

Safety Data Sheet acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

1 Identification

- **Product identifier**
- **Trade name: Grain Fusel Oil natural**
- **Product number: 3007**
- **CAS Number: 8013-75-0**
- **EINECS Number: 232-395-2**
- **Application of the substance / the mixture** Food flavorings
- **Details of the supplier of the safety data sheet**
 DISCLAIMER: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. Advanced Biotech makes NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the Advanced Biotech product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of an Advanced Biotech product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the Advanced Biotech product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.
- **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.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

(Continued on page 2)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 1)

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

• **Hazard pictograms**



GHS02 GHS05 GHS07

• **Signal word** Danger

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

Isoamyl alcohol
 butanol
 2-methylbutanol
 propan-1-ol

• **Hazard statements**

H226 Flammable liquid and vapor.
 H332 Harmful if inhaled.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.

• **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 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.
 P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

• **Classification system:**

• **NFPA ratings (scale 0 - 4)**



Health = 3
 Fire = 2
 Reactivity = 0

(Continued on page 3)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 2)

HMIS-ratings (scale 0 - 4)

HEALTH	*3	Health = *3
FIRE	2	Fire = 2
REACTIVITY	0	Reactivity = 0

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

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

CAS: 123-51-3	Isoamyl alcohol ⚠ Flam. Liq. 3, H226; ⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	65-75%
CAS: 137-32-6	2-methylbutanol ⚠ Flam. Liq. 3, H226; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; STOT SE 3, H335	5-10%
CAS: 78-83-1	butanol ⚠ Flam. Liq. 3, H226; ⚠ Eye Dam. 1, H318; ⚠ Skin Irrit. 2, H315; STOT SE 3, H335-H336	5-10%
CAS: 71-23-8	propan-1-ol ⚠ Flam. Liq. 2, H225; ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; STOT SE 3, H336	2-8%
CAS: 64-17-5	ethyl alcohol ⚠ Flam. Liq. 2, H225	2-8%

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.
- **After inhalation:**
 Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
 In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.

(Continued on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 3)

- **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.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **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**
 Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
 Dilute with plenty of water.
 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).
 Use neutralizing agent.
 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:**

CAS: 123-51-3	Isoamyl alcohol	125 ppm
CAS: 78-83-1	butanol	150 ppm
CAS: 71-23-8	propan-1-ol	250 ppm
CAS: 64-17-5	ethyl alcohol	1,800 ppm

· **PAC-2:**

CAS: 123-51-3	Isoamyl alcohol	1700* ppm
CAS: 78-83-1	butanol	1,300 ppm
CAS: 71-23-8	propan-1-ol	670 ppm

(Continued on page 5)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 4)

CAS: 64-17-5	ethyl alcohol	3300* ppm
· PAC-3:		
CAS: 123-51-3	Isoamyl alcohol	10000** ppm
CAS: 78-83-1	butanol	8000* ppm
CAS: 71-23-8	propan-1-ol	4000* ppm
CAS: 64-17-5	ethyl alcohol	15000* 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.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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:**
 The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
 At this time, the remaining constituent has no known exposure limits.

CAS: 123-51-3 Isoamyl alcohol	
PEL	Long-term value: 360 mg/m ³ , 100 ppm primary and secondary
REL	Short-term value: 450 mg/m ³ , 125 ppm Long-term value: 360 mg/m ³ , 100 ppm primary and secondary
TLV	Short-term value: 452 mg/m ³ , 125 ppm Long-term value: 361 mg/m ³ , 100 ppm
CAS: 78-83-1 butanol	
PEL	Long-term value: 300 mg/m ³ , 100 ppm
REL	Long-term value: 150 mg/m ³ , 50 ppm

(Continued on page 6)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 5)

TLV	Long-term value: 152 mg/m ³ , 50 ppm
CAS: 71-23-8 propan-1-ol	
PEL	Long-term value: 500 mg/m ³ , 200 ppm
REL	Short-term value: 625 mg/m ³ , 250 ppm Long-term value: 500 mg/m ³ , 200 ppm Skin
TLV	Long-term value: 246 mg/m ³ , 100 ppm
CAS: 64-17-5 ethyl alcohol	
PEL	Long-term value: 1900 mg/m ³ , 1000 ppm
REL	Long-term value: 1900 mg/m ³ , 1000 ppm
TLV	Short-term value: 1880 mg/m ³ , 1000 ppm

- **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.
 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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **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.

(Continued on page 7)

Safety Data Sheet acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 6)

· **Eye protection:**



Tightly sealed goggles

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:	Undetermined.
Boiling point/Boiling range:	131 °C (267.8 °F)

· **Flash point:** 43 °C (109.4 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 340 °C (644 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

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

· **Explosion limits:**

Lower:	1.2 Vol %
Upper:	~8 Vol %

· **Vapor pressure at 20 °C (68 °F):** 2.7 hPa (2 mm Hg)

· **Density at 20 °C (68 °F):** 0.83 g/cm³ (6.92635 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Fully miscible.

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

· **Viscosity:**

Dynamic: Not determined.

(Continued on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 7)

Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	79-111 %
Water:	5-10 %
VOC content:	79-100 %
	614.2-962.8 g/l / 5.13-8.03 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.
- **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	5,452-12,343 mg/kg (rat)
Dermal	LD50	3,435-4,325 mg/kg (rabbit)
Inhalative	LC50/4 h	12.9-15.7 mg/l

CAS: 123-51-3 Isoamyl alcohol

Dermal	LD50	3,212 mg/kg (rabbit)
Inhalative	LC50/4 h	11 mg/l (ATE)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant

(Continued on page 9)

Safety Data Sheet acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 8)

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

CAS: 64-17-5 ethyl alcohol

1

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is 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 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

· Other adverse effects No further relevant information available.

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.

· Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number

· DOT, ADR, IMDG, IATA

UN1201

(Continued on page 10)

Safety Data Sheet
 acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 9)

· **UN proper shipping name**
 · **DOT** Fusel oil
 · **ADR** 1201 Fusel oil
 · **IMDG, IATA** FUSEL OIL

· **Transport hazard class(es)**

· **DOT**



· **Class** 3 Flammable liquids

· **ADR, IMDG, IATA**



· **Class** 3 Flammable liquids

· **Packing group**

· **DOT, ADR, IMDG, IATA** III

· **Environmental hazards:**

· **Marine pollutant:** No

· **Special precautions for user** Warning: Flammable liquids

· **Stowage Category** A

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations** On passenger aircraft/rail: 60 L
 On cargo aircraft only: 220 L

· **ADR**

· **Excepted quantities (EQ)** Code: E1
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 1000 ml

· **IMDG**

· **Limited quantities (LQ)** 5L
 · **Excepted quantities (EQ)** Code: E1
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 1000 ml

(Continued on page 11)

Safety Data Sheet acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 10)

· **UN "Model Regulation":** UN 1201 FUSEL OIL, 3, III

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

CAS: 64-17-5 | ethyl alcohol

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

CAS: 71-23-8	propan-1-ol	A4
--------------	-------------	----

CAS: 64-17-5	ethyl alcohol	A3
--------------	---------------	----

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

None of the ingredients is 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 product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



(Continued on page 12)

Safety Data Sheet acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 11)

- **Signal word** Danger
- **Hazard-determining components of labeling:**
 Isoamyl alcohol
 butanol
 2-methylbutanol
 propan-1-ol
- **Hazard statements**
 H226 Flammable liquid and vapor.
 H332 Harmful if inhaled.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.
- **Precautionary statements**
 P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 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.
 P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P362+P364 Take off 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.

- **Relevant phrases**
 H225 Highly flammable liquid and vapor.
 H226 Flammable liquid and vapor.
 H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
- **Department issuing SDS:** Product Safety Department
- **Contact:**
 Product Safety Department
 productsafety@adv-bio.com
- **Date of preparation / last revision** 08/30/2018 / -

(Continued on page 13)

Safety Data Sheet acc. to OSHA HCS

Printing date 08/30/2018

Reviewed on 08/30/2018

Trade name: Grain Fusel Oil natural

(Continuation of page 12)

· 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
 ELINCS: European List of Notified 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. 2: Flammable liquids – Category 2
 Flam. Liq. 3: Flammable liquids – Category 3
 Acute Tox. 4: Acute toxicity – Category 4
 Skin Irrit. 2: Skin corrosion/irritation – Category 2
 Eye Dam. 1: Serious eye damage/eye irritation – Category 1
 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US