



Agilent Technologies

Product Name: ASTM D5453-Total Sulfur Kit (Medium)

Part no. : PANAL0215

This product is a kit, composed of the following individual chemical components:

Kit Components

Component Part Number	Component Name	Volume or mass/ container and unit	No. of component containers/ kit
PANAL0215-1	Isooctane solvent blank	2 mL	1
PANAL0215-2	Di-n-butyl sulfide, as S, 5 mg/L	2 mL	1
PANAL0215-3	Di-n-butyl sulfide, as S, 25 mg/L	2 mL	1
PANAL0215-4	Di-n-butyl sulfide, as S, 50 mg/L	2 mL	1
PANAL0215-5	Di-n-butyl sulfide, as S, 100 mg/L	2 mL	1
PANAL0215-6	Di-n-butyl sulfide, as S, 200 mg/L	2 mL	1

SDSs for each component follow this cover sheet.

Transportation Information for the Kit:

Proper Shipping Names:

DOT	IATA/ICAO	China
UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS	UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS	UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

1 Identification

- **Other means of identification**
- **Trade name:** Isooctane Solvent Blank
- **Part number:** PANAL0215-1
- **CAS Number:**
540-84-1
- **EC number:**
208-759-1
- **Index number:**
601-009-00-8
- **Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
- **Further information obtainable from:**
Telephone: 1800 802 402
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flammable liquids – Category 2

H225 Highly flammable liquid and vapour.



GHS08 health hazard

Aspiration hazard – Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Skin corrosion/irritation – Category 2

H315 Causes skin irritation.

Specific target organ toxicity (single exposure) – Category 3

H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 1)

· Hazard pictograms

· Signal word Danger
· Hazard-determining components of labelling:

2,2,4-trimethylpentane (100 %)

· Hazard statements

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H304 May be fatal if swallowed and enters airways.

· Precautionary statements

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read label before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P241 Use explosion-proof electrical/ventilating/lighting equipment.

P261 Avoid breathing vapours.

P280 Wear protective gloves / protective clothing.

P240 Ground/bond container and receiving equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P321 Specific treatment (see on this label).

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P331 Do NOT induce vomiting.

P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.

P362+P364 Take off contaminated clothing and wash it before reuse.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards
· Results of PBT and vPvB assessment
· PBT: Not applicable.

· vPvB: Not applicable.

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(Contd. on page 3)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 2)

3 Composition and Information on Ingredients

- **Chemical characterisation: Substances**
- **CAS No. Description**
540-84-1 2,2,4-trimethylpentane
- **Identification number(s)**
- **EC number:** 208-759-1
- **Index number:** 601-009-00-8

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

* 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **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 disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 3)

Prevent formation of aerosols.

· **Information about fire - and explosion protection:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Store in a cool location.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· **Specific end use(s)** No further relevant information available.

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8 Exposure controls and personal protection

· **Appropriate engineering controls** No further data; see section 7.

· **Ingredients with limit values that require monitoring at the workplace:** Not required.

· **Additional information:** The lists valid during the making were used as basis.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.

· **Protection of hands:**

Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· **Material of gloves**

For normal use: nitrile rubber, 11-13 mil thickness

For direct contact with the chemical: butyl rubber, 12-15 mil thickness

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.

· **Penetration time of glove material**

For normal use: nitrile rubber: 1 hour

For direct contact with the chemical: butyl rubber: > 4 hours

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 4)

· **Eye protection:**


Tightly sealed goggles

9 Physical and Chemical Properties

· **General Information**

· **Appearance:**

- | | |
|---------------------------|------------------|
| · Form: | Fluid |
| · Colour: | Colourless |
| · Odour: | Nearly odourless |
| · Odour threshold: | Not determined. |
| · pH-value: | Not determined. |

· **Change in condition**

- | | |
|---|---|
| · Melting point/freezing point: | -107 °C |
| · Initial boiling point and boiling range: | 99 °C |
| · Flash point: | -12 °C |
| · Flammability | Highly flammable. |
| · Auto-ignition temperature: | 410 °C |
| · Decomposition temperature: | Not determined. |
| · Ignition temperature: | Not determined. |
| · Explosive properties: | Product is not explosive. However, formation of explosive air/vapour mixtures are possible. |

· **Explosion limits:**

- | | |
|--|-----------------------------------|
| · Lower: | 1.1 Vol % |
| · Upper: | 6 Vol % |
| · Vapour pressure at 20 °C: | 41.25 hPa |
| · Density at 20 °C: | 0.692 g/cm ³ |
| · Relative density | Not determined. |
| · Vapour density | Not determined. |
| · Evaporation rate | Not determined. |
| · Solubility in / Miscibility with | |
| · water: | Not miscible or difficult to mix. |
| · Partition coefficient: n-octanol/water: | Not determined. |
| · Viscosity: | |
| · Dynamic at 20 °C: | 0.51 mPas |
| · Kinematic: | Not determined. |
| · Organic solvents: | 100.0 % |
| · VOC (EC) | 100.00 % |

· **Other information**

- | | |
|-----------------------------------|-----------------|
| · Particle characteristics | Not applicable. |
| · Physical state | Liquid |

10 Stability and Reactivity

-
- Reactivity**
- No further relevant information available.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 5)

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

540-84-1 2,2,4-trimethylpentane

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.52 mg/L (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 - Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water
 - Do not allow product to reach ground water, water course or sewage system.
 - Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

AU

(Contd. on page 7)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 6)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| · UN-Number | UN1262 |
| · ADG, IMDG, IATA | |
| · UN proper shipping name | 1262 OCTANES, ENVIRONMENTALLY HAZARDOUS |
| · ADG | OCTANES, MARINE POLLUTANT |
| · IMDG | OCTANES |
| · IATA | |
| · Transport hazard class(es) | |
| · ADG, IMDG | |
|   | |
| · Class | 3 Flammable liquids. |
| · Label | 3 |
| · IATA | |
|  | |
| · Class | 3 Flammable liquids. |
| · Label | 3 |
| · Packing group | II |
| · ADG, IMDG, IATA | |
| · Environmental hazards: | |
| · Marine pollutant: | Symbol (fish and tree) |
| · Special marking (ADG): | Symbol (fish and tree) |
| · Special precautions for user | Warning: Flammable liquids. |
| · Hazard identification number (Kemler code): | 33 |
| · EMS Number: | F-E,S-E |
| · Stowage Category | B |
| · Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |

(Contd. on page 8)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 7)

· Transport/Additional information:

· ADG	1L
· Limited quantities (LQ)	Code: E2
· Excepted quantities (EQ)	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	D/E

· IMDG	1L
· Limited quantities (LQ)	Code: E2
· Excepted quantities (EQ)	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":	UN 1262 OCTANES, 3, II, ENVIRONMENTALLY HAZARDOUS
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15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
· Australian Inventory of Industrial Chemicals

Substance is listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

Substance is not listed.

· Australia: Priority Existing Chemicals

Substance is not listed.

· Directive 2012/18/EU
· Named dangerous substances - ANNEX I Substance is not listed.

· Seveso category

E1 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· Qualifying quantity (tonnes) for the application of lower-tier requirements 100 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

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

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· Department issuing SDS: Document Control / Regulatory

· Contact: pdl-acg-regulatory-cq@agilent.com

· Abbreviations and acronyms:

ADR: Accord relatif au transport international 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

EINECS: European Inventory of Existing Commercial Chemical Substances

(Contd. on page 9)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Isooctane Solvent Blank

(Contd. of page 8)

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flammable liquids – Category 2: Flammable liquids – Category 2

Skin corrosion/irritation – Category 2: Skin corrosion/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration hazard – Category 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered.**

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

1 Identification

- **Other means of identification**
- **Trade name:** Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)
- **Part number:** PANAL0215-2
- **Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
- **Further information obtainable from:**
Telephone: 1800 802 402
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flammable liquids – Category 2

H225 Highly flammable liquid and vapour.



GHS08 health hazard

Aspiration hazard – Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Skin corrosion/irritation – Category 2

H315 Causes skin irritation.

Specific target organ toxicity (single exposure) – Category 3
H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labelling:**

2,2,4-trimethylpentane (>60 %)

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 1)

· Hazard statements

- H225 Highly flammable liquid and vapour.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.

· Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves / protective clothing.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P321 Specific treatment (see on this label).
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards
· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

· Chemical characterisation: Mixtures

- **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

540-84-1	2,2,4-trimethylpentane	>60%
	 Flammable liquids – Category 2, H225;  Aspiration hazard – Category 1, H304;  Skin corrosion/irritation – Category 2, H315; Specific target organ toxicity (single exposure) – Category 3, H336	

(Contd. on page 3)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 2)

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **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 disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 3)

- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Appropriate engineering controls** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
- **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
- **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

- **General Information**
- **Appearance:**
- **Form:** Fluid
- **Colour:** Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 4)

· Odour:	Nearly odourless
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	-107 °C
· Initial boiling point and boiling range:	99 °C
· Flash point:	-12 °C
· Flammability	Highly flammable.
· Auto-ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	1.1 Vol %
· Upper:	6 Vol %
· Vapour pressure at 20 °C:	41.25 hPa
· Density at 20 °C:	0.692 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Solvent content:	
· Organic solvents:	100.0 %
· VOC (EC)	100.00 %
· Other information	
· Particle characteristics	Not applicable.
· Physical state	Liquid

10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 5)

· LD/LC50 values relevant for classification:
540-84-1 2,2,4-trimethylpentane

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.52 mg/L (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN1262

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 6)

· UN proper shipping name · ADG · IMDG · IATA	1262 OCTANES solution, ENVIRONMENTALLY HAZARDOUS OCTANES solution, MARINE POLLUTANT OCTANES solution
--	---

- **Transport hazard class(es)**
- **ADG, IMDG**



- **Class** 3 Flammable liquids.
- **Label** 3

- **IATA**



- **Class** 3 Flammable liquids.
- **Label** 3

- **Packing group**
- **ADG, IMDG, IATA** II

- **Environmental hazards:**
- **Marine pollutant:** Symbol (fish and tree)
- **Special marking (ADG):** Symbol (fish and tree)

- **Special precautions for user** Warning: Flammable liquids.
- **Hazard identification number (Kemler code):** 33
- **EMS Number:** F-E,S-E
- **Stowage Category** B

- **Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

- **Transport/Additional information:**

- **ADG**
- **Limited quantities (LQ)** 1L
- **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
- **Transport category** 2
- **Tunnel restriction code** D/E

- **IMDG**
- **Limited quantities (LQ)** 1L

(Contd. on page 8)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

(Contd. of page 7)

· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Australian Inventory of Industrial Chemicals**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

E1 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

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

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Document Control / Regulatory

· **Contact:** pdl-acg-regulatory-cq@agilent.com

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flammable liquids – Category 2: Flammable liquids – Category 2

(Contd. on page 9)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 5 mg/L (1X2 mL)

Skin corrosion/irritation – Category 2: Skin corrosion/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration hazard – Category 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered.**

(Contd. of page 8)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

1 Identification

- **Other means of identification**
- **Trade name:** Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)
- **Part number:** PANAL0215-3
- **Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
- **Further information obtainable from:**
Telephone: 1800 802 402
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flammable liquids – Category 2

H225 Highly flammable liquid and vapour.



GHS08 health hazard

Aspiration hazard – Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Skin corrosion/irritation – Category 2

H315 Causes skin irritation.

Specific target organ toxicity (single exposure) – Category 3
H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labelling:**

2,2,4-trimethylpentane (>60 %)

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 1)

· Hazard statements

- H225 Highly flammable liquid and vapour.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.

· Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves / protective clothing.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P321 Specific treatment (see on this label).
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards
· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

· Chemical characterisation: Mixtures

- **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

540-84-1	2,2,4-trimethylpentane	>60%
	⚠ Flammable liquids – Category 2, H225; ⚠ Aspiration hazard – Category 1, H304; ⚠ Skin corrosion/irritation – Category 2, H315; Specific target organ toxicity (single exposure) – Category 3, H336	

(Contd. on page 3)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 2)

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

* 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **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 disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 3)

- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Appropriate engineering controls** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
- **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
- **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

- **General Information**
- **Appearance:**
- **Form:** Fluid
- **Colour:** Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 4)

· Odour:	Nearly odourless
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	-107 °C
· Initial boiling point and boiling range:	99 °C
· Flash point:	-12 °C
· Flammability	Highly flammable.
· Auto-ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	1.1 Vol %
· Upper:	6 Vol %
· Vapour pressure at 20 °C:	41.25 hPa
· Density at 20 °C:	0.69202 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Solvent content:	
· Organic solvents:	100.0 %
· VOC (EC)	99.98 %

· Other information	
· Particle characteristics	Not applicable.
· Physical state	Liquid

10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 5)

· LD/LC50 values relevant for classification:
540-84-1 2,2,4-trimethylpentane

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.52 mg/L (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN1262

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 6)

· UN proper shipping name · ADG · IMDG · IATA	1262 OCTANES solution, ENVIRONMENTALLY HAZARDOUS OCTANES solution, MARINE POLLUTANT OCTANES solution
--	---

- **Transport hazard class(es)**
- **ADG, IMDG**



- **Class** 3 Flammable liquids.
- **Label** 3

- **IATA**



- **Class** 3 Flammable liquids.
- **Label** 3

- **Packing group**
- **ADG, IMDG, IATA** II

- **Environmental hazards:**
- **Marine pollutant:** Symbol (fish and tree)
- **Special marking (ADG):** Symbol (fish and tree)

- **Special precautions for user** Warning: Flammable liquids.
- **Hazard identification number (Kemler code):** 33
- **EMS Number:** F-E,S-E
- **Stowage Category** B

- **Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

- **Transport/Additional information:**

- **ADG**
- **Limited quantities (LQ)** 1L
- **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

- **Transport category** 2
- **Tunnel restriction code** D/E

- **IMDG**
- **Limited quantities (LQ)** 1L

(Contd. on page 8)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

(Contd. of page 7)

· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Australian Inventory of Industrial Chemicals**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

E1 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

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

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Document Control / Regulatory

· **Contact:** pdl-acg-regulatory-cq@agilent.com

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flammable liquids – Category 2: Flammable liquids – Category 2

(Contd. on page 9)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 25 mg/L (1X2 mL)

Skin corrosion/irritation – Category 2: Skin corrosion/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration hazard – Category 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered.**

(Contd. of page 8)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

1 Identification

- **Other means of identification**
- **Trade name:** Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)
- **Part number:** PANAL0215-4
- **Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
- **Further information obtainable from:**
Telephone: 1800 802 402
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flammable liquids – Category 2

H225 Highly flammable liquid and vapour.



GHS08 health hazard

Aspiration hazard – Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Skin corrosion/irritation – Category 2

H315 Causes skin irritation.

Specific target organ toxicity (single exposure) – Category 3
H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labelling:**

2,2,4-trimethylpentane (>60 %)

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 1)

· Hazard statements

- H225 Highly flammable liquid and vapour.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.

· Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves / protective clothing.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P321 Specific treatment (see on this label).
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards
· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

· Chemical characterisation: Mixtures

- **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

540-84-1	2,2,4-trimethylpentane	>60%
	⚠ Flammable liquids – Category 2, H225; ⚠ Aspiration hazard – Category 1, H304; ⚠ Skin corrosion/irritation – Category 2, H315; Specific target organ toxicity (single exposure) – Category 3, H336	

(Contd. on page 3)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 2)

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

* 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **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 disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 3)

- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Appropriate engineering controls** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
- **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
- **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

- **General Information**
- **Appearance:**
- **Form:** Fluid
- **Colour:** Colourless

(Contd. on page 5)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 4)

· Odour:	Nearly odourless
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	-107 °C
· Initial boiling point and boiling range:	99 °C
· Flash point:	-12 °C
· Flammability	Highly flammable.
· Auto-ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	1.1 Vol %
· Upper:	6 Vol %
· Vapour pressure at 20 °C:	41.25 hPa
· Density at 20 °C:	0.69205 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Solvent content:	
· Organic solvents:	100.0 %
· VOC (EC)	99.97 %

· Other information	
· Particle characteristics	Not applicable.
· Physical state	Liquid

10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 5)

· LD/LC50 values relevant for classification:
540-84-1 2,2,4-trimethylpentane

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.52 mg/L (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN1262

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 6)

· UN proper shipping name · ADG · IMDG · IATA	1262 OCTANES solution, ENVIRONMENTALLY HAZARDOUS OCTANES solution, MARINE POLLUTANT OCTANES solution
--	---

- **Transport hazard class(es)**
- **ADG, IMDG**



· Class · Label	3 Flammable liquids. 3
--	---------------------------

- **IATA**



· Class · Label	3 Flammable liquids. 3
--	---------------------------

· Packing group · ADG, IMDG, IATA	II
--	----

· Environmental hazards: · Marine pollutant: · Special marking (ADG):	Symbol (fish and tree) Symbol (fish and tree)
--	--

· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category	Warning: Flammable liquids. 33 F-E,S-E B
--	---

· Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
---	-----------------

- **Transport/Additional information:**

· ADG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
---	---

· Transport category · Tunnel restriction code	2 D/E
---	----------

· IMDG · Limited quantities (LQ)	1L
---	----

(Contd. on page 8)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

(Contd. of page 7)

· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Australian Inventory of Industrial Chemicals**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

E1 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

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

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Document Control / Regulatory

· **Contact:** pdl-acg-regulatory-cq@agilent.com

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flammable liquids – Category 2: Flammable liquids – Category 2

(Contd. on page 9)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 50 mg/L (1X2 mL)

Skin corrosion/irritation – Category 2: Skin corrosion/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration hazard – Category 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered.**

(Contd. of page 8)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

1 Identification

- **Other means of identification**
- **Trade name:** Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)
- **Part number:** PANAL0215-5
- **Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
- **Further information obtainable from:**
Telephone: 1800 802 402
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flammable liquids – Category 2

H225 Highly flammable liquid and vapour.



GHS08 health hazard

Aspiration hazard – Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Skin corrosion/irritation – Category 2

H315 Causes skin irritation.

Specific target organ toxicity (single exposure) – Category 3
H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labelling:**

2,2,4-trimethylpentane (>60 %)

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 1)

· Hazard statements

- H225 Highly flammable liquid and vapour.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.

· Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves / protective clothing.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P321 Specific treatment (see on this label).
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards
· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

· Chemical characterisation: Mixtures

- **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

540-84-1	2,2,4-trimethylpentane	>60%
	⚠ Flammable liquids – Category 2, H225; ⚠ Aspiration hazard – Category 1, H304; ⚠ Skin corrosion/irritation – Category 2, H315; Specific target organ toxicity (single exposure) – Category 3, H336	

(Contd. on page 3)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 2)

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **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 disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 4)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 3)

- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Appropriate engineering controls** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
- **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
- **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

- **General Information**
- **Appearance:**
- **Form:** Fluid
- **Colour:** Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 4)

· Odour:	Nearly odourless
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	-107 °C
· Initial boiling point and boiling range:	99 °C
· Flash point:	-12 °C
· Flammability	Highly flammable.
· Auto-ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	1.1 Vol %
· Upper:	6 Vol %
· Vapour pressure at 20 °C:	41.25 hPa
· Density at 20 °C:	0.6921 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Solvent content:	
· Organic solvents:	99.9 %
· VOC (EC)	99.93 %

· Other information	
· Particle characteristics	Not applicable.
· Physical state	Liquid

10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 5)

· LD/LC50 values relevant for classification:
540-84-1 2,2,4-trimethylpentane

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.52 mg/L (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN1262

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 6)

· UN proper shipping name · ADG · IMDG · IATA	1262 OCTANES solution, ENVIRONMENTALLY HAZARDOUS OCTANES solution, MARINE POLLUTANT OCTANES solution
--	---

- **Transport hazard class(es)**
- **ADG, IMDG**



- **Class** 3 Flammable liquids.
- **Label** 3

- **IATA**



- **Class** 3 Flammable liquids.
- **Label** 3

- **Packing group**
- **ADG, IMDG, IATA** II

- **Environmental hazards:**
- **Marine pollutant:** Symbol (fish and tree)
- **Special marking (ADG):** Symbol (fish and tree)

- **Special precautions for user** Warning: Flammable liquids.
- **Hazard identification number (Kemler code):** 33
- **EMS Number:** F-E,S-E
- **Stowage Category** B

- **Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

- **Transport/Additional information:**

- **ADG**
- **Limited quantities (LQ)** 1L
- **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

- **Transport category** 2
- **Tunnel restriction code** D/E

- **IMDG**
- **Limited quantities (LQ)** 1L

(Contd. on page 8)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

(Contd. of page 7)

· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1262 OCTANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Australian Inventory of Industrial Chemicals**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

E1 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

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

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Document Control / Regulatory

· **Contact:** pdl-acg-regulatory-cq@agilent.com

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flammable liquids – Category 2: Flammable liquids – Category 2

(Contd. on page 9)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 100 mg/L (1X2 mL)

Skin corrosion/irritation – Category 2: Skin corrosion/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration hazard – Category 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered.**

(Contd. of page 8)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

1 Identification

- **Other means of identification**
- **Trade name:** Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)
- **Part number:** PANAL0215-6
- **Relevant identified uses of the substance or mixture and uses advised against**
Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
- **Further information obtainable from:**
Telephone: 1800 802 402
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flammable liquids – Category 2

H225 Highly flammable liquid and vapour.



GHS08 health hazard

Aspiration hazard – Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Skin corrosion/irritation – Category 2

H315 Causes skin irritation.

Specific target organ toxicity (single exposure) – Category 3
H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labelling:**

2,2,4-trimethylpentane (>60 %)

(Contd. on page 2)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

(Contd. of page 1)

· Hazard statements

- H225 Highly flammable liquid and vapour.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H304 May be fatal if swallowed and enters airways.

· Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves / protective clothing.
- P240 Ground/bond container and receiving equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P321 Specific treatment (see on this label).
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P331 Do NOT induce vomiting.
- P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Other hazards
· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition and Information on Ingredients

· Chemical characterisation: Mixtures

- **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

540-84-1	2,2,4-trimethylpentane	>60%
	⚠ Flammable liquids – Category 2, H225; ⚠ Aspiration hazard – Category 1, H304; ⚠ Skin corrosion/irritation – Category 2, H315; Specific target organ toxicity (single exposure) – Category 3, H336	

(Contd. on page 3)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

(Contd. of page 2)

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First Aid Measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **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 disposal information.

7 Handling and Storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

(Contd. of page 3)

- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

- **Appropriate engineering controls** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
- **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
- **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye protection:**



Tightly sealed goggles

9 Physical and Chemical Properties

- **General Information**
- **Appearance:**
- **Form:** Fluid
- **Colour:** Colourless

(Contd. on page 5)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

(Contd. of page 4)

· Odour:	Nearly odourless
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
· Melting point/freezing point:	-107 °C
· Initial boiling point and boiling range:	99 °C
· Flash point:	-12 °C
· Flammability	Highly flammable.
· Auto-ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
· Lower:	1.1 Vol %
· Upper:	6 Vol %
· Vapour pressure at 20 °C:	41.25 hPa
· Density at 20 °C:	0.69219 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Solvent content:	
· Organic solvents:	99.9 %
· VOC (EC)	99.87 %
· Other information	
· Particle characteristics	Not applicable.
· Physical state	Liquid

10 Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

(Contd. on page 6)

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

(Contd. of page 5)

· LD/LC50 values relevant for classification:
540-84-1 2,2,4-trimethylpentane

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.52 mg/L (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **ADG, IMDG, IATA** UN1262

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Date of issue: 17.11.2025

Revision: 17.11.2025

Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

(Contd. of page 6)

· UN proper shipping name · ADG · IMDG · IATA	1262 OCTANES solution, ENVIRONMENTALLY HAZARDOUS OCTANES solution, MARINE POLLUTANT OCTANES solution
--	---

- **Transport hazard class(es)**
- **ADG, IMDG**



· Class · Label	3 Flammable liquids. 3
--	---------------------------

- **IATA**



· Class · Label	3 Flammable liquids. 3
--	---------------------------

· Packing group · ADG, IMDG, IATA	II
--	----

· Environmental hazards: · Marine pollutant: · Special marking (ADG):	Symbol (fish and tree) Symbol (fish and tree)
--	--

· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category	Warning: Flammable liquids. 33 F-E,S-E B
--	---

· Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
---	-----------------

- **Transport/Additional information:**

· ADG · Limited quantities (LQ) · Excepted quantities (EQ) · Transport category · Tunnel restriction code	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml 2 D/E
--	---

· IMDG · Limited quantities (LQ)	1L
---	----

(Contd. on page 8)

Safety Data Sheet

according to WHS Regulations

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Revision: 17.11.2025

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(Contd. of page 7)

· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Australian Inventory of Industrial Chemicals**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

None of the ingredients is listed.

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Seveso category**

E1 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

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

16 Other information

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· **Relevant phrases**

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Document Control / Regulatory

· **Contact:** pdl-acg-regulatory-cq@agilent.com

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CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flammable liquids – Category 2: Flammable liquids – Category 2

(Contd. on page 9)

Safety Data Sheet

according to WHS Regulations

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Trade name: Di-n-butyl Sulfide (as S), 200 mg/L (1X2 mL)

Skin corrosion/irritation – Category 2: Skin corrosion/irritation – Category 2

Specific target organ toxicity (single exposure) – Category 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration hazard – Category 1: Aspiration hazard – Category 1

· *** Data compared to the previous version altered.**

(Contd. of page 8)

AU