

Product code	Description
PANAL0222	Sulfur and Nitrogen Mix Standards Kit

Components:

PANAL0222-1	Isooctane Solvent Blank
PANAL0222-2	Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)
PANAL0222-3	Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)
PANAL0222-4	Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)
PANAL0222-5	Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)
PANAL0222-6	Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

1 Identification

- **Product identifier**
- **Trade name:** Isooctane Solvent Blank
- **Part number:** PANAL0222-1
- **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:** CHEMTRAC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 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)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 1)

· Hazard pictograms

GHS02 GHS07 GHS08

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

2,2,4-trimethylpentane

· Hazard statements

Highly flammable liquid and vapour.

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

· Precautionary statements

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

Keep out of reach of children.

Read label before use.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

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

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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: Substances****· CAS No. Description**

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

(Contd. on page 3)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 2)

- **Identification number(s)**
- **EC number:** 208-759-1
- **Index number:** 601-009-00-8

4 First Aid Measures

- **Description of 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

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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 product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 item 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.

AU

(Contd. on page 4)

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 3)

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.
- **Conditions for safe storage, including any incompatibilities**
- **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.

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **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.
 - 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.

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 4)

· 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

· Information on basic 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 (solid, gas):** Not applicable.**· Ignition temperature:** 410 °C**· Decomposition temperature:** Not determined.**· Auto-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/cm³**· 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

(Contd. on page 6)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 5)

Kinematic:	Not determined.
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- Solvent content:**

Organic solvents:	100.0 %
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VOC (EC)	100.00 %
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- Other information**

No further relevant information available.
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10 Stability and Reactivity

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

- LD/LC50 values relevant for classification:**

- ATE (Acute Toxicity Estimates)**

Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.5 mg/L (rat)

- 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** Irritant to skin and mucous membranes.

- Serious eye damage/irritation** No irritating effect.

- Respiratory or skin sensitisation** No sensitising effects known.

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.

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 6)

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	UN1262
· ADG, IMDG, IATA	
· UN proper shipping name	1262 OCTANES, ENVIRONMENTALLY HAZARDOUS OCTANES
· ADG	
· IMDG, IATA	
· Transport hazard class(es)	
· ADG	
	
	
· Class	3 Flammable liquids.
· Label	3
· IMDG, IATA	
	
· Class	3 Flammable liquids.
· Label	3
· Packing group	
· ADG, IMDG, IATA	II
· Environmental hazards:	
· Special marking (ADG):	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	33
· EMS Number:	3-07

(Contd. on page 8)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 7)

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

15 Regulatory information

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

- Australian Inventory of Chemical Substances

Substance is listed.

- Standard for the Uniform Scheduling of Medicines and Poisons

Substance is not listed.

- 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:** regulatory@ultrasci.com

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

(Contd. on page 9)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 23.03.2019

Trade name: Isooctane Solvent Blank

(Contd. of page 8)

EINECS: European Inventory of Existing Commercial 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
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Asp. Tox. 1: Aspiration hazard – Category 1

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

1 Identification

- **Product identifier**
 - **Trade name:** Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)
 - **Part number:** PANAL0222-2
 - **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:** CHEMTRAC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 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

- **Hazard statements**

Highly flammable liquid and vapour.

(Contd. on page 2)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)

(Contd. of page 1)

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Precautionary statements

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

Keep out of reach of children.

Read label before use.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

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

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

540-84-1	2,2,4-trimethylpentane	99.999%
	Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3, H336	

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

4 First Aid Measures

Description of 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.

(Contd. on page 3)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)

(Contd. of page 2)

- **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

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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 product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 item 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.
- **Conditions for safe storage, including any incompatibilities**
- **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.

(Contd. on page 4)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)

(Contd. of page 3)

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

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **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.

- **Exposure controls**

- **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.

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

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 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 (solid, gas):	Not applicable.
· Ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Auto-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	No further relevant information available.

10 Stability and Reactivity

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

(Contd. on page 6)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)

(Contd. of page 5)

- Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- Information on toxicological effects**

- Acute toxicity**

- LD/LC50 values relevant for classification:**

ATE (Acute Toxicity Estimates)		
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.5 mg/L (rat)

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** Irritant to skin and mucous membranes.

- Serious eye damage/irritation** No irritating effect.

- Respiratory or skin sensitisation** No sensitising effects known.

- Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

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.

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)

(Contd. of page 6)

· 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 solution, ENVIRONMENTALLY HAZARDOUS
· ADG	OCTANES solution, MARINE POLLUTANT
· IMDG	OCTANES solution
· IATA	
· 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:	Product contains environmentally hazardous substances: 2,2,4-trimethylpentane
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADG):	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	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

(Contd. on page 8)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 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
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· 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
· 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 Chemical Substances

All ingredients are listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

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:** regulatory@ultrasci.com

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

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)

(Contd. on page 9)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 1 mg/L (1X2 mL)

(Contd. of page 8)

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

Flam. Liq. 2: Flammable liquids – Category 2

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

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

Asp. Tox. 1: Aspiration hazard – Category 1

* Data compared to the previous version altered.

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

1 Identification

- **Product identifier**
 - **Trade name:** Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)
 - **Part number:** PANAL0222-3
 - **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:** CHEMTRAC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 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

- **Hazard statements**

Highly flammable liquid and vapour.

(Contd. on page 2)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)

(Contd. of page 1)

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Precautionary statements

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

Keep out of reach of children.

Read label before use.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

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

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

540-84-1	2,2,4-trimethylpentane	99.994%
	◆ Flam. Liq. 2, H225; ◆ Asp. Tox. 1, H304; ◆ Skin Irrit. 2, H315; STOT SE 3, H336	

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

4 First Aid Measures**Description of 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.

(Contd. on page 3)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)

(Contd. of page 2)

- **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

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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 product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 item 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.
- **Conditions for safe storage, including any incompatibilities**
- **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.

(Contd. on page 4)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)

(Contd. of page 3)

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

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **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.

- **Exposure controls**

- **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.

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

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 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 (solid, gas):	Not applicable.
· Ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Auto-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)	100.00 %
· Other information	No further relevant information available.

10 Stability and Reactivity

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

(Contd. on page 6)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)

(Contd. of page 5)

- Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- Information on toxicological effects**

- Acute toxicity**

- LD/LC50 values relevant for classification:**

ATE (Acute Toxicity Estimates)		
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.5 mg/L (rat)

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** Irritant to skin and mucous membranes.

- Serious eye damage/irritation** No irritating effect.

- Respiratory or skin sensitisation** No sensitising effects known.

- Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

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.

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)

(Contd. of page 6)

· 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 solution, ENVIRONMENTALLY HAZARDOUS
· ADG	OCTANES solution, MARINE POLLUTANT
· IMDG	OCTANES solution
· IATA	
· 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:	Product contains environmentally hazardous substances: 2,2,4-trimethylpentane
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADG):	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	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

(Contd. on page 8)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 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
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· 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
· 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 Chemical Substances**

All ingredients are listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

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:** regulatory@ultrasci.com**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

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)

(Contd. on page 9)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 5 mg/L (1X2 mL)

(Contd. of page 8)

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

Flam. Liq. 2: Flammable liquids – Category 2

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

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

Asp. Tox. 1: Aspiration hazard – Category 1

* Data compared to the previous version altered.

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

1 Identification

- **Product identifier**
 - **Trade name:** Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)
 - **Part number:** PANAL0222-4
 - **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:** CHEMTRAC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 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

- **Hazard statements**

Highly flammable liquid and vapour.

(Contd. on page 2)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)

(Contd. of page 1)

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Precautionary statements

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

Keep out of reach of children.

Read label before use.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

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

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

540-84-1	2,2,4-trimethylpentane	99.988%
	◆ Flam. Liq. 2, H225; ◆ Asp. Tox. 1, H304; ◆ Skin Irrit. 2, H315; STOT SE 3, H336	

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

4 First Aid Measures**Description of 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.

(Contd. on page 3)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)

(Contd. of page 2)

- **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

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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 product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 item 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.
- **Conditions for safe storage, including any incompatibilities**
- **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.

(Contd. on page 4)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)

(Contd. of page 3)

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

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **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.

- **Exposure controls**

- **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.

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

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

(Contd. on page 5)

AU

Safety Data Sheet

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Trade name: Thiophene (as S) and Pyridine (as N), 10 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 (solid, gas):	Not applicable.
· Ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Auto-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:	0.69204 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)	99.99 %
· Other information	No further relevant information available.

10 Stability and Reactivity

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

(Contd. on page 6)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)

(Contd. of page 5)

- Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- Information on toxicological effects**
- Acute toxicity**

- LD/LC50 values relevant for classification:**

ATE (Acute Toxicity Estimates)		
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.5 mg/L (rat)

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** Irritant to skin and mucous membranes.

- Serious eye damage/irritation** No irritating effect.

- Respiratory or skin sensitisation** No sensitising effects known.

- Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

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.

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)

(Contd. of page 6)

· 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 solution, ENVIRONMENTALLY HAZARDOUS
· ADG	OCTANES solution, MARINE POLLUTANT
· IMDG	OCTANES solution
· IATA	
· 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:	Product contains environmentally hazardous substances: 2,2,4-trimethylpentane
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADG):	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	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

(Contd. on page 8)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 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
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· 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
· 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 Chemical Substances**

All ingredients are listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

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:** regulatory@ultrasci.com**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

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)

(Contd. on page 9)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 10 mg/L (1X2 mL)

(Contd. of page 8)

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

Flam. Liq. 2: Flammable liquids – Category 2

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

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

Asp. Tox. 1: Aspiration hazard – Category 1

* Data compared to the previous version altered.

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

1 Identification

- **Product identifier**
 - **Trade name:** Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)
 - **Part number:** PANAL0222-5
 - **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:** CHEMTRAC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 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

- **Hazard statements**

Highly flammable liquid and vapour.

(Contd. on page 2)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)

(Contd. of page 1)

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Precautionary statements

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

Keep out of reach of children.

Read label before use.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

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

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

540-84-1	2,2,4-trimethylpentane	99.94%
	◆ Flam. Liq. 2, H225; ◆ Asp. Tox. 1, H304; ◆ Skin Irrit. 2, H315; STOT SE 3, H336	

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

4 First Aid Measures**Description of 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.

(Contd. on page 3)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

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(Contd. of page 2)

- **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

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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 product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 item 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.
- **Conditions for safe storage, including any incompatibilities**
- **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.

(Contd. on page 4)

AU

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Trade name: Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)

(Contd. of page 3)

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

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **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.

- **Exposure controls**

- **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.

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

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 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 (solid, gas):	Not applicable.
· Ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Auto-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:	100.0 %
· VOC (EC)	99.96 %
· Other information	No further relevant information available.

10 Stability and Reactivity

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

(Contd. on page 6)

AU

Safety Data Sheet

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Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)

(Contd. of page 5)

- Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- Information on toxicological effects**
- Acute toxicity**

- LD/LC50 values relevant for classification:**

ATE (Acute Toxicity Estimates)		
Dermal	LD50	>2,001 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.5 mg/L (rat)

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** Irritant to skin and mucous membranes.

- Serious eye damage/irritation** No irritating effect.

- Respiratory or skin sensitisation** No sensitising effects known.

- Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

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.

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)

(Contd. of page 6)

· 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 solution, ENVIRONMENTALLY HAZARDOUS
· ADG	OCTANES solution, MARINE POLLUTANT
· IMDG	OCTANES solution
· IATA	
· 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:	Product contains environmentally hazardous substances: 2,2,4-trimethylpentane
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADG):	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	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

(Contd. on page 8)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 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
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· 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
· 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 Chemical Substances**

All ingredients are listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

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:** regulatory@ultrasci.com**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

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)

(Contd. on page 9)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 50 mg/L (1X2 mL)

(Contd. of page 8)

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

Flam. Liq. 2: Flammable liquids – Category 2

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

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

Asp. Tox. 1: Aspiration hazard – Category 1

* Data compared to the previous version altered.

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

1 Identification

- **Product identifier**
 - **Trade name:** Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)
 - **Part number:** PANAL0222-6
 - **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:** CHEMTRAC®: +(61) - 290372994

2 Hazard(s) Identification

- **Classification of the substance or mixture**



flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



health hazard

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 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

- **Hazard statements**

Highly flammable liquid and vapour.

(Contd. on page 2)

AU

**Safety Data Sheet
according to WHS Regulations**

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)

(Contd. of page 1)

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Precautionary statements

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

Keep out of reach of children.

Read label before use.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

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

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

Call a POISON CENTER/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

540-84-1	2,2,4-trimethylpentane	99.881%
	◆ Flam. Liq. 2, H225; ◆ Asp. Tox. 1, H304; ◆ Skin Irrit. 2, H315; STOT SE 3, H336	

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

4 First Aid Measures**Description of 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.

(Contd. on page 3)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

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Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)

(Contd. of page 2)

- **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

- **Extinguishing media**
- **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.
- **Advice for firefighters**
- **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 product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 item 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.
- **Conditions for safe storage, including any incompatibilities**
- **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.

(Contd. on page 4)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)

(Contd. of page 3)

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

8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **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.

- **Exposure controls**

- **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.

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

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:

Fluid

Colour:

Colourless

(Contd. on page 5)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 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 (solid, gas):	Not applicable.
· Ignition temperature:	410 °C
· Decomposition temperature:	Not determined.
· Auto-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:	0.69238 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)	99.92 %
· Other information	No further relevant information available.

10 Stability and Reactivity

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

(Contd. on page 6)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)

(Contd. of page 5)

- Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

- Information on toxicological effects**
- Acute toxicity**

- LD/LC50 values relevant for classification:**

ATE (Acute Toxicity Estimates)		
Dermal	LD50	>2,002 mg/kg (rabbit)
Inhalative	LC50/4 h	>33.6 mg/L (rat)

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** Irritant to skin and mucous membranes.
- Serious eye damage/irritation** No irritating effect.
- Respiratory or skin sensitisation** No sensitising effects known.
- Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

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.

(Contd. on page 7)

AU

Safety Data Sheet

according to WHS Regulations

Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 100 mg/L (1X2 mL)

(Contd. of page 6)

· 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 solution, ENVIRONMENTALLY HAZARDOUS
· ADG	OCTANES solution, MARINE POLLUTANT
· IMDG	OCTANES solution
· IATA	
· 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:	Product contains environmentally hazardous substances: 2,2,4-trimethylpentane
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADG):	Symbol (fish and tree)
· Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	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

(Contd. on page 8)

AU

Safety Data Sheet

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Printing date 31.03.2019

Version number 4

Revision: 30.03.2019

Trade name: Thiophene (as S) and Pyridine (as N), 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
· Transport category	2
· Tunnel restriction code	D/E
· IMDG	
· 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
· 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 Chemical Substances**

All ingredients are listed.

· Standard for the Uniform Scheduling of Medicines and Poisons

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:** regulatory@ultrasci.com**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

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)

(Contd. on page 9)

AU

Safety Data Sheet

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(Contd. of page 8)

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

Flam. Liq. 2: Flammable liquids – Category 2

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

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

Asp. Tox. 1: Aspiration hazard – Category 1

* Data compared to the previous version altered.

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