

ADVANCED RESIN SOLUTIONS for the **TIRE & RUBBER INDUSTRY**

Performance from the Inside Out



**Green today,
Alive tomorrow**





"Innovating Chemistry for a Sustainable Future"

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Established in
1980

About Forace

We are a fully automated DCS-controlled facility and one of India's largest manufacturers of **phenolic resins**, **with a capacity of 2,00,000 MT per annum**, we are furthering our capacity by an additional 1,20,000 MT per annum by setting up a new plant in Gujarat. We are backward integrated into key raw materials like PTOP. We also have an **exclusive technical joint venture with Sumitomo Bakelite to manufacture the Durez range of resins in India**.

One of the key vision of our company is "MAKE PRODUCTS FOR THE FUTURE", and a testament to this vision is our newly inaugurated FORACE TECHNOLOGY INNOVATION CENTRE.

We have a team of 50 professionals working under the Forace Technology Innovation Centre which includes a Rubber Application Centre on the ground floor, where we conduct application testing to evaluate how our resins impact our customers' final products. The first floor has a synthesis lab where all new chemistries are brought to life. All resins once produced, undergo stringent testing using advanced instruments such as DSC, TGA, FTIR, HPLC, GPC, and Gas Chromatography (GC).

Forace is an ISO 45001:2018, ISO 14001:2015, ISO 9001: 2015 and IATF 16949:2016 certified company.

At FORACE, sustainability is an integral part of our growth strategy as well as the key vision for the new chemistries. We are a zero liquid discharge plant and all our energy is generated from renewable sources. We continuously work towards improving process efficiency, reducing emissions, optimizing energy consumption, and minimizing waste through responsible manufacturing practices.

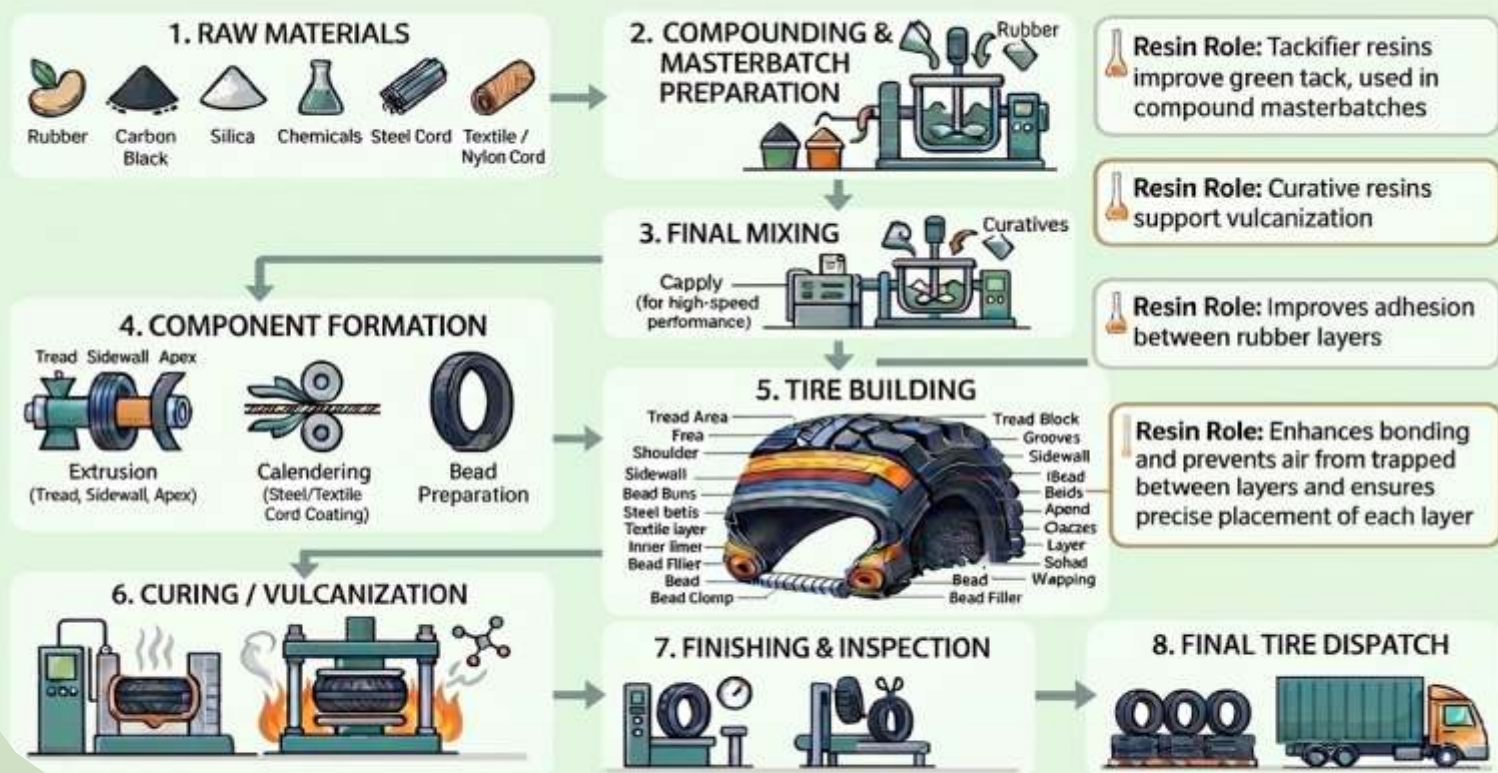


Technology Innovation Center

The center is equipped with advanced processing and testing instruments sourced from reputed manufacturers:

- Banburry Intermeshing Mixer – 1.6 L – Bainite Machines Pvt. Ltd., India
- Two Roll Mill – 6" × 13" – Santosh Rubber Machinery Pvt. Ltd., India
- MDR Volumetric Sample Cutter
- Universal Pneumatic Cutter
- Hydraulic Compression Moulding Double Daylight Press (100 Ton Capacity) – Santec Exim Pvt. Ltd., India
- Dynamic Rubber Process Analyzer (D-RPA) – MonTech Rubber Testing Solutions, Germany
- Mooney Viscometer (MV) – MonTech Rubber Testing Solutions, Germany
- Universal Testing Machine (UTM) – Zwick Roell GmbH & Co., Germany
- DIN Abrader – Gibitre Instruments, Italy
- Impact Resilience Tester – Vertical Rebound type
- Compression Set Apparatus
- Tension Set Apparatus
- Goodrich Flexometer – Ektron Tek Co. Ltd., Taiwan
- De-Mattia Flex Tester – Wallace Instruments, United Kingdom
- Tack Tester – TT3000 – MonTech Rubber Testing Solutions, Germany
- Climatic Chamber – Southern Scientific Lab Instruments, India
- Multicell Ageing Oven (19 Cells) – Tempo Instruments Pvt. Ltd., India
- Air Box Oven – Tempo Instruments Pvt. Ltd., India





Tire Components & Resin Solutions

Tire manufacturing is a complex process where several components come together to form the final product. Key components include steel cords, nylon or textile cords, beads, and various rubber compounds prepared through masterbatches. These materials are processed and assembled to form different tire parts such as the inner liner, tread, sidewall, bead, apex, and carcass.

During masterbatch preparation, different resins are incorporated into rubber compounds to improve tack, adhesion, strength etc. enabling proper formation and performance of various tire components.

The combined diagram and flow chart above illustrates the tire structure and the main stages of tire manufacturing, showing how these components and materials come together to form the final tire.

Tire & Rubber Resin Portfolio

TACKIFIER RESINS

- Fortack-2090
- Fortack-2100
- Fortack-2105
- Fortack-2130
- Fortack-2130 S
- Fortack-2145
- Fortack-2145 M

RESORCINOL RESINS

- Forcord-1018
- Forcord-1020
- Forcord-BPRF
- Forcord-RSB 50
- Forcord-RSB 80

ALKYL PHENOL FORMALDEHYDE RESINS

- FPP 207
- FPP 307
- FPP 207 HM
- FPP 507 HHR
- FPP 403
- FPP 1207
- FPP 601
- FPP 701

REINFORCING RESINS

- Forcing-3110
- Forcing-3115
- Forcing-3686
- Forcing-3686 H
- Forcing-3349
- Forcing-3349 H

HEXA METHOXY METHYL MELAMINE (HMMM)

- Forhm-5050
- Forhm-5065
- Forhm-5072
- Forhm-5100 L

NON-STICKY ROSIN PASTILLES

- Forzin-384
- Forzin-385
- Forzin-386

TERPENE PHENOLIC RESINS

- FPP 70TP
- FPP 90TP
- FPP 100TP
- FPP 110TP
- FPP 120TP
- FPP 130TP

BUTYL CURING RESINS

- Forbind 1045 R
- Forbind 1045 L

SINGLE COMPONENT BONDING SYSTEM

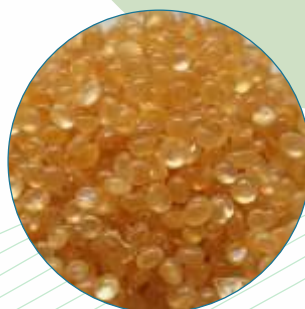
- Foroc-RHSD

WOOD ROSIN

- WW Grade
- WG Grade
- N Grade

CUT & CHIPPING RESISTANCE/DCPD RESINS

- Forccr 7335
- Forccr 7315
- Forccr 7240
- Forccr 7230
- Forccr 7150
- Forccr 7140
- Forccr 7125
- Forccr 7100





Tire & Rubber Resin Portfolio

CARBON BLACK COUPLING AGENTS

- Forcbc- 90
- Forcbc-145

RELEASE AGENT

- FCM-419
- FTH-lube 729
- FLY-lube 629
- FW7-719
- FRMB-289
- FI 829
- BR 40/700
- Fcoat 4891
- FCRA-100c
- Flube-139ck
- FTM-939 C 60%
- Fcoat Sr Series
- FTAC 907b
- FR-931 F

SILICONE EMULSION

- Forsilic-25
- Forsilic-27
- Forsilic-30
- Forsilic-32

SOLVENTS

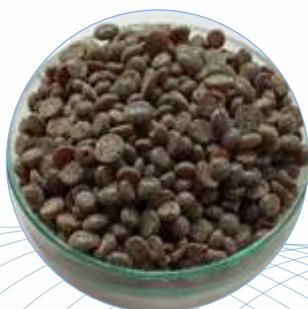
- Forsolv BGA
- Forsolv 2EHA
- Forsolv N-BA
- Forsolv N-BP
- Forsolv BDGA
- Forsolv EDGA
- Forsolv Triacetin

NON-PHTHALATE PLASTICIZERS

- Foraplex-80A / DOA
- Foraplex-80TM / TOTM
- Foraplex-80M / DOTF
- Foraplex-80PT / DOTP
- Foraplex-40M / DBM
- Foraplex-10DBE / DBE

SILICA PROCESSING AIDS

- Foraid-16
- Foraid-42
- Foraid-44
- Foraid-46f
- Foraid-49
- Foraid-50
- Foraid-50p
- Foraid-50t
- Foraid-60
- Foraid-60t
- Foraid-70
- Foraid-73
- Foraid-74
- Foraid-80
- Foraid-86
- Foraid-212
- Foraid-222
- Foraid-254
- Foraid-276
- Foraid-200
- Foraid-4000 ZEH
- Foraid ZG-4000 A
- Foraid ZG-4000 B





Tackifier Resins

Description

The FORTACK series of Tackifier resins are designed to enhance tack in rubber compounds.

Resin Types

- PTOP (Para-tert-Octylphenol Formaldehyde Resin)
- PTBP (Para-tert-Butylphenol Formaldehyde Resin) supertackifier (Para-tert-Butylphenol–Acetaldehyde Resin).

Rubber Compatibility & Applications

These Tackifier resins are compatible with Natural Rubber (NR) and synthetic rubbers such as SBR and BR and are widely used in tire compound master batches-including tread, shoulder pad, sidewall, bead apex, bead filler, carcass (body ply), belt edge strip, and chafer across PCR, TBR, OTR and two-wheeler tires.

Performance in Rubber Compounds

During the tire building stage, Tackifiers are essential for providing the green tack required to hold various layers together. They ensure the precise bonding and positioning of components such as the tread, carcass plies, and beads into a cohesive green tire before it moves to the final vulcanization process.

Advantages

- Improves green tack between uncured rubber compounds
- Enhances interlayer adhesion during tire building
- Enhances resistance to heat, ageing, and dynamic load



Reinforcing Resin

Description

The FORCING series of reinforcing resins are formulated to enhance the mechanical strength and durability of rubber compounds.

Resin Types

- Unmodified phenol-formaldehyde resin
- Tall Oil modified phenolic resin with hexa/without hexa
- Cashewnut shell liquid modified phenolic resin with hexa/without hexa

Rubber Compatibility & Applications

These reinforcing resins are compatible with Natural Rubber (NR) and Synthetic Rubbers such as SBR and BR and are widely used in tire compound master batches, particularly in body ply, bead apex, sidewall and tread cap compounds across PCR, TBR, OTR, and two-wheeler tires.

Performance in Rubber Compounds

During the vulcanization stage, the green tire is cured under heat and pressure, where sulphur-based curatives cross link with rubber polymers to form a three-dimensional network within the rubber matrix. Reinforcing resins enhance filler-rubber interaction, improving the compound's structural strength. This process occurs after the tire is shaped in the mould and before final cooling and demoulding.

Advantages

- Increases modulus
- Improve durability
- Enhance adhesion in critical tire structural components





BUTYL Curing Resins

Description

The FORBIND series comprises para-tert-octylphenol-based resole resins formulated for efficient curing of butyl rubber.

Resin Grades

- FORBIND 1045 R (higher methylol content)
- FORBIND 1045 L (lower methylol content)

Rubber Compatibility & Applications

Compatible with Butyl Rubber and widely used in tire compound master batches particularly in inner liner and transition liner, across PCR, TBR, OTR, and two-wheeler segments.

Performance in Rubber Compounds

Butyl curing resins enable effective cross linking in butyl rubber's low-unsaturated structure during vulcanization. They reinforce the rubber compound, improve adhesion, and enhance heat resistance, making them critical for applications such as inner liners and sidewalls where impermeability and durability are essential.

Advantages

- Provides excellent initial green tack during processing
- Ensures strong bonding and adhesion in rubber compounds
- High methylol content enhances cross-linking by providing more reactive sites, resulting in a stronger and more thermally stable polymer network.





Cut & Chipping Resistance Resins

Description

The FORCCR series includes CCR (Cut & Chipping Resistance) / DCPD resins designed to enhance durability and strength of tire tread compounds under severe service conditions.

Resin Type

- FORCCR 71 Series – Poly(DCPD) Resin
- FORCCR 72 Series – Rosin Modified Poly(DCPD) Resin
- FORCCR 73 Series – Aromatic Modified Poly(DCPD) Resin

Rubber Compatibility & Applications

Compatible with NR, SBR, BR, and other synthetic rubbers, and used in tread cap compounds, especially for truck, bus, and OTR tires.

Performance in Rubber Compounds

CCR/DCPD resins integrate into the rubber matrix and often act as a plasticizing modifier during mixing, improving compound flow and processability. After vulcanization, they contribute to structural rigidity and reinforcement in the rubber compound. These resins also enhance heat resistance (up to ~180°C) and resistance to corrosive environment helping maintain compound integrity under demanding conditions.

Advantages

- Enhances tensile strength and elongation at break
- Provides strong dynamic stiffness in tread compounds
- Improves tear resistance under severe operating conditions
- Reduces cutting and chipping in tires



Non-Sticky Rosin Pastilles

Description

The FORZIN series comprises non-sticky rosin pastilles designed to improve handling and processing in rubber compounds by converting conventional sticky rosin into free-flowing pastilles, enabling easier dosing and smoother processing.

The FORZIN series is available in three grades

- FORZIN-384
- FORZIN-385
- FORZIN-386

Wood rosin in conventional lump form is also available at FORACE in three grades

- WW Grade
- WG Grade
- N Grade

Rubber Compatibility & Applications

Compatible with NR, SBR, BR, and other synthetic elastomers, it is widely used in tire compounds, especially tread cap applications for controlled tack and anti-stick performance across PCR, TBR, OTR, and two-wheeler tires, as well as in industrial products like hoses, conveyor belts, V-belts, footwear, flooring, and moulded goods.

Performance in Rubber Compounds

The FORZIN series of non-sticky rosin pastilles helps control excessive stickiness in rubber compounds when high resin loadings (30–40 phr) are used. It can partially replace a few phr of PTOP resin in tire compounds, maintaining balanced tack and improved compound processability during tyre manufacturing.

Advantages

- Easy handling with free-flowing pastilles
- Suitable for automated dosing
- Smooth feeding during processing
- Cleaner and less sticky working environment



Resorcinolic Resins



Description

The FORCORD series includes Resorcinol-Formaldehyde resins used in dry bonding systems to improve adhesion between rubber and reinforcing materials.

Resin Graders

- FORCORD-1018
- FORCORD-1020
- FORCORD B PRF
- FORCORD RSB50 / RSB80

Rubber Compatibility & Applications

Compatible with NR, SBR, BR, and other synthetic rubbers, and widely used in tire reinforcement compounds such as steel belt, body ply, cap ply, and chafer across PCR, TBR, OTR, and two-wheeler segments.

Performance in Rubber Compounds

Resorcinolic resin improves adhesion between rubber compounds and reinforcement materials such as steel cords and textile fabrics. During vulcanization, it reacts with methylene donors to form a cross-linked network that enhances tire strength, durability, and performance.

Advantages

- Provides excellent rubber-to-steel and rubber-to-textile adhesion
- Forms a strong cross-linked resin network during vulcanization with methylene donors (HMMM / HEXA)
- Improves durability and flex-fatigue resistance in tire reinforcement components



Hexamethoxymethyl Melamine (HMMM)

Description

Hexamethoxymethyl Melamine (HMMM) is a methylene donor used in rubber compounds to enhance adhesion during vulcanization.

Resin Grades

- FORHM 5100 L – Liquid HMMM
- FORHM-5072 / 5065 / 5050 – HMMM dispersed in silica (72%, 65%, 50%)

Rubber Compatibility & Applications

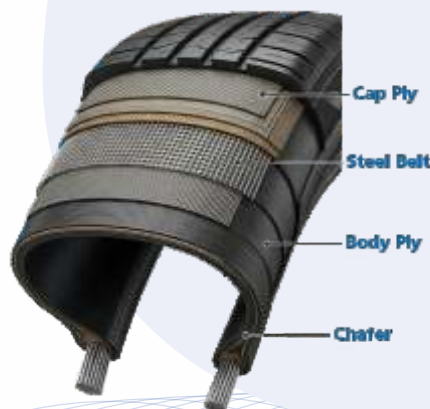
Compatible with NR, SBR, BR, and other synthetic rubbers, and widely used in tire reinforcement compounds, especially in steel belt applications and cord–rubber bonding systems.

Performance in Rubber Compounds

HMMM acts as an adhesion promoter and cross linking agent in tire compounds. It donates methylene groups to resorcinol-based resins, forming a reinforcing network during vulcanization that supports effective cord–rubber bonding.

Advantages

- Promotes strong rubber-to-steel and rubber-to-textile adhesion
- Silica coating ensures easy handling and uniform dispersion in rubber compounds
- Provides better processing safety with reduced dusting and improved scorch control



Single Component Bonding System

Description

The FOROC series is a single-component dry bonding system designed to enhance rubber-to-reinforcement adhesion during vulcanization.

Resin Type

- FOROC-RHSD – Resorcinol–HMMM–Precipitated Silica

Rubber Compatibility & Applications

Suitable for bonding rubber to steel cord, glass cord, polyester, and polyamide fibres, and compatible with NR, SBR, BR, and other synthetic rubbers, it is widely used in steel belt, body ply, cap ply, and chafer compounds, as well as in conveyors, hoses, V-belts, and fabric proofing applications.

Performance in Rubber Compounds

Single component bonding system simplifies tire compounding by combining adhesion promoting functions into one additive. It reduces processing complexity while ensuring strong cord-rubber adhesion, making its a practical alternative to traditional two component system.

Advantages

- Reduced fumes compared to conventional resorcinol systems
- Single-component system that simplifies processing (no separate resorcinol addition required)
- Easy handling and good dispersion in rubber compounds
- Provides excellent adhesion and flex-fatigue resistance



Silica Processing Aids

Description

The FORAID series includes silica processing aids designed to improve filler dispersion, reduce viscosity, and enable easier mixing and extrusion in silica-filled rubber compounds.

Rubber Compatibility & Applications

Compatible with NR, SBR, BR, and other synthetic rubbers, it is widely used in tire components such as tread, shoulder pad, sidewall, bead apex, bead filler, carcass, inner liner, steel belts, cap ply, belt edge strip, and chafer, as well as in industrial rubber products like conveyor belts, hoses, V-belts, footwear, and moulded goods.

Performance in Rubber Compounds

Silica is difficult to mix into rubber because silica is hydrophilic (water-loving) while rubber is hydrophobic (water-repelling). Silica processing aids help overcome this incompatibility by coating the silica surface and making it more compatible with the rubber matrix. This improves silica dispersion, reduces compound viscosity, enables easier processing, lowers mixing energy requirements, and enhances wet grip performance in silica-filled “green tire” tread compounds.

Advantages

- Improves silica and filler dispersion
- Reduces compound viscosity and improves processing flow
- Prevents sticking of compounds to rotors and rolls
- Reduces scorch risk
- Enables faster filler incorporation and shorter mixing cycles



Terpene Phenolic Resins

Description

Terpene phenolics are thermoplastic resins made from terpene hydrocarbons and phenol, used as high-performance tackifiers and processing aids in rubber and adhesives to enhance green tack, compatibility, and processing efficiency.

Sustainable Content

- 70TP – 100TP □ ~75–80% sustainable content
- 110TP – 130TP □ ~80–85% sustainable content

Rubber Compatibility & Applications

High-performance tackifiers designed for superior compatibility with NR, SBR, BR, NBR, and CR rubber systems, ensuring excellent dispersion and compound uniformity. Widely used in tire manufacturing (tread, sidewall, bead), conveyor belts, footwear, moulded rubber goods, and adhesives.

Performance in Rubber Compounds

Enhances rubber compound performance by improving green tack, cohesion, and interlayer adhesion, ensuring better build strength. They aid in uniform filler dispersion and smoother processing, resulting in consistent compound quality. Additionally, they improve extrusion behaviour, surface finish, and overall durability.

Advantages

- Bio-based, sustainable raw materials
- Reduced petrochemical dependence
- Lower environmental impact
- Improved processing efficiency



C5 & C9 Hydrocarbon Resins

Description

C5 and C9 hydrocarbon resins are thermoplastic resins derived from petroleum byproducts. These resins are used as tackifiers in rubber, adhesives, coatings, and road markings, enhancing adhesion, curing speed, and durability.

Advantages

Enhanced Adhesion: Improve bonding between rubber and substrates. **Increased Tack:** Provide strong initial tack and bonding strength. **Faster Curing:** Reduce curing times, improving manufacturing efficiency. **Improved Durability:** Enhance resistance to heat and wear in rubber applications. **Versatile:** Suitable for a variety of applications, including tires, road markings, adhesives, and coatings.

Resins for Adhesive Industry

Description

Alkyl phenol formaldehyde resins are reactive butyl phenol-formaldehyde thermosetting resins with free methylol groups, commonly used to prepare adhesives in combination with neoprene, solvents, and other ingredients. Ester gums, derived from the esterification of fatty acids and rosin, are known for their excellent tack, flexibility, and adhesion properties. Maleic resins, synthesized by polymerizing maleic anhydride with various monomers, offer superior adhesion, heat resistance, and solvent resistance.

Performance in Rubber Compounds

They enhance rubber compound performance by improving flexibility, elongation, and low-temperature properties, while maintaining durability. Additionally, they ensure long-term stability and regulatory compliance, making them ideal for high-performance and eco-friendly rubber applications.

Advantages

- Excellent heat resistance
- Superior adhesion and enhanced tackiness
- Excellent tack and flexibility
- Superior performance in high-temperature environments

Product Grades & Applications

Product Name	Description	Application
FPP 207 / FPP 307 / FPP 403 / FPP 507 (HHR) / FPP 1207	Alkyl phenol formaldehyde resin (PTBP resin)	Rubber Adhesives, Tire Components, Conveyor belts & Rubber Hoses
FPP 601	Glycerol Ester Gum / Gum Rosin with Glycerol	Hot Melt Adhesives, Pressure Sensitive Adhesives, Construction Adhesives, Specialised Industrial Glues
FPP 701	Penta Ester Gum	Hot Melt Adhesives, Pressure Sensitive Adhesives, Solvent based adhesive, Road Marking Paints
FS 6010	Maleic Glycerol Resin	Hot Melt Adhesives, Pressure Sensitive Adhesives, Road Marking Paints, Rubber Adhesive, Wood Adhesives
FS 6011	Penta Maleic Resin	Hot Melt Adhesives, Pressure Sensitive Adhesives, Road Marking Paints, Industrial Glues
FS 6012	Spirit Soluble Maleic Resin	Laminating, Paper Adhesives



Release Agents

Tire Industry

Grade	Description	Performance in rubber Compounds
FCM-419	Permanent Bladder Coat	Smooth curing, improved finish, extended bladder life, reduce inside lube requirement, minimizes defects
FTH-LUBE 729	Inside Lube	Excellent internal release, improves inner finish, extends bladder life
FLY-LUBE 629	Outside Lube	Uniform outer finish, excellent release, fast drying
FW7-719	Finish Paint	Enhances tire appearance, provides slip & air bleed, multiple release cycles
FRMB-289	Rim Lube	Precise slip, clean and residue-free operation
FL 829 BR 40/700	Inside Lube (Multi-Release)	Multiple release cycles, improved inner surface finish
FCOAT 4891	Permanent Mold Coat	Long-lasting mould protection, cleaner moulds & vents
FCRA-100C	Semi-Permanent Release	Smooth release, reduced sticking and build-up

Rubber Industry

Grade	Description	Performance in rubber Compounds
FLUBE-139CK	Lubricant	Smooth mounting, high slip, fast drying, no residue
FTM-939 C 60%	Process Lubricant	Consistent release, reduces mould build-up
FCOAT SR Series	Rubber-Metal Coating	Strong adhesion, durable coating
FTAC 907B	Antitack	Prevents sticking, improves handling
FR-931 F	Hose Release	Excellent release, Reduce the build-up on mandrels



Silicone Emulsion

Description

High-performance water-based silicone emulsion offering excellent mould release, smooth lubrication, and superior surface gloss.

Rubber Compatibility & Applications

Silicone emulsions are widely used as mould release agents and surface finishing aids in applications such as tire components, moulded rubber goods, extruded profiles, footwear, and automotive rubber parts.

Performance in Rubber Compounds

They enhance rubber compound performance by providing excellent lubrication and mould release. It improves surface finish and gloss, while minimizing mould fouling and defects.

Advantages

- Excellent mould release performance
- Smooth and uniform rubber surface finish
- Provides long-lasting rubber shine
- High dilution ratio – economical usage
- Compatible with automatic spray systems



Silane Coupling Agent Dispersed on Carbon Black

Description

FORNIC 8069C is a silane coupling agent dispersed on carbon black, where carbon black acts as a dry carrier for Bis[3-(triethoxysilyl)propyl] tetrasulfide, designed for silica-reinforced rubber compounds with improved handling, dispersion, and safety compared to liquid silanes.

Rubber Compatibility & Applications

Compatible with NR, SBR, BR, and other synthetic rubbers, and used in passenger and truck tire tread and sidewall compounds, as well as in conveyor belts, hoses, V-belts, shoe soles, and other technical rubber goods.

Performance in Rubber Compounds

The active silane acts as a molecular bridge between silica fillers and rubber polymers, improving polymer–filler interaction and reducing filler–filler interaction (payne effect). It helps optimize rolling resistance, wet grip and abrasion resistance, while also reducing compound viscosity for smoother mixing, milling and extrusion.

Advantages

- Improves silica dispersion and reinforcement efficiency
- Enhances wet grip and abrasion resistance in tire treads
- Helps reduce rolling resistance for fuel-efficient tires
- Provides easier and cleaner handling compared to liquid silanes
- Ensures uniform silane distribution through carbon black carrier



Carbon Black Coupling Agents

Description

The FORCBC series includes carbon black coupling agents designed to improve polymer–filler interaction and reinforcement in rubber compounds.

Resin Grades

- FORCBC 90
- FORCBC 145

Rubber Compatibility & Applications

Compatible with NR, SBR, BR, and other synthetic rubbers, it is used in carbon black–filled tread cap compounds and technical rubber goods such as fuel-efficient tire treads, automotive parts, seals, and hoses, and is also suitable for polar rubber systems like NBR, CR, and carboxylated SBR.

Performance in Rubber Compounds

While carbon black naturally bonds with rubber through physical forces, carbon black coupling agents create stronger covalent bonds between the filler and rubber chains.

These agents target active sites on the carbon black surface and form a permanent chemical link with the rubber polymer. This results in reduced heat build-up, improved abrasion resistance, and better elastic properties under repeated stress cycles, enhancing durability in high-stress applications such as truck tire treads.

Advantages

- Improves carbon black dispersion in rubber compounds
- Enhances polymer–filler interaction and reinforcement efficiency
- Improves dynamic properties and durability
- Helps reduce hysteresis in fuel-efficient tire tread formulations
- Suitable for high-temperature rubber applications





Non-Phthalate Plasticizers

Description

FORAPLEX series are environmentally safer alternatives to traditional phthalates based plasticizers, designed to enhance flexibility, softness, and processability in polymers.

Available Grades

- Foraplex-80A / DOA
- Foraplex-80TM / TOTM
- Foraplex-80M / DOM
- Foraplex-80PT / DOTP
- Foraplex-40M / DBM
- Foraplex-10DBE / DBE

Rubber Compatibility & Applications

They offer excellent compatibility with various rubber types such as NR, SBR, NBR, and CR, ensuring uniform dispersion and improved compound flexibility. These plasticizers are widely used in tire compounds, industrial rubber goods, hoses, belts, footwear, and adhesives.

Performance in Rubber Compounds

They enhance rubber compound performance by improving flexibility, elongation, and low-temperature properties, while maintaining durability. They also ensure long-term stability and regulatory compliance, making them ideal for high-performance and eco-friendly rubber applications.

Advantages

- Non-Phthalate Based
- Eco-friendly
- Low Volatility & Reduced Emissions
- Energy Efficient Processing

Advanced Solvent Solutions

The FORSOLV series comprises high-performance specialty solvents engineered for a wide range of industrial applications. These solvents are manufactured with controlled specifications, ensuring high purity, low moisture, and consistent quality, making them suitable for applications requiring reliable performance, efficient processing, and superior results.

Chemical nomenclature	Description	Specifications
Glycerol Triacetate	FORSOLV GTA (Triacetin)	Moisture: 0.1% (Max.) Purity: 98.0% (Min.) Acidity: 0.1% (Max.)
Butyl Di Glycol Acetate	FORSOLV BDGA	Moisture: 0.05% (Max.) Purity: 99.0% (Min.)
Butyl Glycol Acetate	FORSOLV BGA	Moisture: 0.05% (Max.) Purity: 99.0% (Min.)
2-Ethylhexyl Acetate	FORSOLV 2EHA	Moisture: 0.05% (Max.) Purity: 99.0% (Min.)
N-Butyl Propionate	FORSOLV N-BP	Moisture: 0.05% (Max.) Purity: 99.5% (Min.) Acidity: 0.1% (Max.)
Ethylene Glycol Diacetate	FORSOLV EGDA	Moisture: 0.01% (Max.) Purity: 99.0% (Min.)
N-Butyl Acetate	FORSOLV N-BA	Moisture: 0.05% (Max.) Purity: 99.5% (Min.)

Key Properties

- High Purity & Low Moisture – Ensures consistent product quality
- Controlled Evaporation Rates – Supports optimized processing
- Excellent Solvency – Effective compatibility with rubber & resins
- Good Flow & Film Formation – Improves coating performance
- Wide Boiling Range Options – Suitable for diverse applications





Why Choose Us?

- Backward integrated into key raw materials such as PTOP.
- Exclusive technical joint venture with Sumitomo Bakelite to manufacture the Durez range of resins in India.
- One of the largest buyers of phenol and formaldehyde in the country, ensuring cost competitiveness and a consistent supply.
- Introduction of new chemistries to expand performance capabilities in tire compounds.
- Backed by application data from our state-of-the-art Rubber Application Centre.
- Development of more sustainable product options aligned with environmental goals.
- Backed by German technology from TAG Chemicals for release agents and paints for the tire and rubber industry.
- We are a DSIR (Government of India) approved R&D laboratory and hold ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 and IATF 16949:20167 certifications
- We are a fully automated, DCS-controlled facility ensuring consistent quality.

Safety, Health and Environment

With strong principles of social commitment embedded within the company, all measures are taken to ensure perfect harmony with the delicate ecology surrounding the plant. As a part of its responsibility, the company has maintained 10,000 green trees surrounding the plant premises. Proper precautions are taken to ensure that there is no adverse impact on natural resources. Adequate standards are followed in handling solvents and hazardous chemicals.

Forace is a zero-discharge company powered by a state-of-the-art 1.5 MW solar facility, underscoring our dedication to environmental sustainability. We proudly hold ISO certification, which reflects our adherence to industry-best practices.

In addition, Forace is certified with IATF 16949, ISO 45001:2018 14001:2015 and 9001:2015 demonstrating our robust quality management system and commitment to delivering the highest standards of excellence in our operations.

Our technology development team continuously upgrades product formulations with a view to minimise free monomers, BTX solvents, so as to control deterioration of environment at workplace.





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