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

1.1 Product identifier

Trade name: 2-Bromo-2-nitropropane-1,3-diol

Stock number: A11639, L06465
CAS Number: 52-51-7
EC number: 200-143-6

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

GHS02 flame
Flam. Sol. 2  H228 Flammable solid.

GHS06 skull and crossbones
Acute Tox. 3  H301 Toxic if swallowed.
Acute Tox. 3  H331 Toxic if inhaled.

GHS05 corrosion
Eye Dam. 1  H318 Causes serious eye damage.

GHS09 environment
Aquatic Acute 1  H400 Very toxic to aquatic life.

GHS07
Acute Tox. 4  H312 Harmful in contact with skin.
Skin Irrit. 2  H315 Causes skin irritation.
STOT SE 3  H335 May cause respiratory irritation.

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

GHS02 GHS05 GHS06 GHS09

Signal word Danger

Hazard statements
H228 Flammable solid.
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H331 Toxic if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P360+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P362 Take off contaminated clothing and wash before reuse.
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.

DE (Contd. on page 2)
SECTION 3: Composition/information on ingredients

3.1 Substances
CAS# Designation: 52-51-7 2-Bromo-2-nitropropane-1,3-diol
Concentration: ≤100%
Identification number(s):
EC number: 200-143-0

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.
After swallowing
Do not induce vomiting; instantly call for medical help.
4.2 Most important symptoms and effects, both acute and delayed
Causes skin irritation.
Harmful in contact with skin.
Toxic if inhaled.
Toxic if swallowed.
Causes serious eye damage.
May cause respiratory irritation.
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: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
- Carbon monoxide and carbon dioxide
- Nitrogen oxides (NOx)
- Hydrogen bromide (HBr)
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
Keep away from ignition sources
6.2 Environmental precautions
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Prevention of secondary hazards:
Keep away from ignition sources.
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.
Store in cool location.
Open and handle container with care.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Information about protection against explosions and fires: Protect against electrostatic charges.
7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers:
Store away from oxidising agents.
Information about storage in one common storage facility:
Safe storage in a locked cabinet or with access restricted to technical experts or their assistants.

SECTION 8: Exposure controls/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.
8.1 Control parameters
Components with critical values that require monitoring at the workplace:
52-51-7 2-Bromo-2-nitropropane-1,3-diol (100.0%)

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.
Wash hands during breaks and at the end of the work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Trade name 2-Bromo-2-nitropropane-1,3-diol

9.1 Information on basic physical and chemical properties

Appearance: Crystalline
Odour: Not determined
Odour threshold: Not determined.

pH-value (10 g/l) at 20 °C: 5-7

Change in condition
Melting point/Melting range: ca 122-132 °C
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Inflammability (solid, gaseous): Highly flammable.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

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
Reacts with strong oxidising agents

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
Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
Harmful in contact with skin.
Toxic if inhaled.
Toxic if swallowed.

Danger by skin resorption.

Sensitization: No sensitizing effect known.

Carcinogenicity: No classification data on carcinogetic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

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

Specific target organ system toxicity - single exposure:
May cause respiratory irritation.

Aspiration hazard:
No effects known.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

LD/ LC50 values that are relevant for classification:

Oral LD50 180 mg/kg (rat)
Inhalative LC50/4H 800 mg/m3/4H (rat)

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.

Ecotoxicological effects:

Remark: Very toxic for fish
Additional ecological information:

General notes:
Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Self-assessment): hazardous for water.
Danger to drinking water if even small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.
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

14.2 UN proper shipping name

ADR
IMDG
IATA
3241 2-BROMO-2-NITROPROPANE-1,3-DIOL, MARINE POLLUTANT
2-BROMO-2-NITROPROPANE-1,3-DIOL

14.3 Transport hazard class(es)

ADR
IMDG
IATA
Class 4.1 (SR1) Flammable solids, self-reactive substances and solid desensitised explosives.
Class 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.
Class 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

Packing group

ADR, IMDG, IATA
III

14.5 Environmental hazards:

Marine pollutant:
Environmentally hazardous substance, solid; Marine Pollutant
Symbol (fish and tree)

14.6 Special precautions for user

Warning: Flammable solids, self-reactive substances and solid desensitised explosives.
EMS Number:
F-J,S-G

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

Transport/Additional information:

ADR
Limited quantities (LQ): 5 kg
Transport category 3
Tunnel restriction code D

UN "Model Regulation":
UN3241, 2-BROMO-2-NITROPROPANE-1,3-DIOL, 4.1, III

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 listed.
Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.
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 2 (Self-assessment): 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.
Substance is not listed.
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 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
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- 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)
- Flam. Sol. 2: Flammable solids, Hazard Category 2
- Acute Tox. 3: Acute toxicity, Hazard Category 3
- Acute Tox. 4: Acute toxicity, Hazard Category 4
- Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
- Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
- Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1