

Material Safety Data Sheet (MSDS)

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifiers

Product Name: **Adamantane**
Purity: 99.0+%
Product Number: RSAD01
Source: Engineering Analytics Laboratories
CAS-No.: 281-23-2

1.2 Relevant Identified Uses

Identified Uses: Equipment Calibration, Laboratory Chemicals, Synthesis of Substances
Advised Against: None suggested

1.3 Company Identification (MSDS Supplier)

Company: Engineering Analytics Laboratories
(Accredited to ISO 17034:2016, #122465 by PJLA)
Address: PO Box 500146, Malabar, FL 32950, USA
Telephone: +1 321-720-6578
E-mail: EngAnLab@gmail.com

1.4 Emergency Telephone Number

Emergencies: **Dial 911 first!**
Emergency Phone #: +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
- Acute aquatic toxicity (Category 1), H400
- Chronic aquatic toxicity (Category 1), H410

2.2 GHS Label elements, including precautionary statements

Pictogram:



Signal Word: Warning

Hazard Statement(s): H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s): P273 Avoid release to the environment

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards Not Otherwise Classified (HNOC) or Not Covered by GHS

None known at this time.

In the form provided by EA Labs, this product is considered safe due to the form and small quantity. Use as directed and in accordance with safe laboratory and materials handling practices.

3. COMPOSITION (INFORMATION ON INGREDIENTS)

3.1 Substances

Formula: $C_{10}H_{16}$
Molecular Weight: 136.23 g/mol
CAS-No.: 281-23-2
EC-No.: 206-001-4

Hazardous Components

CAS #	Component	Classification	Concentration
281-23-2	Adamantane	Aquatic Acute 1; Aquatic Chronic 1, H410	90-100%

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician if any irritation.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Turn the individual's head and/or body to one side, and rinse the mouth with water (if safe and possible to do so). Consult a physician.

If unconscious

Turn body to one side for transportation; call emergency services.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for Firefighters

Wear self-contained breathing apparatus for firefighting, if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment (PPE), and Emergency Procedures

Avoid dust formation. Avoid breathing dust, vapors, mist, or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental Precautions

Prevent further leakage or spillage. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Clean-up and Containment Methods

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Disposal

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid the formation of dust and aerosols. Processing of solid materials may result in the formation of irritable dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for Safe Storage, including incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Non Combustible Solids.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters:

- Contains no substances with occupational exposure limit values
- Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

Personal Protective Equipment (PPE)

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Control environmental exposure to prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic Physical and Chemical Properties

- a) Appearance Form: Powder, Fine crystalline
Color: Beige or Off-white
- b) Odor: *Characteristic*
- c) Odor Threshold: *No data available*
- d) pH: *No data available*
- e) Melting/freezing point:
Melting point: 209 - 212 °C (408 – 414 °F).
- f) Initial boiling point and boiling range: *No data available*
- g) Polymorphic Phase: -65.54 ± 0.20 °C¹ (-85.97 °F)
- h) Flash point: *Not applicable*
- i) Evaporation rate: *No data available*
- j) Flammability (solid, gas): *No data available*
- k) Upper/lower flammability or explosive limits: *No data available*
- l) Vapor pressure: *No data available*
- m) Vapor density: 4.7 (air = 1)
- n) Relative density: 0.00021 g/cm³ at 20 °C (68 °F)
- o) Water Solubility: log Pow: 4.24 at 25 °C (77 °F) – Potential bioaccumulation (lit.)
- p) Partition coefficient: *No data available*
- q) Auto-ignition Temperature: *No data available*
- r) Decomposition Temperature: *No data available*
- s) Viscosity: *No data available*
- t) Explosive Properties: *No data available*
- u) Oxidizing Properties: *No data available*

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible Materials

No data available

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions: **Carbon Oxides**

Other decomposition products: *No data available*

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Toxicological Effects

Acute Toxicity: LD50 Oral – Rat -> 10,000 mg/kg

Remarks: (RTECS)

Inhalation: *No data available*

Dermal: *No data available*

Skin Corrosion/Irritation: Irritation possible through contact.

Serious Eye Damage/Eye Irritation:

Eyes – Rabbit

Result – Slight irritation (Draize Test)

Remarks – (RTECS)

Respiratory or Skin Sensitization: Irritation possible through contact.

Germ Cell Mutagenicity: *No data available*

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive Toxicity:

Specific Target Organ Toxicity - Single Exposure: *No data available*

Specific Target Organ Toxicity - Repeated Exposure: *No data available*

Aspiration Hazard: *No data available*

Additional Information

RTECSL: *No data available*

Hazardous properties cannot be excluded, but are unlikely when handled appropriately.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Information provided is based on available data.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to Fish: LD50 Oral – Oryzias Latipes (Orange –red Killifish) -> 10 mg/L – 96h

LC50 – Pimephales Promelas (fathead minnow) – 0.285 mg/L – 96h

Remarks: (above the solubility limit in the test medium)(Lit.)

12.2 Persistence and Degradability

Biodegradability: Aerobic – Exposure Time 28d

Results – 15% - Not readily biodegradable

(OECD Test Guideline 301D)

12.3 Bioaccumulative Potential

Bioaccumulation: Cyprinus Carpio (Carp) – 60d at 20 °C

Bioconcentration Factor (BCF): > 1,500 (MITI Test)

12.4 Mobility in Soil

No data available

12.5 Results of PBT and vPvB Assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other Adverse Effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

Do not allow this product to contaminate ground water, water course, or sewage systems.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

UN number: 3077 Class: 9 Packing Group: III EMS-No: F-A, S-F

Proper shipping name: Environmentally Hazardous Substance, Sold, N.O.S. (Adamantane)

Marine Pollutant: Yes

IATA

UN number: 3077 Class: 9 Packing Group: III

Proper shipping name: Environmentally Hazardous Substance, Sold, N.O.S. (Adamantane)

Canada

No data available

Additional Information

EHS-Mark requiring (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

See Section 2 for Safety, Health, and Environmental data specific to this material. Individual Lots may not contain all items listed herein.

SARA 302 Components

This material does not contain any components with a Section 302 EHS TPQ.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (de minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA 311/312 Hazards

Pennsylvania Right to Know Components

Adamantane

CAS-No.: 281-23-2

California Prop. 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute Aquatic Toxicity
Aquatic Chronic	Chronic Aquatic Toxicity
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
HMIS Rating	
Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard:	0
NFPA Rating	
Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further Information

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17. Literature Sources

1. Blaine, Roger. "Adamantane – A New Certified Traceable Reference Material for Subambient DSC Temperature and Enthalpy Calibration on Heating and Cooling." TAINstruments.com

Preparation Information

Engineering Analytics Laboratories (Accredited to ISO 17034:2016, #122465 by PJLA)

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