

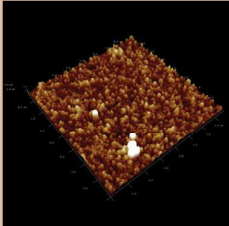
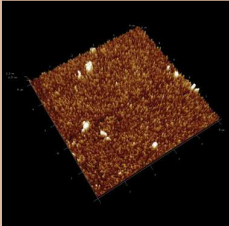
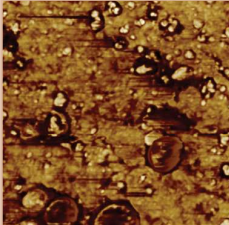
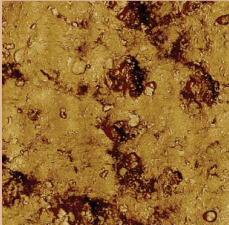
FUNCTIONAL PRECIPITATED SILICA
TAFOSIL™

Functional Silica for Rubber applications

Silica is an important white filler to impart reinforcement in rubber compounds. However conventional silica has limitation on dispersion inside rubber matrix due to high filler - filler interactions which leads to uneven filler distribution throughout polymer matrix. To overcome this issue, Tata Chemicals Ltd. has developed TAFOSIL™ grades with functional modification of silica surface chemistry. TAFOSIL™ is easy dispersible precipitated silica with low to high surface area and narrow particle size distribution, essentially developed for rubber products to improve physical & mechanical properties like abrasion, tear, tensile etc. and provides longer product life.

Products Offered	Features	Surface area (BET, m ² /g)	Application
TAFOSIL™ LS	White Powder of highly dispersible functional silica with low surface area	120 ± 15	<ul style="list-style-type: none"> • Rubber hoses • Conveyor & V-Belts • O-rings • Seals • Drum Closers • Gaskets • Textiles and industrial rubber goods • Roll cover • Cots & aprons • Cables • Footwear • Floorings • Insulation Mats <p><i>and many more technical rubber goods.</i></p>
TAFOSIL™ LS GR	Soft granules of highly dispersible functional silica with low surface area	120 ± 15	
TAFOSIL™ MS	White Powder of highly dispersible functional silica with medium surface area	150 ± 15	
TAFOSIL™ MS GR	Soft granules of highly dispersible functional silica with medium surface area	150 ± 15	
TAFOSIL™ HS	White Powder of highly dispersible functional silica with high surface area	180 ± 15	
TAFOSIL™ HS GR	Soft granules of highly dispersible functional silica with medium surface area	180 ± 15	

The dispersion level and surface smoothness of conventional silica versus functional silica is demonstrated in below comparative pictures -

Conventional silica		Functional silica	
	Broad partical size distribution (AFM Picture)		Narrow partical size distribution (AFM Picture)
	Compound surface roughness		Compound surface smoothness

Unique features of TAFOSIL™ in Hose, Roll Cover, Cots & Aprons etc. application -



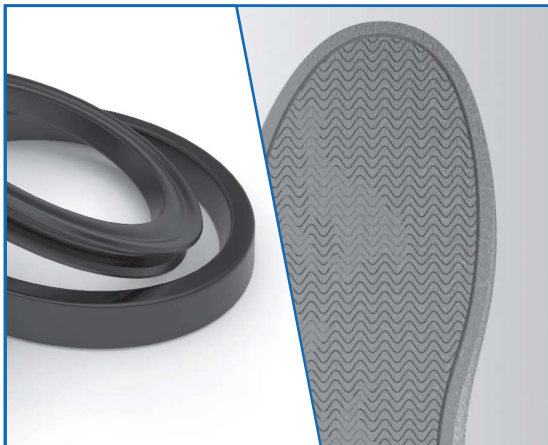
- Superior dispersion ensures high polymer to filler interaction
- Improves abrasion resistance & tear strength
- Increases ply to ply adhesion & enhances heat resistance
- Improves mechanical, high impulse, low bend radius, reduces chances of coupling failure of hoses
- Low hysteresis & high rebound resilience in roll cover, cots & aprons
- Reduced compound moony, faster mixing, extrusion, calendaring, moulding, less electrical power consumption
- Faster curing cycle than conventional silica - hence cost reduction and productivity increase
- High degree of mould filling, scrap generation due to short mould filling reduces significantly

Unique features of TAFOSIL™ grades in Conveyor and V-Belt, Sindle Tape, Insulation Mat etc. application -

- Superior dispersion ensures high polymer to filler interaction
- Better reinforcement, improved mechanical properties
- Improves abrasion resistance, heat resistance & tear strength
- Increases layer to layer, rubber to fabric adhesion
- Better flex cracking resistance and high deformation resistance of belts, insulation properties of mats
- Reduced compound moony, faster mixing, extrusion, calendaring, moulding, less electrical power consumption
- Faster curing cycle than conventional silica - hence cost reduction and productivity increase
- High degree of mould filling, scrap generation due to short mould filling reduces significantly



Unique features of TAFOSIL™ grades in O-ring, Seal, Shoe Sole, Molded Goods etc. application -



- Superior dispersion ensures high polymer to filler interaction
- Improves abrasion resistance, heat resistance & tear strength
- Improves mechanical properties, better flexing and cut growth resistance in dynamic application
- Reduced compound moony, faster mixing, extrusion, calendaring, moulding, less electrical power consumption
- Faster curing cycle than conventional silica - hence cost reduction and productivity increase
- High degree of mould filling, scrap generation due to short mould filling reduces significantly
- In shoe sole, it does not impart any floor mark and hence better aesthetic

TAFOSIL™ application in different rubber goods



Rice Roll

Rubber Hose

Insulation Mat

Cots & Aprons

Shoe Sole

V-Belt

Spindle Tape



Cuddalore - Silica Plant

Safety
Demonstrate and encourage safe behaviour always

Passion
Foster the enduring team spirit by being proactive and celebrating success

Integrity
Do the right thing as envisioned in our Tata Code of Conduct – by being fair, honest, and transparent

Care
Demonstrate sensitivity and respect towards employees, customers, community and environment

Excellence
Strive to achieve the highest quality standards of our products and services by delivering on our brand promise

SPICE of Life Our values - **S**afety | **P**assion | **I**ntegrity | **C**are | **E**xcellence



TATA CHEMICALS LIMITED

Customer Care : The Product Manager (Advanced Materials)

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