

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

1 Identification

- **Product identifier**
- **Trade name: Allyl Isothiocyanate natural**
- **Product number:** 3009
- **CAS Number:**
57-06-7
- **EC number:**
200-309-2
- **Application of the substance / the mixture** Food flavorings

- **Details of the supplier of the safety data sheet**

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- **Manufacturer/Supplier:**

Advanced Biotech
10 Taft Road
Totowa, NJ 07512 USA

- **Information department:**

Product Safety Department
productsafety@adv-bio.com

- **Emergency telephone number:**

1(800)535-5053 (Info Trac)
1(352)323-3500 (International)
During normal business hours: 1(973)339-6242

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H310 Fatal in contact with skin.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

(Continued on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 1)



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 STOT SE 3 H335 May cause respiratory irritation.

· **Label elements** Harmful in contact with skin or if inhaled.

· **GHS label elements**

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.
 The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS06 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

allyl isothiocyanate

· **Hazard statements**

H226 Flammable liquid and vapor.
 H301 Toxic if swallowed.
 H310 Fatal in contact with skin.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H317 May cause an allergic skin reaction.
 H335 May cause respiratory irritation.
 H373 May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P260 Do not breathe dust/fume/gas/mist/vapors/spray.
 P301+P310 If swallowed: Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P330 Rinse mouth.
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Continued on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 2)

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3
Fire = 2
Reactivity = 0

- **HMS-ratings (scale 0 - 4)**



Health = 3
Fire = 2
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
57-06-7 allyl isothiocyanate
- **Identification number(s)**
- **EC number:** 200-309-2

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air and be sure to call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

(Continued on page 4)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 3)

- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
 During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.
- **Additional information**
 Cool endangered receptacles with water spray.
 Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
 Mount respiratory protective device.
 Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 Dispose contaminated material as waste according to item 13.
 Ensure adequate ventilation.
- **Reference to other sections**
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

1 ppm

· **PAC-2:**

2.8 ppm

· **PAC-3:**

17 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
 Ensure good ventilation/exhaustion at the workplace.
 Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
 Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
 No special requirements.
 Please refer to product specification for product storage requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

(Continued on page 5)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: **Allyl Isothiocyanate natural**

(Continuation of page 4)

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 57-06-7 allyl isothiocyanate

WEEL	Short-term value: 1 ppm Skin; DSEN
------	---------------------------------------

· **Additional information:** The lists that were valid during the creation were used as a basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material should be based on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be determined by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

US

(Continued on page 6)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 5)

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Liquid
 Color: According to product specification

· Odor: According to product specification

· Odor threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range: -100 °C (-148 °F)
 Boiling point/Boiling range: 150 °C (302 °F)

· Flash point: 46 °C (114.8 °F)

· Flammability (solid, gaseous): Not applicable.

· Decomposition temperature: Not determined.

· Auto igniting: Not determined.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower: Not determined.
 Upper: Not determined.

· Vapor pressure at 38 °C (100.4 °F): 13 hPa (9.8 mm Hg)

· Density at 20 °C (68 °F): 1.02 g/cm³ (8.5119 lbs/gal)

· Relative density: Not determined.

· Vapor density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with
 Water at 20 °C (68 °F):

2 g/l

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic: Not determined.
 Kinematic: Not determined.

VOC content: 0.00 %
 0.0 g/l / 0.00 lb/gal

· Other information: No further relevant information available.

10 Stability and reactivity

· Reactivity: No further relevant information available.

· Chemical stability

· Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

· Possibility of hazardous reactions: No dangerous reactions known.

· Conditions to avoid: No further relevant information available.

(Continued on page 7)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 6)

- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	112 mg/kg (rat)
Dermal	LD50	88 mg/kg (rabbit)

CAS: 57-06-7 allyl isothiocyanate

Oral	LD50	112 mg/kg (rat)
Dermal	LD50	88 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

3

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Water hazard class 2 (Self-assessment): hazardous for water
 Do not allow product to reach ground water, water course or sewage system.
 Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

US

(Continued on page 8)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: **Allyl Isothiocyanate natural**

(Continuation of page 7)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN1545
- **UN proper shipping name**
- **DOT** Allyl isothiocyanate, stabilized
- **ADR** 1545 ALLYL ISOTHIOCYANATE, STABILIZED
- **IMDG, IATA** ALLYL ISOTHIOCYANATE, STABILIZED

- **Transport hazard class(es)**
- **DOT**



- **Class** 6.1 Toxic substances
- **Label** 6.1, 3

- **ADR**



- **Class** 6.1 (TF1) Toxic substances
- **Label** 6.1+3

- **IMDG**



- **Class** 6.1 Toxic substances
- **Label** 6.1/3

(Continued on page 9)


Safety Data Sheet
acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 8)

<p>· IATA</p> 	
<p>· Class</p> <p>· Label</p>	<p>6.1 Toxic substances</p> <p>6.1 (3)</p>
<p>· Packing group</p> <p>· DOT, ADR, IMDG, IATA</p>	<p>II</p>
<p>· Environmental hazards:</p> <p>· Marine pollutant:</p>	<p>No</p>
<p>· Special precautions for user</p> <p>· Danger code (Kemler):</p> <p>· EMS Number:</p> <p>· Stowage Category</p> <p>· Stowage Code</p>	<p>Warning: Toxic substances</p> <p>639</p> <p>F-E,S-D</p> <p>D</p> <p>SW2 Clear of living quarters.</p>
<p>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</p>	<p>Not applicable.</p>
<p>· Transport/Additional information:</p> <p>· DOT</p> <p>· Quantity limitations</p>	<p>On passenger aircraft/rail: Forbidden</p> <p>On cargo aircraft only: 60 L</p>
<p>· ADR</p> <p>· Excepted quantities (EQ)</p>	<p>Code: E4</p> <p>Maximum net quantity per inner packaging: 1 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p>
<p>· IMDG</p> <p>· Limited quantities (LQ)</p> <p>· Excepted quantities (EQ)</p>	<p>100 ml</p> <p>Code: E4</p> <p>Maximum net quantity per inner packaging: 1 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p>
<p>· UN "Model Regulation":</p>	<p>UN 1545 ALLYL ISOTHIOCYANATE, STABILIZED, 6.1 (3), II</p>

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Sara

· Section 355 (extremely hazardous substances):

Substance is not listed.

· Section 313 (Specific toxic chemical listings):

Substance is not listed.

(Continued on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 02/11/2019

Reviewed on 02/08/2019

Trade name: Allyl Isothiocyanate natural

(Continuation of page 9)

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

CAS: 57-06-7 | allyl isothiocyanate

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **GHS label elements**

Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS06 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

allyl isothiocyanate

· **Hazard statements**

H226 Flammable liquid and vapor.

H301 Toxic if swallowed.

H310 Fatal in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H373 May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

(Continued on page 11)

Safety Data Sheet

acc. to OSHA HCS

Printing date 02/11/2019

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Trade name: Allyl Isothiocyanate natural

(Continuation of page 10)

- P301+P310 If swallowed: Immediately call a poison center/doctor.
- P321 Specific treatment (see on this label).
- P330 Rinse mouth.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Product Safety Department

· **Contact:**

Product Safety Department
 productsafety@adv-bio.com

· **Date of preparation / last revision** 02/11/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 2: Acute toxicity – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Skin Sens. 1: Skin sensitisation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2