years. "TWC was capable of volumizing the products in the niche market, thereby becoming a global player having reach and representation in over 35 countries. The journey is not stopping and new horizons are being explored. Our operating philosophy or the key strategy has been to expand our infrastructure, engage in improving efficiencies of operation, continuous development

venturing into new chemistries and engaging with esteemed customers for value creation. Our DCS-controlled dedicated lines of production are always a favourite among customers as it instils a sense of confidence and reliability," says Abhishek.

Multiple visitors have complimented the company's state-of-the-art plants at both locations, with deep quality control processes and critical in-built checkpoints ensuring the quality and consistency of its products. "We also feel proud to state that our developmental activities have been applauded by major Indian tyre players, awarding us strategic business vendor partner tags for major sourcing of many of our supplied products," adds Abhishek.

TWC is continuously expanding its capacity and improving efficiency to match the rubber industry growth rate of India with the vision to reach global customers. The company is currently expanding its HMMM resin capacity with an integrated formaldehyde plant – kind of an audacious step towards stable supplies and enhancing the poly AMS resin capacity to have a dominating position.

Coupled with these, the company also aims to grow its processing additive portfolio and support growth in its super-tackifier resin by expanding its manufacturing capacities.

India is the shining star, docking annual growth of seven percent. Although a self-consuming economy, India aspires to become an export and manufacturing hub for global tyre players. "I would say higher mobility – higher usage of tyres – higher consumption of rubber – higher business. Even today, North America leads the chart on mobility, followed by Europe and China," adds Abhishek.

Today TWC's 50 percent or so revenue comes in from exports to 35 countries, and Abhishek sees the growth continue to come from these regions, including North America, Europe, China, Latin America and Russia. "Our export growth is a compounding of new products and new customers; new products and old customers; old products and old customers. We aspire to be the best in our area of operation and always occupy pole position. The tyre industry always welcomed with open arms with room for multiple players to co-exist. We believe in fair means of operation and compete with other players in the industry. We feel proud to cater to the majority of the top 50 tyre companies in the world. Our credential is valued and we have become a preferred vendor partner to the majority of them for continuous supplies," says Abhishek.



DCS & Scada Control
-Kolkata complex



Pastillators at Techno Waxchem Pvt. Ltd. Kolkata



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Solar Panels at Techno Waxchem Pvt. Ltd. Kolkata



Ashish Agarwal, ED, TWC Group

Sustainability is paramount

“We can’t dream of even surviving, forget about staying in competition without sustainability,” says Ashish Agarwal, younger brother of Abhishek and Executive Director of TWC. Being ED of the organisation, he bears diversified responsibilities. Both brothers have ensured representation for the complete TWC Group by appropriately becoming the focal point of contact for customers in India and global markets.

Ashish states that various teams are working on categorising products as sustainable – interpreting the definition of sustainability in the whole system of manufacturing and subsequent chain.

As a responsible organisation, TWC has invested and is investing further into 3 MW solar plants, both on-site and off-site, in Kolkata and Vadodara, in the adiabatic cooling solution to reduce water consumption by 95 percent, rainwater collection and usage, targeting the reduction of water consumption by 30 percent and the generation of heat using bio-fuel to the tune of 90 percent.



Large scale super adiabatic cooler- Vadodara complex

“This is the beginning, and we are happy to be compelled to use our best efforts to conserve our environment. The journey to sustainability has started, with all of us doing our bit to ensure we improve our environment. TWC (Techno Waxchem and Rajsha Chemicals) are existing on the coveted Ecovadis platform. In 2023, Techno Waxchem was awarded the Gold Medal, which substantiates our credentials on the sustainability front. We feel pride to be among the top five percentile of global organisations having the gold standard,” says the younger brother.

Ashish adds that the company’s commitment to capex investment to target carbon neutrality has been appreciated by its customers. TWC’s R&D is working on developing resins and chemicals out of bio-based materials and the company targets to launch multiple products for the industry soon.

TWC’s vision for 2025 is closer to achievement, where it aimed to setting up renewable solar capacity, reducing water consumption, increasing revenue and capacity augmentation and being a supplier of choice to the top 50 tyre companies of the globe.

“Our for 2030 is aligned with TWC’s business improvement and sustainable development goals, where it targets to reduce Scope 1 and Scope 2 emissions by 50 percent and reduce Scope 3 intensity by 30 percent. We, with ongoing investments in renewable energy, target to increase our solar capacity to around 10 MW” says Ashish.

Research & Development

Research and Development have played a major role in TWC’s successful journey. Bharat B Sharma, Technical Director of TWC Group, further explains, “Developmental capability is the technical backbone of TWC Group. Our expertise in R&D, technology, application and customer service has been witnessed by our valued customers. As proof, you can see our growth in several product verticals and new products that we have developed and commercialised during the journey of TWC.”

The group has specialists and experts in the form of technical and research doctorates having synergy with adequate numbers of team members in TWC Group’s three R&D centres and one exclusive application centre. For quite





Bharat B Sharma, Technical Director, TWC Group

a significant time, the R&D team had been nurtured by one of the most renowned scientists in the resin industry. The nurturing activity continues as Sharma's vast expertise helps in ensuring that new developments are pre-screened and evaluated for intended applications.

TWC group, in 2017, invested ~ INR 50Mn in coming up with a state-of-the-art Rubber Application Centre at Kolkata. This centre is armed with major equipment much needed for simulating applications. This centre gives TWC an edge over various other chemical industries, as not many rubber chemical industries are equipped with such facilities. The in-house rubber application centre supports the developmental approach, minimising trials and creating a technically savvy image

Sharma feels that significant ever-dynamic changes in terms of new applications or arising out of various new regulations are being brought in as requirements for products. Such changes are forcing the developments to meet a few special performance attributes and/or regulatory norms. Internal productivity improvement initiatives are evergreen at plants. "Most of our products help our customers improve processing, saving energy at customers' plants and helping them achieve the objective in line with magic triangle norms. The magic triangle of tyre performance engulfs all critical characteristics of advancement and improvement mainly Performance, Fuel Economy and Safety," says Sharma.



Rubber Application Centre, Kolkata

According to Sharma, an equilibrium in achieving all these three factors coupled with the usage of sustainable materials is the future. "We have seen a shift in the equilibrium nearing the target value of Zero D (law of triangle equilibrium)," adds Sharma.

Hydrocarbon resins (poly alpha methyl styrene resin) are used for improving traction and safety of PCR and two-wheeler tyres. For similar applications, TWC has also developed even sustainable poly terpene and terpene phenol resins, which make tyres safe, replacing oil in tread compounds. The organization also uses the sustainable process aid for high silica usage compound, improving the Payne effect, viscosity and dispersion without compromising modulus.

"We developed Super Tackifier Resin, breaking an international players monopoly on the product. Now we are working to make the product sustainable, changing the chemistry but retaining the performance. Some products are earlier than required; we developed Non-Cobalt Adhesion Promoter, replacing cobalt salts," says Sharma.

When asked about new R&D initiatives, Sharma informed that new R&D initiatives are confidential and expressed his inability to share too much detail. "Once we can firm up the process and product and get approval from customers, we shall be more than happy to let the world know about it," says Sharma. However, Sharma reiterated one notable R&D initiative and success story of the recent past - carbon black coupling agent for improvement of fuel efficiency of TBR tyres. "It's a molecule that improves the linkage between natural rubber and carbon black. Such linkage helps reduce rolling resistance for natural rubber-based components such as tyres and conveyor belts etc.," adds Sharma.

Corporate Social Responsibility

TWC Group proudly stands as a beacon of social responsibility, prioritising impact alongside financial growth. Beyond the bottom line, it believes in contributing positively to the communities it touches and embracing initiatives that make a lasting difference. TWC Group runs a few CSR activities that are spread across health care, education and infrastructure for research and development. TWC, in the last three years, has contributed over USD 1 million in multiple projects, including the establishment of the Wet Chemistry Lab at Dr D Banerjee Center Of Excellence (DBCoE) – one great body of Indian Rubber Institute at Mysuru (Karnataka). The company has also contributed to residential school projects for underprivileged girls, a cancer hospital for setting up OT & ICU infrastructure, a primary school and another school for the education of children having physical or mental disabilities. Along with this, the group has provided an ambulance for the welfare of senior citizens and is engaged in the welfare of animals.

"Our commitment to contributing to society's welfare is an over-bearing responsibility. CSR is an ongoing focussed area for us and we are having more plans in place, which are going to be executed soon," says Agarwal.

Final Words of Wisdom

Agarwal attributes TWC's success and growth to its customers mainly from the tyre industry. "We, from the bottom of our hearts, would like to express sincere thanks to all customers in the tyre fraternity and especially to professionals who have supported us. Their belief in TWC Group's credentials allowed TWC to explore into development of new-generation products. What we are is all because of them!! For an organisation of our nature and scale, customer centricity is main goal and customer support is of paramount importance," concludes Sushil Agarwal. ■