



INTATRADE  
**MATERIAL SAFETY DATA SHEET**  
according to 1907/2006/EC, Article 31

Printed: 27.10.2014

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## 1. IDENTIFICATION OF SUBSTANCE AND OF THE COMPANY

Product name: **Bismuth telluride**  
Product code: EO04366  
Company: INTATRADE Chemicals GmbH  
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## 2. HAZARDS IDENTIFICATION

Hazard designation: Xn Harmful  
Information pertaining to particular dangers for man and environment: R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
R 36/37/38 Irritating to eyes, respiratory system and skin.

**Warning**

GHS label elements:  
H302 - Harmful if swallowed.  
H312 - Harmful in contact with skin.  
H332 - Harmful if inhaled.  
H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
H335 - May cause respiratory irritation.  
Prevention: P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
Response: P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Storage: P321 Specific treatment (see on this label).  
Disposal: P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization  
Designation: Bismuth(III) telluride  
CAS-No.: 1304-82-1  
EC-No.: 215-135-2

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## 4. FIRST AID MEASURES

After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
Seek immediate medical advice.  
After skin contact Instantly wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.

After eye contact                      Rinse opened eye for several minutes under running water. Then consult doctor.  
After swallowing                      Seek immediate medical advice.

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## 5. FIRE FIGHTING MEASURES

Suitable extinguishing agents:      CO<sub>2</sub>, sand, extinguishing powder. Do not use water.  
For safety reasons unsuitable  
extinguishing agents:                Water.  
Protective equipment:                Wear self-contained breathing apparatus.  
Wear full protective suit.

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## 6. ACCIDENTAL RELEASE MEASURES

Person-related safety precautions:    Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Measures for environmental            Do not allow material to be released to the environment without proper  
protection:                                governmental permits.  
Measures for cleaning/collecting:    Ensure adequate ventilation.  
Additional information:                See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

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## 7. HANDLING AND STORAGE

Handling  
Information for safe handling:        Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.  
Information about protection against explosions and fires: No special  
measures required.

Storage  
Requirements to be met by  
storerooms and containers:        No special requirements.  
Information about storage in one  
common storage facility:        Store away from oxidizing agents.  
Do not store together with acids.  
Store away from water.

Further information about  
storage conditions:                Protect from humidity and keep away from water.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Additional information about  
design of technical systems:        Properly operating chemical fume hood designed for hazardous  
chemicals and having an average face velocity of at least 100 feet per  
minute.

Components with critical  
values that require  
monitoring at the workplace:        Bismuth telluride (undoped)

|  |                    |  |
|--|--------------------|--|
|  | ACGIH TLV          | mg/m <sup>3</sup>                        |
|  | Belgium TWA        | 10; A4                                   |
|  | Denmark TWA        | 10                                       |
|  | France TWA         | 10                                       |
|  | Ireland TWA        | 10; 20-STEL                              |
|  | Netherlands TWA    | 5  |
|  | Switzerland TWA    | 0.1; 0.5-STEL                            |
|  | United Kingdom TWA | 10; 20-STEL                              |
|  | USA PEL            | 5 (respirable fraction); 15 (total dust) |

Personal protective equipment  
General protective and  
hygienic measures:                The usual precautionary measures should be adhered to in handling  
the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.

|                      |   |
|----------------------|---|
| Breathing equipment: | Wash hands during breaks and at the end of the work.  |
| Eye protection:      | Avoid contact with the eyes and skin.<br>Use breathing protection with high concentrations. |
| Body protection:     | Safety glasses<br>Face protection<br>Protective work clothing.                              |

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## 9. PHYSICAL AND CHEMICAL PROPERTIES:

### General Information

|         |              |
|---------|--------------|
| Form:   | Powder       |
| Colour: | Grey / Black |
| Smell:  | Odourless    |

### Change in condition

|                                  |                |
|----------------------------------|----------------|
| Melting point/Melting range:     | 573°C          |
| Boiling point/Boiling range:     | Not determined |
| Sublimation temperature / start: | Not determined |

|                                |                           |
|--------------------------------|---------------------------|
| Flash point:                   | Not applicable            |
| Ignition temperature:          | Not determined            |
| Decomposition temperature:     | Not determined            |
| Danger of explosion:           | Product is not explosive. |
| Critical values for explosion: |                           |
| Lower:                         | Not determined            |
| Upper:                         | Not determined            |
| Steam pressure:                | Not determined            |
| Density at 20°C:               | 7.642 g/cm <sup>3</sup>   |
| Solubility in water:           | Insoluble                 |

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## 10. STABILITY AND REACTIVITY

|   |  |
|---|--|
| Thermal decomposition / conditions to be avoided: | No decomposition if used and stored according to specifications. |
| Materials to be avoided:                          | Oxidizing agents, Acids, Water/moisture                          |
| Dangerous reactions:                              | Reacts with oxidizing agents                                     |
| Dangerous products of decomposition:              | Metal oxide  |

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## 11. TOXICOLOGICAL INFORMATION

|                                       |   |
|---------------------------------------|---|
| Acute toxicity:                       |   |
| Primary irritant effect:              |   |
| on the skin:                          | Irritant for skin and mucous membranes.   |
| on the eye:                           | Irritant effect.  |
| Sensitization:                        | No sensitizing effect known.  |
| Additional toxicological information: | To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.<br>ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals. |

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## 12. ECOLOGICAL INFORMATION

|                                   |   |
|-----------------------------------|---|
| Additional ecological information |   |
| General notes:                    | Water hazard class 1 (Self-assessment): slightly hazardous for water.<br>Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.<br>Do not allow material to be released to the environment without proper governmental permits. |

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## 13. DISPOSAL CONSIDERATIONS

Product

EO04366

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Recommendation: Consult state, local or national regulations for proper disposal.  
Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.

Uncleaned packagings

Recommendation: Disposal must be made according to official regulations.

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## 14. TRANSPORT INFORMATION

Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)

Class: 6.1 (T5) Toxic substances.  
Kemler Number: 60  
UN-Number: 3284  
Packaging group: III  
Label: 6.1  
Designation of goods: 3284 TELLURIUM COMPOUND, N.O.S. (Bismuth(III) telluride)  
Limited quantities (LQ) LQ9  
Transport category 2  
Tunnel restriction code E

Maritime transport IMDG/GGVSea:

Class: 6.1  
UN Number: 3284  
Label: 6.1  
Packaging group: III  
EMS Number: F-A,S-A  
Marine pollutant: No  
Correct technical name: TELLURIUM COMPOUND, N.O.S. (Bismuth(III) telluride)

Air transport ICAO-TI and IATA-DGR:

Class: 6.1  
UN/ID Number: 3284  
Label: 6.1  
Packaging group: III  
Correct technical name: TELLURIUM COMPOUND, N.O.S. (Bismuth(III) telluride)

UN "Model Regulation": UN3284, TELLURIUM COMPOUND, N.O.S., 6.1, III

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## 15. REGULATORY INFORMATION

Designation according to EC guidelines

Code letter and hazard

designation of product: Xn Harmful

Risk phrases: 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases: 26 In case of contact with eyes, rinse immediately with plenty of water  
and seek medical advice.

36/37 Wear suitable protective clothing and gloves.

National regulations

Information about limitation of use: Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.

Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

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## 16. OTHER INFORMATION

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Intatrade Chemicals GmbH shall not be held liable for any damage resulting from handling or from contact with the above product.