

Technical Data Sheet

Applications

- Tires

Product Description

Chemical name: Mixture of polymeric sulfur and silica

Crystex™ OT 33 AS is a non-blooming vulcanizing agent for unsaturated elastomers.

MAJOR APPLICATIONS AND PROPERTIES:

- Crystex™ OT 33 AS is polymeric sulfur and is insoluble in elastomers. Consequently it will retard bin scorch, prevent migration of sulfur and preserve surface tack. This is important in the manufacture of tires and other plied-up rubber goods.
- At vulcanization temperatures Crystex™ OT 33 AS will de-polymerize to soluble sulfur and will behave similar to "Rubber Maker's" sulfur.
- Crystex™ OT 33 AS is a metastable product which can revert to soluble sulfur if not stored under proper conditions.
- Reversion of Crystex™ OT 33 AS to soluble sulfur is also catalyzed by alkaline products. The presence of alkaline accelerators can be critical.
- Crystex™ OT 33 AS is a special grade with high thermal stability and good dispersibility due to the presence of silica.
- Crystex™ OT 33 AS is used in compounds containing a relatively large sulfur loading above the solubility of sulfur in the elastomer.
- Crystex OT 33 AS is non-staining and non-discoloring.

Typical Properties

Property	Typical Value, Units
General	
Form	Insoluble sulfur/silica mix (67/8), 25% oil treated powder
Specific Gravity @ 20°C	1.53 approximate
Bulk Density	
Packed	400-700 kg/m ³
Unpacked	250-450 kg/m ³
Mean particle size	<30 µm

Compounding Information

Because insoluble sulfur is metastable temperatures should be kept as low as possible during mixing. Between 100°C and 130°C significant reversion can take place to soluble sulfur.

Dispersion of Crystex™ OT 33 AS in rubber is critical. Due to its small particle size and its tendency for electrostatic charge build-up agglomerates can be formed which can result in inhomogeneous vulcanizates. Sufficiently long mixing times should be applied preferably in a separate mixing step under well controlled conditions.

If dry pre-mixes are produced of Crystex™ OT 33 AS and other vulcanization chemicals, reversion can take place if it is in direct contact with alkaline components.

Handling Precautions

For detailed information on toxicological properties and handling precautions please refer to the current Safety Data Sheet. This information sheet can be downloaded from our web site or requested from the nearest Eastman office and should be consulted before handling this product.

Storage

Store Crystex™ in a well ventilated area below 30°C, avoiding exposure of the packaged product to direct sunlight. Do not store near products that can emit free amines such as sulfenamides and DTDM. Amines and other alkaline vapors can cause Crystex™ to revert to "Rubber Maker's" sulfur at any temperature. High temperatures will also cause Crystex™ to revert to "Rubber Maker's" sulfur. When stored in closed containers below 20°C the reversion rate is less than 1%/year. Reversion of Crystex™ could result in sulfur bloom of uncured rubber.

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