



Safety Data Sheet

Cat. # 786-1245

Aprotinin

Size: 25 mg





Aprotinin

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/21/2016

Revision date: 05/11/2017

Version: 7.1

SECTION 1: Identification

1.1. Identification

| | |
|----------------|--|
| Product form | : Substance |
| Substance name | : Aprotinin |
| CAS-No. | : 9087-70-1 |
| Product code | : 313A |
| Formula | : C284H432N84O79S7 |
| Synonyms | : antikrein / antilysin / antilysine / basic pancreatic trypsin inhibitor / bovine basic pancreatic trypsin inhibitor / bovine pancreatic trypsin inhibitor / bovine trypsin inhibitor / BPTI / BPTI trypsin inhibitor / kallikrein inactivator / kallikrein-trypsin inactivator / kir richter / kunitz pancreatic trypsin inhibitor / kunitz protease inhibitor / kunitz trypsin inhibitor / kunitz-type inhibitor / kunitz-type proteinase inhibitor / kunitz-type trypsin inhibitor / pancreatic basic trypsin inhibitor / pancreatic trypsin inhibitor / pancreatic trypsin inhibitor (kunitz) / protease inhibitor, kunitz type / trypsin inhibitor / trypsin inhibitor, pancreatic basic / trypsin-kallikrein inhibitor (kunitz) |
| BIG No | : 40842 |

1.2. Recommended use and restrictions on use

| | |
|------------------------------|---|
| Use of the substance/mixture | : Chemical substance for research Medicine |
|------------------------------|---|

1.3. Supplier

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
Saint Louis, 63132-1429 - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

| | |
|------------------|--|
| Emergency number | : Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl) |
|------------------|--|

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

| | | |
|---------------------------------------|------|--|
| Respiratory sensitization, Category 1 | H334 | May cause an allergy or asthma symptoms or breathing difficulties if inhaled |
| Skin sensitization, Category 1 | H317 | May cause an allergic skin reaction |

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)



| | |
|-----------------------------------|--|
| Signal word (GHS US) | : Danger |
| Hazard statements (GHS US) | : H317 - May cause an allergic skin reaction H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled |
| Precautionary statements (GHS US) | : P261 - Avoid breathing dust/fume/gas/mist/vapors/spray. P272 - Contaminated work clothing must not be allowed out of the workplace P280 - Wear protective gloves/protective clothing/eye protection/face protection. P284 - [In case of inadequate ventilation] wear respiratory protection. P302+P352 - If on skin: Wash with plenty of water P304+P341 - If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing P321 - Specific treatment (see supplemental first aid instruction on this label) P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor P363 - Wash contaminated clothing before reuse. P501 - Dispose of contents/container to hazardous or special waste collection point, in |

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accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

| Name | Common Name (Synonyms) | Product identifier | % | GHS US classification |
|---------------------------------|--|---------------------|-----|---|
| Aprotinin (Main constituent) | antikrein / antilysin / antilysine / basic pancreatic trypsin inhibitor / bovine basic pancreatic trypsin inhibitor / bovine pancreatic trypsin inhibitor / bovine trypsin inhibitor / BPTI / BPTI trypsin inhibitor / kallikrein inactivator / kallikrein-trypsin inactivator / kir richter / kunitz pancreatic trypsin inhibitor / kunitz protease inhibitor / kunitz trypsin inhibitor / kunitz-type inhibitor / kunitz-type proteinase inhibitor / kunitz-type trypsin inhibitor / pancreatic basic trypsin inhibitor / pancreatic trypsin inhibitor / pancreatic trypsin inhibitor (kunitz) / protease inhibitor, kunitz type / trypsin inhibitor / trypsin inhibitor, pancreatic basic / trypsin-kallikrein inhibitor (kunitz) | (CAS-No.) 9087-70-1 | 100 | Resp. Sens. 1, H334 Skin Sens. 1, H317 |

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. |
| First-aid measures after inhalation | : Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. If experiencing respiratory symptoms: Call a poison center or a doctor. |
| First-aid measures after skin contact | : Wash immediately with lots of water. Take victim to a doctor if irritation persists. Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention. |
| First-aid measures after eye contact | : Rinse with water. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution. |
| First-aid measures after ingestion | : Rinse mouth with water. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call a poison center/doctor/physician if you feel unwell. |

4.2. Most important symptoms and effects (acute and delayed)

| | |
|---|--|
| Potential Adverse human health effects and symptoms | : Caution! Substance is absorbed through the skin. |
| Symptoms/effects after inhalation | : May cause an allergy or asthma symptoms or breathing difficulties if inhaled. |
| Symptoms/effects after skin contact | : May cause an allergic skin reaction. |
| Chronic symptoms | : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Respiratory difficulties. |

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Water spray. Polyvalent foam. ABC powder. Carbon dioxide. Water spray. Dry powder. Foam.
Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

- Fire hazard : DIRECT FIRE HAZARD: Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Heating increases the fire hazard.
Explosion hazard : DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.

5.3. Special protective equipment and precautions for fire-fighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions : Dilute toxic gases with water spray.
Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.
Emergency procedures : Ventilate spillage area. Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray.
Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows. In case of dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

- Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills.
Methods for cleaning up : Mechanically recover the product. Prevent dust cloud formation. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

- For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Powdered form: no compressed air for pumping over. Avoid raising dust. Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Observe very strict hygiene - avoid contact. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear personal protective equipment.
Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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7.2. Conditions for safe storage, including any incompatibilities

| | |
|------------------------------|--|
| Storage conditions | : Store in a well-ventilated place. Keep cool. |
| Storage temperature | : < 4 °C |
| Heat-ignition | : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources. |
| Information on mixed storage | : KEEP SUBSTANCE AWAY FROM: oxidizing agents. |
| Storage area | : Provide for a cooling system. Meet the legal requirements. |
| Special rules on packaging | : SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers. |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Aprotinin (9087-70-1)

No additional information available

8.2. Appropriate engineering controls

| | |
|----------------------------------|--|
| Appropriate engineering controls | : Ensure good ventilation of the work station. |
| Environmental exposure controls | : Avoid release to the environment. |

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles. Safety glasses

Skin and body protection:

Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

Respiratory protection:

Dust production: dust mask with filter type P2. Wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|---|
| Physical state | : Solid |
| Appearance | : Solid. Powder. |
| Color | : White |
| Odor | : No data available |
| Odor threshold | : No data available |
| pH | : No data available |
| Melting point | : No data available |
| Freezing point | : Not applicable |
| Boiling point | : No data available |
| Flash point | : Not applicable |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability (solid, gas) | : Non flammable. |
| Vapor pressure | : No data available |
| Relative vapor density at 20 °C | : Not applicable |
| Relative density | : Not applicable |
| Molecular mass | : 6511.53 g/mol |
| Solubility | : Soluble in water. Water: soluble, Literature |
| Log Pow | : No data available |
| Auto-ignition temperature | : Not applicable |

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| | |
|---------------------------|---------------------|
| Decomposition temperature | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosion limits | : Not applicable |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |

9.2. Other information

| | |
|-------------|-------|
| VOC content | : 0 % |
|-------------|-------|

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|---|--|
| Acute toxicity (oral) | : Not classified |
| Acute toxicity (dermal) | : Not classified |
| Acute toxicity (inhalation) | : Not classified |
| Skin corrosion/irritation | : Not classified |
| Serious eye damage/irritation | : Not classified |
| Respiratory or skin sensitization | : May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| Specific target organ toxicity – single exposure | : Not classified |
| Specific target organ toxicity – repeated exposure | : Not classified |
| Aspiration hazard | : Not classified |
| Viscosity, kinematic | : No data available |
| Potential Adverse human health effects and symptoms | : Caution! Substance is absorbed through the skin. |
| Symptoms/effects after inhalation | : May cause an allergy or asthma symptoms or breathing difficulties if inhaled. |
| Symptoms/effects after skin contact | : May cause an allergic skin reaction. |
| Chronic symptoms | : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Respiratory difficulties. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|-------------------|--|
| Ecology - general | : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. |
|-------------------|--|

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Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water : Mild water pollutant (surface water). No data available on ecotoxicity.

12.2. Persistence and degradability

| Aprotinin (9087-70-1) | |
|-------------------------------|---|
| Persistence and degradability | Biodegradability in water: no data available. |

12.3. Bioaccumulative potential

| Aprotinin (9087-70-1) | |
|---------------------------|------------------------------------|
| Bioaccumulative potential | No bioaccumulation data available. |

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.
Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent.
Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

| Aprotinin (9087-70-1) | |
|---|--|
| Not listed on the United States TSCA (Toxic Substances Control Act) inventory | |

15.2. International regulations

CANADA

EU-Regulations

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National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

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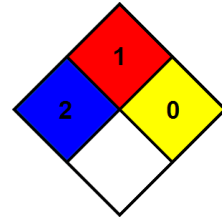
Full text of H-phrases:

| | |
|------|--|
| H317 | May cause an allergic skin reaction |
| H334 | May cause an allergy or asthma symptoms or breathing difficulties if inhaled |

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.