

**MATERIAL SAFETY DATA SHEET**  
According to EC-directive 93/112/EC

**TRICONI TMTD(TT)**

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

<b>Product label name</b>	Tetramethylthiuram disulfide
<b>Supplier</b>	Trigonal Concourse Inc. 4F, Golden Plaza, 20 Hongkong Middle Road, Qingdao 266071, China Tel/Fax: +86 532 85760953 Email: info@triconi.com Http://www.triconi.com

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

This product is to be considered as a substance in conformance to EC directives.  
Information on hazardous ingredients

<b>Chemical description</b>	Tetramethylthiuram disulfide		
<b>Composition / information on ingredients</b>			
<b>Number</b>	<b>%w/w</b>	<b>CAS-number</b>	<b>Chemical name</b>
1	>96.0	137-26-8	Tetramethylthiuram disulfide
2	1.0-2.0	8042-47-5	White mineral oil (petroleum)
<b>Number</b>	<b>EC-number</b>	<b>Annex-1 number</b>	<b>Symbol(s)</b> <b>Risk-phrase(s)</b>
1	205-286-2	006-005-00-4	XiXn            R20/22    R36/37    R40    R43
2	232-455-8		none            none
<b>Other information</b>	Formula: C6H12N2S4.		

**3. HAZARDS IDENTIFICATION**

Harmful by inhalation and if swallowed.  
Irritating to eyes and respiratory system.  
Possible risks of irreversible effects.  
May cause sensitization by skin contact.  
May cause alcohol intolerance.  
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**4. FIRST AID MEASURES**

<b>Symptoms and effects</b>	May cause alcohol intolerance. Harmful by inhalation and if swallowed. Irritating to eyes and respiratory system. Repeated contact may cause skin sensitization.
<b>First aid</b>	
<b>General</b>	Do not drink alcohol after exposure.
<b>Inhalation</b>	Move to fresh air. If symptoms persist, seek medical advice.
<b>Skin</b>	Remove all contaminated clothing immediately. Wash off with plenty of soap and water. Seek medical advice if irritation develops. Launder clothes before reuse.
<b>Eye</b>	Rinse immediately and as long as possible with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if irritation persists.
<b>Ingestion</b>	Rinse mouth. Give water to drink. Induce vomiting. Never induce vomiting in unconscious or confused persons. Seek medical advice.
<b>Advice to physician</b>	No specific recommendations.

**5. FIRE-FIGHTING MEASURES**

<b>Extinguishing media</b>	waterspray, water mist, foam, dry chemical powder.
<b>Unsuitable extinguishing media</b>	waterjet.
<b>Special exposure hazards</b>	Emits toxic fumes under fire conditions.
<b>Hazardous decomposition/combustion products</b>	carbon monoxide (CO), Sulfur oxides (SOx), nitrous gases (NOx).
<b>Protective equipment</b>	Wear self contained breathing apparatus.
<b>Other information</b>	Do not allow run-off from fire fighting to enter drains or water courses.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions</b>	For personal protection see Section 8. Avoid dust generation.
<b>Environmental precautions</b>	Do not discharge into sewer.
<b>Methods for cleaning up</b>	Collect as much as possible in a clean container for (preferable) reuse or disposal.

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### 7. HANDLING AND STORAGE

<b>Handling</b>	Do not breathe dust. Avoid contact with skin and eyes.
<b>Fire and explosion prevention</b>	Dust/air mixtures may ignite violently upon exposure to sparks or sources of ignition. Dust explosion class (VDI 2263): St 2. Kst: 239 bar.m/s. Maximum rate of pressure rise: 1060 bar/s. Maximum corrected explosion pressure: 7,4 bar.
<b>Storage requirements</b>	Store in a dry and cool place.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Engineering controls</b>	Ensure good ventilation and local exhaustion of the working area. Avoid dust generation.
<b>Exposure limits</b>	
<b>Name</b>	
<b>Tetramethylthiuram disulfide</b>	OES-TWA 5.0 mg/m <sup>3</sup> OES-STEL 10.0 mg/m <sup>3</sup>
<b>Personal protection</b>	
<b>Respiratory</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Hand</b>	Wear suitable gloves with long cuffs.
<b>Eye</b>	Wear eye/face protection.
<b>Skin and body</b>	Wear suitable protective clothing.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Powder
<b>Colour</b>	Grayish white
<b>Odour</b>	slightly amine like
<b>Boiling point/range</b>	not relevant
<b>Melting point/range</b>	min. 142 °C
<b>Flash point</b>	approx. 150 °C ( Cleveland, open cup )
<b>Flammability</b>	not determined
<b>Autoignition temperature</b>	> 400 °C
<b>Explosive properties</b>	dust explosion hazard
<b>Explosion limits</b>	Lower Explosion Limit (LEL): 10 g/m <sup>3</sup> , Minimum ignition energy: =<10 mJ, Limiting oxygene concentration (LOC) (V >=1 m <sup>3</sup> ): 7.4 Vol % O <sub>2</sub> .
<b>Oxidizing properties</b>	not applicable
<b>Vapour pressure</b>	negligible (20 °C )
<b>Density</b>	1425 kg/m <sup>3</sup> (20 °C )
<b>Bulk density</b>	410-450 kg/m <sup>3</sup> (20 °C )
<b>Solubility in water</b>	30 ppm
<b>Solubility in other solvents</b>	acetone, ether, chloroform
<b>pH value</b>	not determined
<b>Partition coefficient</b>	
<b>n-octanol/water</b>	not determined
<b>Relative vapour density (air=1)</b>	not applicable
<b>Viscosity</b>	not applicable

### 10. STABILITY AND REACTIVITY

<b>Stability</b>	Stable under recommended storage and handling conditions (see section 7).
<b>Conditions to avoid</b>	No specific recommendations.
<b>Materials to avoid</b>	oxidizing agents. strong acid.
<b>Hazardous decomposition</b>	
<b>Products</b>	No hazardous decomposition products known.
<b>Other information</b>	During the vulcanization process, traces of carcinogenic N-nitrosamines may be formed from decomposition products (amines) in the presence of nitrosating agents.

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### 11. TOXICOLOGICAL INFORMATION

<b>Name</b>	Tetramethylthiuram disulfide
<b>Acute toxicity</b>	
<b>Oral LD50</b>	rat: 1080 mg/kg.
<b>Dermal LD50</b>	rat: 7490 mg/kg.
<b>Inhalation LC50</b>	rat: 4.42 mg/l.
<b>Irritation</b>	
<b>Skin</b>	Practically non-irritating
<b>Eye</b>	Practically non-irritating
<b>Sensitization</b>	Sensitizing
<b>Genotoxicity</b>	EEC category 3 mutagen: substance which causes concern for man owing to its possible mutagenic effects.
<b>Other toxicological information</b>	Not teratogenic, not carcinogenic ( rat ), Micronucleus test ( mouse ): NOEL (No Observable Effect Level) > 200 mg/kg ( Lit. ), Neurotoxic. Human experience: Patch testing ( skin ): Sensitizing, irritating.

### 12. ECOLOGICAL INFORMATION

<b>Name</b>	Tetramethylthiuram disulfide
<b>Ecotoxicity</b>	
<b>fish</b>	96h-LC50 ( Oncorhynchus mykiss ): 0.13 mg/l, 96h-LC50 ( Lepomis macrochirus ): 0.13 mg/l, 96h-LC50 ( Pimephales promelas ): 0.27 mg/l.
<b>daphnia</b>	48h-EC50 ( Daphnia magna ): 0.24 mg/l.
<b>algae</b>	96h-IC50: 1.0 mg/l ( C. pyrenoidosa ) ( Lit. ).
<b>bacteria</b>	15min-EC50: 1.9 mg/l ( P. phosphoreum ) ( Lit. )
<b>Fate</b>	

### 13. DISPOSAL CONSIDERATIONS

<b>Product</b>	Avoid discharge into the environment. This material and its container must be disposed of as hazardous waste. Small quantities: According to local regulations. Large quantities: Consult QRC for special advice.
<b>Contaminated packaging</b>	According to local regulations.
<b>Other information</b>	Waste code number: Please refer to your specific industry in the European Waste Catalogue.

### 14. TRANSPORT INFORMATION

#### Land transport (ADR/ RID)

<b>ADR class</b>	9	<b>ADR item number</b>	12c
<b>RID class</b>	9	<b>RID item number</b>	12c
<b>Hazard Identification No.</b>	90	<b>Substance Identification No.</b>	3077
<b>TREM-Card</b>	CEFIC TEC(R)- 90G02	<b>UN number</b>	3077
	MFG PRO no. 3077912c01		
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Thiram) Environmentally hazardous substance, solid, n.o.s. (Tetramethylthiuram disulfide )		

#### Sea transport (IMDG-code/ IMO)

<b>IMO/IMDG code</b>	page 9029	<b>Class</b>	9
<b>Packing group</b>	III	<b>UN number</b>	3077
<b>EMS</b>	none	<b>MFAG</b>	none
<b>Marine pollutant</b>	yes		
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Thiram)		
<b>Other information</b>	USA: Code of Federal Regulations, Title 49, part 172.101 App. A: Thiram Reportable quantity (RQ) 10 kgs.		

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*Air transport (ICAO-TI/ IATA-DGR)*

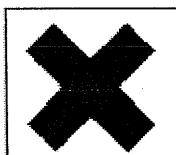
<b>ICAO-TI/IATA-DGR</b>		<b>UN number</b>	3077
<b>Class</b>	9	<b>Packing group</b>	III
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Thiram)		

**15. REGULATORY INFORMATION**

**Chemical description** Tetramethylthiuram disulfide

Labelling according to EC directives

**EC-number** See section 2  
**Classification based on** Annex-1 to directive 67/548/EEC



**Symbol(s)** HARMFUL (Xn)  
**R(isk) phrase(s)** R 20/22 Harmful by inhalation and if swallowed  
R 36/37 Irritating to eyes and respiratory system  
R 40 Possible risks of irreversible effects  
R 43 May cause sensitization by skin contact  
**S(afety) phrase(s)** S 36/37 Wear suitable protective clothing and gloves  
**Other information** To be displayed on the label: "EC label".  
**Wassergefährdungsklasse (WGK)** 2 ( VCI )

**16. OTHER INFORMATION**

This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

**Symbol(s)** IRRITANT (Xi)  
**R(isk) phrase(s)** R 43 May cause sensitization by skin contact  
**S(afety) phrase(s)** S 22 Do not breathe dust  
S 24 Avoid contact with skin  
S 37 Wear suitable gloves  
**Wassergefährdungsklasse (WGK)** 2 ( VCI )

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