

# SAFETY DATA SHEET

Date Printed: 05/18/2024

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (5N) 99.999% Octanethiol Functionalized Gold Nanoparticles Solution

**Product Code:** AU-TOL-05-FNPD

**CAS Number:** N/A

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids(Category 2), H225

Skin irritation(Category 2), H315

Eye irritation(Category 2A), H319

Reproductive toxicity(Category 2), H361

Specific target organ toxicity -single exposure(Category 3), Central nervous system, H336

Specific target organ toxicity -repeated exposure(Category 2), H373

Aspiration hazard(Category 1), H304

Acute aquatic toxicity(Category 2), H401

Chronic aquatic toxicity(Category 2), H411

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and Vapor.

H304

May be fatal if swallowed and enters airways.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H336

May cause drowsiness or dizziness.

H361

Suspected of damaging fertility or the unborn child.

H373

May cause damage to organs through prolonged or repeated exposure.

H411

Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201

Obtain special instructions before use.

P202

Do not handle until all safety precautions have been read and understood.

P210

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

P233

Keep container tightly closed.

P240

Ground/bond container and receiving equipment.

P241

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

P242

Use only non-sparking tools.

P243

Take precautionary measures against static discharge.

P260

Do not breathe dust/ fume/ gas/ mist/ Vapors/ spray.

P264

Wash skin thoroughly after handling.

P271

Use only outdoors or in a well-ventilated area.

P273

Avoid release to the environment.

P280

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

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P303 + P361 + P353

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

P304 + P340

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

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

P321

Specific treatment (see supplemental first aid instructions on this label).

P331

Do NOT induce vomiting.

P332 + P313

If skin irritation occurs: Get medical advice/ attention.

P337 + P313

If eye irritation persists: Get medical advice/ attention.

P362

Take off contaminated clothing and wash before reuse.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P391

Collect spillage.

P403 + P233

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

P403 + P235

Store in a well-ventilated place. Keep cool.

P405

Store locked up.

P501

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

Hazards not otherwise classified (HNOC) or not covered by GHS-none

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures

Synonyms: Dodecylthiol functionalized gold nanoparticles

Hazardous components

Toluene

CAS-No. 108-88-3

EC-No. 203-625-9

Index-No. 601-021-00-3

Registration number 01-2119471310-51-XXXX

Flam. Liq.2; Skin Irrit.2; Repr.2; STOT SE3; STOT RE2; Asp. Tox.1; Aquatic Acute2; H225, H304, H315, H336, H361, H373, H401

>=90-<=100%

Dodecane-1-thiol

CAS-No. 112-55-0

EC-No. 203-984-1

Skin Corr.1B; Eye Dam.1; Aquatic Acute1; Aquatic Chronic1; H314, H318, H410

>=1-<5%

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### SECTION 4. FIRST AID MEASURES

Description of first aid measures

General advice

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

Move out of dangerous area.

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.

In case of eye contact

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

Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

No data available

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Use water spray to cool unopened containers.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation.

Remove all sources of ignition. Evacuate personnel to safe areas. Beware of Vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Reference to other sections

For disposal see section 13.

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## **SECTION 7. HANDLING AND STORAGE**

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of Vapor or mist.

Use explosion-proof equipment.

Keep away from sources of ignition -No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.

Conditions for safe storage, including any incompatibilities

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

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature

2 -8 °C

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face protection

Face shield and safety glasses 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.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

Appearance

Form: liquid

Odor

No data available

Odor Threshold

No data available

pH

No data available

Melting point/freezing point

No data available  
Initial boiling point and boiling range  
No data available  
Flash point  
4 °C (39 °F)-closed cup  
Evaporation rate  
No data available  
Flammability (solid, gas)  
No data available  
Upper/lower flammability or explosive limits  
No data available  
Vapor pressure  
No data available  
Vapor density  
No data available  
Relative density  
0.931 g/cm<sup>3</sup>  
Water solubility  
No data available  
Partition coefficient: n-octanol/water  
No data available  
Auto-ignition temperature  
No data available  
Decomposition temperature  
No data available  
Viscosity  
No data available  
Explosive properties  
No data available  
Oxidizing properties  
No data available  
Other safety information  
No data available

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## **SECTION 10. STABILITY AND REACTIVITY**

Reactivity  
No data available  
Chemical stability  
Stable under recommended storage conditions.  
Possibility of hazardous reactions  
Vapors may form explosive mixture with air.  
Conditions to avoid  
Heat, flames and sparks. Extremes of temperature and direct sunlight.  
Incompatible materials  
Bases, Oxidizing agents, Alkali metals, Strong oxidizing agents, Ammonia, Reducing agents, Halogens, Hydrogen peroxide  
Hazardous decomposition products  
Hazardous decomposition products formed under fire conditions.-Carbon oxides, Sulphur oxides  
Other decomposition products-No data available  
In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

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 probable, possible or confirmed human carcinogen by IARC.

NTP:

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated 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

No data available

No data available

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

RTECS: Not available

Lung irritation, chest pain, pulmonary edema, Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals.

Stomach-Irregularities-Based on Human Evidence

Stomach-Irregularities-Based on Human Evidence(Toluene)

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## SECTION 12. ECOLOGICAL INFORMATION

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

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

Other adverse effects

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

Toxic to aquatic life.

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

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

Contact a licensed professional waste disposal service to dispose of this material.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)

UN number: 1294

Class: 3

Packing group: II

Proper shipping name: Toluene, solution

Reportable Quantity(RQ): 1020 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1294

Class: 3

Packing group: II

EMS-No: F-E, S-D

Proper shipping name: TOLUENE, SOLUTION

IATA

UN number: 1294

Class: 3

Packing group: II

Proper shipping name: Toluene, solution

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## **SECTION 15. REGULATORY INFORMATION**

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Toluene

CAS-No.

108-88-3

Revision Date

2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components



Toluene  
CAS-No.  
108-88-3  
Revision Date  
2007-07-01  
Pennsylvania Right To Know Components

Toluene  
CAS-No.  
108-88-3  
Revision Date  
2007-07-01

Dodecane-1-thiol  
112-55-0  
1989-08-11  
New Jersey Right To Know Components

Toluene  
CAS-No.  
108-88-3  
Revision Date  
2007-07-01

Gold  
7440-57-5  
Dodecane-1-thiol  
112-55-0  
1989-08-11

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Toluene

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.