

## Product Data

### CRYSTEX HD OT 20

Polymeric sulfur

CAS Reg. No.:

Polymeric sulfur : 9035-99-8  
Rhombic sulfur : 7704-34-9  
Process oil : Various

Insoluble Sulfur

#### FUNCTION

Crystex HD OT 20 is a non-blooming vulcanizing agent for unsaturated elastomers.

#### MAJOR APPLICATIONS AND PROPERTIES

- Crystex HD OT 20 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 HD OT 20 will de-polymerize to soluble sulfur and will behave similar to "Rubber Maker's" sulfur.
- Crystex HD OT 20 is a metastable product which can revert to soluble sulfur if not stored under proper conditions.
- Reversion of Crystex HD OT 20 to soluble sulfur is also catalyzed by alkaline products. The presence of alkaline accelerators can be critical.
- Crystex HD OT 20 is a special grade with improved flowability and dispersibility.
- Crystex HD OT 20 is used in compounds containing a relatively large sulfur loading above the solubility of sulfur in the elastomer.
- Crystex HD OT 20 is non-staining and non-discoloring.

#### COMPOUNDING INFORMATION

Crystex HD OT 20 is designed for improved flowability and dispersibility. It has the following advantages:

- Improved flowability. The improved product flowability provides easy handling, a less dusty environment and less tendency for product to compact.
- Improved dispersibility. The special additive package in Crystex HD OT 20 helps to reduce the tendency for electrostatic charge build-up and hence the formation of agglomerates which can be formed during mixing as a result of the small particle size of insoluble sulfur.

Because Crystex HD OT 20 is insoluble sulfur it is metastable. Therefore temperatures should be kept as low as possible during mixing. Between 100°C and 130°C, significant reversion to soluble sulfur can take place.

If dry pre-mixes are produced of Crystex HD OT 20 and other vulcanization chemicals, reversion can take place if Crystex HD OT 20 is in contact with the 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 Flexsys office and should be consulted before handling this product.

## STORAGE RECOMMENDATIONS

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 Sulfasan 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 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.

## PRODUCT INFORMATION

<b>Crystex</b> Product form	<b>HD OT 20</b> high dispersibility insoluble sulfur, 20% oil treated powder	
<b><u>PRODUCT SPECIFICATIONS</u></b>		<b><u>Test method</u></b>
Appearance	yellow powder	FF97.5
Insoluble sulfur (on total S) (%) min.	90	FGr98.1
Total sulfur content (%)	78.5-81.5	FM98.1
Ash (%) max.	0.05	FGr98.3
Total binder content (%)	18.5-21.5	FM98.1
High thermal stability (on total S) (%) min.	75	FGr98.5
Acidity (as H <sub>2</sub> SO <sub>4</sub> ) (%) max.	0.05	FAc98.1
<b><u>TYPICAL PROPERTIES</u></b>		
Specific gravity at 20°C (kg/m <sup>3</sup> )		
Bulk density (kg/m <sup>3</sup> )	350-550	
Compacted bulk density (kg/m <sup>3</sup> )	550-800	
Mean particle size (µm)	<30	

For further information please contact your local Flexsys office or regional Flexsys headquarters:

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HDOT203.IS/1101

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