

Material Safety Data Sheet

1. Product and company identification

| | | | |
|-----------------------------|--|---------------------|---|
| Product name | : 3-((2-Aminoethyl)Dithio)Propionic Acid Hydrochloride | | |
| Synonym | : AEDP.HCl | | |
| Chemical formula | : C ₈ H ₁₁ NO ₂ S ₂ .HCl | | |
| Supplier | : Thermo Fisher Scientific | Manufacturer | : Thermo Fisher Scientific |
| | Pierce Biotechnology | | Pierce Biotechnology |
| | P.O. Box 117 | | P.O. Box 117 |
| | Rockford, IL 61105 | | Rockford, IL 61105 |
| | United States | | United States |
| | 815.968.0747 or | | 815.968.0747 |
| | 800.874.3723 | | 800.874.3723 |
| Product No. | : 0022101 | | |
| MSDS # | : 2712 | | |
| Validation date | : 6/18/2009. | | |
| Print date | : 6/18/2009. | | |
| Responsible name | : MSDS (Regulatory Affairs) | | |
| In case of emergency | : CHEMTREC: Use of | : | Refer to the instruction booklet for proper and intended use. |
| | 800.424.9300 Substance/Preparation | : | Otherwise, contact supplier for specific applications. |
| | OUTSIDE US: | | |
| | 202.483.7616 | | |

2. Hazards identification

| | |
|---|---|
| Physical state | : Solid. [Crystalline.] |
| OSHA/HCS status | : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| Emergency overview | : WARNING ! CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. Harmful if swallowed. Irritating to eyes, respiratory system and skin. Do not ingest. Avoid contact with eyes, skin and clothing. May cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. |
| Routes of entry | : Dermal contact. Eye contact. Inhalation. Ingestion. |
| Potential acute health effects | |
| Inhalation | : Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. |
| Ingestion | : Harmful if swallowed. |
| Skin | : Irritating to skin. |
| Eyes | : Irritating to eyes. |
| Potential chronic health effects | |
| Chronic effects | : May cause target organ damage, based on animal data. |

6/18/2009.

Biosciences Division
Pierce

3747 N. Meridian Rd.
PO Box 117

Rockford, IL
61105

(815) 968-0747
(815) 968-7316 Fax

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3-((2-Aminoethyl)Dithio)Propionic Acid Hydrochloride

2. Hazards identification

| | |
|---|--|
| Carcinogenicity | : No known significant effects or critical hazards. |
| Mutagenicity | : No known significant effects or critical hazards. |
| Teratogenicity | : No known significant effects or critical hazards. |
| Developmental effects | : No known significant effects or critical hazards. |
| Fertility effects | : No known significant effects or critical hazards. |
| Target organs | : May cause damage to the following organs: liver. |
| Over-exposure signs/symptoms | |
| Inhalation | : Adverse symptoms may include the following: respiratory tract irritation coughing |
| Ingestion | : No specific data. |
| Skin | : Adverse symptoms may include the following: irritation redness |
| Eyes | : Adverse symptoms may include the following: pain or irritation watering redness |
| Medical conditions aggravated by over-exposure | : Pre-existing digestive disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product. |

The substance is classified as dangerous according to Directive 67/548/EEC and its amendments.

Classification : Xn; R22
Xi; R36/37/38

Human health hazards : Harmful if swallowed. Irritating to eyes, respiratory system and skin.

See toxicological information (section 11)

3. Composition/information on ingredients

United States

| <u>Name</u> | <u>CAS number</u> | <u>%</u> |
|--|-------------------|----------|
| 3-((2-Aminoethyl)Dithio)Propionic Acid Hydrochloride | | 98 - 100 |

Europe

| <u>Substance/preparation</u> | <u>CAS number</u> | <u>%</u> | <u>EC number</u> | <u>Classification</u> |
|--|-------------------|----------|-----------------------------|-----------------------|
| 3-((2-Aminoethyl)Dithio)Propionic Acid Hydrochloride | | 98 - 100 | Xn; R22 Xi; R36/37/38 | [1] |

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in section 8.

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4. First aid measures

- Inhalation** : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials:
carbon oxides
nitrogen oxides
sulfur oxides
halogenated compounds
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Special remarks on fire hazards** : May be combustible at high temperature.

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6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

- Europe**
No exposure limit value known.
- Consult local authorities for acceptable exposure limits.**
- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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8 . Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

- Physical state** : Solid. [Crystalline.]
- Color** : White. Off-white.
- Molecular weight** : 217.74 g/mole
- Molecular formula** : C₅H₁₁NO₂S₂.HCl
- Melting/freezing point** : 118 to 120°C (244.4 to 248°F)
- Solubility** : Soluble in the following materials: cold water, hot water and methanol.

10 . Stability and reactivity

- Chemical stability** : The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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11 . Toxicological information

United States

- Acute toxicity**
- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.
- Chronic toxicity**
- Conclusion/Summary** : Not available.
- Carcinogenicity**
- Conclusion/Summary** : Not available.
- Mutagenicity**
- Conclusion/Summary** : Not available.
- Teratogenicity**
- Conclusion/Summary** : Not available.
- Reproductive toxicity**
- Conclusion/Summary** : Not available.

Europe

- Chronic effects** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

12 . Ecological information

- Environmental effects** : No known significant effects or critical hazards.
- United States**
- Aquatic ecotoxicity**
- Conclusion/Summary** : Not available.
- Other adverse effects** : No known significant effects or critical hazards.

13 . Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.
- Disposal should be in accordance with applicable regional, national and local laws and regulations.**
- Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.**

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14 . Transport information

| Regulatory information | UN number | Proper shipping name | Classes | PG* |
|------------------------|----------------|----------------------|----------------|-----|
| DOT Classification | Not regulated. | - | - | - |
| IATA-DGR Class | Not available. | Not available. | Not available. | - |

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: Not determined.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists : **CEPA Toxic substances**: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Canada inventory : **Canada inventory**: Not determined.

EU regulations

Hazard symbol or symbols :



Harmful

Risk phrases : R22- Harmful if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

International regulations

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15 . Regulatory information

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Korea inventory (KECI): Not determined.
Philippines inventory (PICCS): Not determined.
Japan inventory (ENCS): Not determined.

16 . Other information

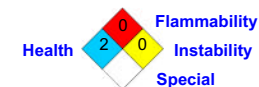
Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

| | |
|------------------|---|
| Health | 2 |
| Flammability | 0 |
| Physical hazards | 0 |

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Date of printing : 6/18/2009.
Date of issue : 6/18/2009.
Date of previous issue : No previous validation.
Version : 1

Indicates information that has changed from previously issued version.

Full text of R-phrases : R22- Harmful if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

3 - Europe
Full text of classifications : Xn - Harmful
Xi - Irritant

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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