

Allucid, inc.

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<http://www.allucid.com>

Safety Data Sheet

TMPX

1. Product Identification

Trade name: TMPX

Suggested use: Photoinitiator

Restriction: Do not use in food

Chemical Name: Trimethylolpropane tris(3-mercaptopropionate)

CAS No.: 33007-83-9

Molecular Weight: 398.56

Chemical Formula: C₁₅H₂₆O₆S₃

Name of Manufacturer/Supplier: Allucid, inc.

Address of Manufacturer/Supplier: 1-1, Bengong 5th Road, Gangshan Kaohsiung, Taiwan 82059

Person/Telephone Number for Inquiry: H.-T. Eric Chen +886-7-624-3737

Emergency Phone No.: +886-7-634-3737 **Fax:** +886-7-624-3736

2. Hazards Identification

2.1 Classification of the substance or mixture

2.1.1 GHS Classification REGULATION (EC) No 1272/2008

Acute toxicity, Category 4

H302: Harmful if swallowed.

Skin sensitisation, Category 1A

H317: May cause an allergic skin reaction.

Acute aquatic toxicity, Category 1

Chronic aquatic toxicity, Category 1

H410: Very toxic to aquatic life with long lasting effects.

2.1.2 Classification (67/548/EEC, 1999/45/EC)

Xn: Harmful

R22: Harmful if swallowed.

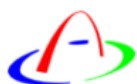
Xi: Irritant

R43: May cause sensitisation by skin contact.

N: Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements



GHS-Labeling REGULATION (EC) No 1272/2008



Symbol(s):

Signal word:

Warning

Hazard statements:

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P261 Avoid breathing spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face

protection.

Prevention:

Prevention Precautionary Statement - Prevention

P261

Avoid breathing spray.

P273

Avoid release to the environment.

P280

Wear protective gloves/ eye protection/ face protection.

Response:

Response

Precautionary Statement - Response

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

Storage:

Storage

Precautionary Statement - Storage

P405

Store locked up.

Disposal:

Disposal

Precautionary Statement – Disposal

P501

Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

3. Composition /Information on Ingredients

| Ingredient | CAS NO. | Percent | Hazardous |
|---|------------|---------|-----------|
| Trimethylolpropane tris(3-mercaptopropionate) | 33007-83-9 | ≥95 | |
| 3-mercaptopropionic acid | 107-96-0 | <1 | |

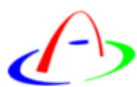
4. First Aid Measures

4.1 Description of first aid measures

General advice

Remove all soiled, soaked clothing and footwear immediately.

Inhalation



Remove to fresh air. If necessary, administer oxygen.

Skin contact

Wash off immediately with soap and plenty of water.

Eye contact

Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, consult a specialist.

Ingestion

Rinse out mouth and spit out the liquid. If person remains conscious, immediately give them a lot of water to drink; induce vomiting. Hold person's head low, to prevent aspiration (inhalation into the windpipe) Call a doctor if necessary.

4.2 Most important symptoms and effects, both acute and delayed

Lung: irritation causing coughing

Eyes: conjunctivitis

Ingestion: headaches, dizziness, tiredness, stomach and intestinal symptoms

4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

Irritated areas of skin can be treated with corticosteroids. Corticosteroids are effective following inhalation too.

Due to its non-corrosive nature, elimination can be achieved through immediate vomiting or irrigation of the stomach if the chemical is ingested. It is helpful to give the person powdered carbon afterwards. Take preventive measures against aspiration (intubation if necessary).

5. Fire Fighting Measures

5.1 Extinguishing media

Foam

Carbon dioxide (CO₂)

5.2 Special hazards arising from the substance or mixture

In the event of fire it can be released: Sulfur oxides (SO_x)

carbon monoxide (CO)

5.3 Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Additional advice

Use water spray to cool unopened containers.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Do not allow any contaminated quenching agent to get into the sewerage system.

6. Accidental Release Measures

Use proper personal protective equipment as listed in section 8.

Clean up spills immediately, observing precautions in the protective Equipment section.

Sweep up, then place into a suitable container for disposal.

Refer to section 13 for disposal requirements.

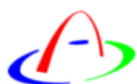
Do not allow material to enter drains or streams.

7. Handling and Storage

Store in dry, cool, Well-ventilated area(5-32°C is recommend).

Close container when not in use.

Mechanical ventilation is recommended.



Local exhaust is needed at source of dust.

8. Exposure Controls/Personal Protection

Respiratory: Do not breathe dust.

Eye: Chemical goggles or safety goggles safety glasses.

Hands: Wear suitable gloves resistant to chemical penetration.

Other: If skin contact or contamination of clothing is likely, protective Clothing should be worn.

Exposure Limits: Not established.

9. Physical and Chemical Properties

Appearance: Viscous clear to slight yellow

Color number: 50 max (Method: APHA)

Purity(HPLC): 95% min

Boiling point : 480 °C at 1.013 hPa (Method: calculated)

Flash point: 195 °C (Method: ASTM D 93-97)

Vapour pressure: 2.3 E-09 Torr (25°C) (Method: calculated)

Density: 1,21 - 1,22 g/cm³ at 20 °C (Method: DIN 51757)

10. Stability and Reactivity

Stability: Stable Under Normal Conditions of Use.

Hazardous Polymerization: Will not Occur.

Materials/Conditions to avoid: Avoid strong oxidizing agents. Avoid high temperature.

Unusual Fire and Explosion Hazards: None Known.

11. Toxicological Information

Information on toxicological effects

11.1 Toxicokinetics, metabolism and distribution

Sensitisation: May cause sensitization by skin contact.

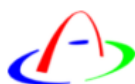
11.2 Acute effects

11.2.1 Acute toxicity

Acute oral toxicity: LD50: 1.000 mg/kg
Method: analogous conclusion
Test substance: pentaerythritol tera(3-mercaptopropionate)

11.3 Sensitisation Result: Causes sensitization.
Species: guinea pig
Method: Magnusson & Kligman
Test substance: pentaerythritol tera(3-mercaptopropionate)
Remarks: analogous conclusion

General remarks



Harmful if swallowed.

Other dangerous properties can not be excluded.

12. Ecological Information

12.1 Toxicity

| | |
|----------------------|---|
| | Toxicity to fish: LC50 (96 h): 0,42 mg/l |
| | Species: Oncorhynchus mykiss (rainbow trout) |
| | Method: OECD 203 |
| | Test substance: pentaerythritol tera(3-mercaptopropionate) |
| Toxicity to daphnia: | EC50 (48 h): 0,71 mg/l |
| | Species: Daphnia magna |
| | Method: OECD 202 |
| | Test substance: pentaerythritol tera(3-mercaptopropionate) |
| Toxicity to algae: | Method: OECD 201 |
| | Test substance: pentaerythritol tera(3-mercaptopropionate) |
| | Note: There is no effect until the substance has reached maximum solubility |

12.2 Persistence and degradability

Ecotoxicology Assessment

Further information on ecology

12.3 Bioaccumulative potential

| | |
|--|------------------------------------|
| Partition coefficient: n-octanol/water: log Pow: 3 | Method: calculated |
| Bioaccumulation: | Bioconcentration factor (BCF): 116 |
| | Method: calculated |

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

13. Disposal Consideration

13.1 Waste treatment methods

Recommendations for the product

Do not discharge product unmonitored into the environment.

Must be disposed of as hazardous waste according to the national legal regulations.

Can be incinerated, when in compliance with local regulations.

Recommendations for packing

Packaging that cannot be cleaned should be disposed of like the product.

Recommended cleaning agent

industrial cleaning agent

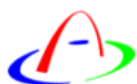
Waste Key Number

16 05 09 : discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

Additional advice

Above-mentioned waste code number is valid for the unused product.

The allocation of waste key numbers must be conducted according to specific industrial sectors and processes.



Packaging that cannot be cleaned should be disposed of like the product.
Obtain approval of the relevant authorities before discharging into a sewage treatment plant.

14. Transport Information

ADR

UN number: 3082
(Trimethylolpropantri(3-mercaptopropionat))
Class: 9
Packing group: III
Hazard identification No: 90
Labels: 9
Tunnel restriction code: (E)
Environmentally hazardous: yes

IATA

UN number: 3082
Description of the goods: Environmentally hazardous substance, liquid, n.o.s.
(Trimethylolpropane Tri(3-mercaptopropionate))
Class: 9
Packing group: III
Labels: 9
Packing instruction: 964
(cargo aircraft)
Environmentally hazardous: yes
Packing instruction: 964
(passen- ger aircraft)

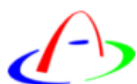
IMDG

UN number: 3082
Description of the goods: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(rimethylolpropane tri(3-mercaptopropionate))
Class: 9
Packing group: III
Labels: 9
EmS Number 1: F-A
EmS Number 2: S-F
Marine pollutant: yes

15. Regulatory Information

Labelling 67/548/EEC and 1999/45/EC

| | | |
|---------------------|--------|--|
| Symbol(s) | Xn | Harmful |
| | N | Dangerous for the environment |
| R-phrases(s) | R22 | Harmful if swallowed. |
| | R43 | May cause sensitization by skin contact. |
| | R50/53 | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |



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| | | |
|---------------------|-----|--|
| S-phrases(s) | S24 | Avoid contact with skin. Wear suitable gloves. |
| | S37 | Avoid release to the environment. Refer to special instructions/ Safety data sheets. |
| | S61 | |

Hazardous ingredients for labelling:

* 1,1,1-Trimethylolpropane tri(3-mercaptopropionate)

Further information: Classification and labelling is based on analogous conclusion.

16. Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damage of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising, even if the company has been advised of the possibility of such damages.

Provider

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