SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: Mercury (II) trifluoromethanesulfonate

Stock number: 39305
CAS Number: 49540-00-3
Index number: 080-002-00-6

1.2 Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com
Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:
Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz:
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS06 skull and crossbones
Acute Tox. 2 H300 Fatal if swallowed.
Acute Tox. 1 H310 Fatal in contact with skin.
Acute Tox. 2 H330 Fatal if inhaled.

GHS08 health hazard
STOT RE 2 H373 May cause damage to the central nervous system, the kidneys, the reproductive system and the brain through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

GHS09 environment
Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC
T; Very toxic
R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.
R33: Danger of cumulative effects.

Information concerning particular hazards for human and environment: Not applicable
Other hazards that do not result in classification No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms
GHS06 GHS08 GHS09

Signal word Danger
Hazard statements
H300 Fatal if swallowed.
H310 Fatal in contact with skin.
H330 Fatal if inhaled.
H373 May cause damage to the central nervous system, the kidneys, the reproductive system and the brain through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements
P280 Do not breathe dust/fume/gas/mist/vapours/spray.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...
P320 Specific treatment is urgent (see on this label).
P361 Take off immediately all contaminated clothing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation: 49540-00-3 Mercury (II) trifluoromethanesulfonate
Identification number(s):
Index number: 080-002-00-6

(Contd. on page 2)
SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Instantly remove any clothing soiled by the product.
Remove breathing apparatus only after soiled clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.

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.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents
Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

5.2 Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:
- Toxic metal compounds
- Hydrogen fluoride (HF)
- Carbon monoxide and carbon dioxide
- Sulphur oxides (SOx)

5.3 Advice for firefighters

Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.

6.2 Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

6.3 Methods and material for containment and cleaning up:

Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Prevention of secondary hazards:
No special measures required.

6.4 Reference to other sections

See Section 7 for information on safe handling
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Open and handle container with care.

Information about protection against explosions and fires:
The product is not flammable

7.2 Conditions for safe storage, including any incompatibilities

Storage
Requirements to be met by storerooms and containers:
No special requirements.

Information about storage in one common storage facility:
Store away from oxidising agents.

Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

Mercury, inorganic compounds (as Hg)
ng/m³
ACGIH TLV 0.025 (skin)
Austria MAK 0.05
Belgium TWA 0.1 (skin)
Denmark TWA 0.05 (skin)
Finland TWA 0.05
Franco VME 0.05 (skin)/vapor
Germany MAK 0.1
Hungary TWA 0.02; 0.04-STEL
Japan OEL 0.05
Korea TLV 0.025 (vapor) (skin)
Netherlands MAC-TGG 0.05; 0.5-MAC-K
Norway TWA 0.05
Poland TWA 0.025 (vapors); 0.2-STEL (vapors)
Sweden NGV 0.05
Switzerland MAK-W 0.01 (skin)
United Kingdom TWA 0.025
USA PEL 0.1-Ceiling

Additional information:
No data

8.2 Exposure controls

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.

(Contd. on page 3)
Trade name **Mercury (II) trifluoromethanesulfonate**

Wash hands during breaks and at the end of the work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use self-contained respiratory protective device in emergency situations.

**Protection of hands:**
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves:** Impervious gloves

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance:</strong></td>
<td>Powder</td>
</tr>
<tr>
<td><strong>Colour:</strong></td>
<td>White</td>
</tr>
<tr>
<td><strong>Smell:</strong></td>
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</tr>
<tr>
<td><strong>Odour threshold:</strong></td>
<td>Not determined</td>
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<tr>
<td><strong>pH-value:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Change in condition:</strong></td>
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</tr>
<tr>
<td>Melting point/Melting range:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Sublimation temperature / start</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Flash point:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Inflammability (solid, gaseous)</strong></td>
<td>Not determined</td>
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<tr>
<td><strong>Ignition temperature:</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Decomposition temperature:</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Self-inflammability:</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Danger of explosion:</strong></td>
<td>Product is not explosive</td>
</tr>
<tr>
<td><strong>Critical values for explosion:</strong></td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Steam pressure:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Density:</strong></td>
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<tr>
<td><strong>Relative density:</strong></td>
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</tr>
<tr>
<td><strong>Vapour density:</strong></td>
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<td><strong>Evaporation rate:</strong></td>
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<tr>
<td><strong>Solubility in / Miscibility with:</strong></td>
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<tr>
<td>Water:</td>
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</tr>
<tr>
<td>Partition coefficient (n-octanol/water):</td>
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</tr>
<tr>
<td><strong>Viscosity:</strong></td>
<td></td>
</tr>
<tr>
<td>dynamic:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>kinematic:</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

#### 9.2 Other information

No further relevant information available.

### SECTION 10: Stability and reactivity

**10.1 Reactivity:** No information known.

**10.2 Chemical stability:** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions:** No further relevant information available.

**10.4 Conditions to avoid:** No further relevant information available.

**10.5 Incompatible materials:**
- Oxidising agents

**10.6 Hazardous decomposition products:**
- Carbon monoxide and carbon dioxide
- Toxic metal compounds
- Sulphur oxides (SOx)
- Hydrogen fluoride

### SECTION 11: Toxicological information

**11.1 Information on toxicological effects**

**Acute toxicity:**
- Fatal if inhaled.
- Fatal in contact with skin.
- Fatal if swallowed.

**Danger by skin resorption:**

**LD/LC50 values that are relevant for classification:** No data

**Skin irritation or corrosion:** Irritant for skin and mucous membranes.

**Eye irritation or corrosion:** Irritant effect.

**Sensitization:** No sensitizing effect known.

**Germ cell mutagenicity:** No effects known.

**Carcinogenicity:**
- EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.
- IARC-3: Not classifiable as to carcinogenicity to humans.
- 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.

**Reproductive toxicity:** No effects known.

**Specific target organ system toxicity - repeated exposure:**
- May cause damage to the central nervous system, the kidneys, the reproductive system and the brain through prolonged or repeated exposure. Route of exposure: Oral, inhalative.

**Specific target organ system toxicity - single exposure:**
- No effects known.

**Aspiration hazard:** No effects known.

**Subacute to chronic toxicity:** No effects known.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

### SECTION 12: Ecological information

**12.1 Toxicity**

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability**
No further relevant information available.

**12.3 Bioaccumulative potential**
No further relevant information available.

**12.4 Mobility in soil**
No further relevant information available.

**Ecotoxic effects:**

**Remark:** Very toxic for fish
Additional ecological information:

General notes:
Do not allow material to be released to the environment without proper governmental permits.
Water danger class 3 (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects
No further relevant information available.

SECTION 13: Disposal considerations

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

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA
UN2025

14.2 UN proper shipping name
ADR
IMDG, IATA
2025 MERCURY COMPOUND, SOLID, N.O.S. (Mercury (II) trifluoromethanesulfonate)
MERCURY COMPOUND, SOLID, N.O.S. (Mercury (II) trifluoromethanesulfonate)

14.3 Transport hazard class(es)
ADR
IMDG, IATA
Class
6.1 (T5) Toxic substances.
6.1

14.5 Environmental hazards:
Environmentally hazardous substance, solid

14.6 Special precautions for user
Kemler Number:
60
Heavy metals and their salts (including their organometallic compounds), mercury and mercury compounds

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

Transport/Additional information:

ADR
Excepted quantities (EQ):
E4
Limited quantities (LQ)
500 g
Transport category
2
Tunnel restriction code
DVE

UN "Model Regulation":
UN2025, MERCURY COMPOUND, SOLID, N.O.S. (Mercury (II) trifluoromethanesulfonate), 6.1, II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances Substance is not listed.
Standard for the Uniform Scheduling of Drugs and Poisons Substance is not listed.

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

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.

Other regulations, limitations and prohibitive regulations
ELINCS (European List of Notified Chemical Substances) Substance is not listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS:
Global Marketing Department

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
<table>
<thead>
<tr>
<th>Trade name</th>
<th>Mercury (II) trifluoromethanesulfonate</th>
</tr>
</thead>
</table>

IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
vPvB: very Persistent and very Bioaccumulative  
ACGIH: American Conference of Governmental Industrial Hygienists (USA)  
OSHA: Occupational Safety and Health Administration (USA)  
NTP: National Toxicology Program (USA)  
IARC: International Agency for Research on Cancer  
EPA: Environmental Protection Agency (USA)