

Safety Data Sheet

according to Regulation (EC) No 1907/2006

10- 30% 5-(Hydroxymethyl)-furfural

Revision date: 03.11.2016

Product code:

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

10- 30% 5-(Hydroxymethyl)-furfural

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Industrial manufacturing.

Uses advised against

any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name: AVA Biochem BSL AG
 Street: Rothausstr. 61
 Place: 4132 Muttenz (Schweiz)
 Telephone: +41 61 469 59 92
 e-mail: info@ava-biochem.com
 Responsible Department: Dr. Gans-Eichler
 Chemieberatung GmbH
 Raesfeldstr. 22
 D-48149 Münster

e-mail: info@tge-consult.de
 Tel.: +49 (0)251/924520-60
 www.tge-consult.de

1.4. Emergency telephone

number: +41 61 469 59 92 (9:00-17:00 Mo-Fr)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
 Skin corrosion/irritation: Skin Irrit. 2
 Serious eye damage/eye irritation: Eye Irrit. 2
 Specific target organ toxicity - single exposure: STOT SE 3
 Hazardous to the aquatic environment: Aquatic Chronic 3
 Hazard Statements:
 Causes skin irritation.
 Causes serious eye irritation.
 May cause respiratory irritation.
 Harmful to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

5-(Hydroxymethyl)-2-furaldehyde

Signal word: Warning

Pictograms:



Hazard statements

H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H412 Harmful to aquatic life with long lasting effects.

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Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P312 Call a POISON CENTER/doctor if you feel unwell.
 P501 Dispose of contents/container to in accordance with official regulations .

2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
67-47-0	5-(Hydroxymethyl)-2-furaldehyde			10 - 30 %
	200-654-9			
	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 3; H315 H319 H335 H412			

Full text of H and EUH statements: see section 16.

Further Information

Product does not contain listed SVHC substances > 0,1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In the case of lung irritation: Primary treatment using corticoide spray, eg. Auxiluson spray, Pulmicort-dosage-spray. (Auxiluson and Pulmicort are registered trademarks). In case of allergic symptoms, especially in the breathing area, seek medical advice immediately.

After contact with skin

Remove contaminated, saturated clothing immediately. After contact with skin, wash immediately with: Water. In case of skin irritation, seek medical treatment.

After contact with eyes

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After ingestion

Rinse mouth thoroughly with water. Call a physician immediately. Let water be drunken in little sips (dilution effect).

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

First Aid, decontamination, treatment of symptoms.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water spray.
alcohol resistant foam.
dry extinguishing powder.
The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Can be released in case of fire: Carbon monoxide. Carbon dioxide (CO₂).

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Treat the recovered material as prescribed in the section on waste disposal.
Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Wear suitable protective clothing. (See section 8.)
Use extractor hood (laboratory).

Advice on protection against fire and explosion

Usual measures for fire prevention.

Further information on handling

Avoid contact with skin, eyes and clothes.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place.

Advice on storage compatibility

Do not store together with: Explosives. Oxidizing solids. Oxidizing liquids. Radioactive substances. Infectious substances. Food and feedingstuffs.

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Further information on storage conditions

Keep the packing dry and well sealed to prevent contamination and absorption of humidity.
Protect against: Light. UV-radiation/sunlight. heat. moisture.

7.3. Specific end use(s)

refer to chapter 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

To date, no national critical limit values exist.

8.2. Exposure controls



Appropriate engineering controls

Provide adequate ventilation.

Protective and hygiene measures

Always close containers tightly after the removal of product. When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work.

Eye/face protection

Wear safety glasses; chemical goggles (if splashing is possible).

Hand protection

Wear suitable gloves.

Suitable material:

FKM (fluororubber). - Thickness of glove material: 0,4 mm

Breakthrough time \geq 8 h

Butyl rubber. - Thickness of glove material: 0,5 mm

Breakthrough time \geq 8 h

CR (polychloroprenes, Chloroprene rubber). - Thickness of glove material: 0,5 mm

Breakthrough time \geq 8 h

NBR (Nitrile rubber). - Thickness of glove material: 0,35 mm

Breakthrough time \geq 8 h

PVC (Polyvinyl chloride). - Thickness of glove material: 0,5 mm

Breakthrough time \geq 8 h

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Check leak tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well.

Skin protection

Suitable protective clothing: Lab apron.

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Environmental exposure controls

No special measures are necessary.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: liquid
 Colour: not determined
 Odour: characteristic

Test method

pH-Value: not determined

Changes in the physical state

Melting point: not determined
 Initial boiling point and boiling range: not determined
 Sublimation point: not determined
 Softening point: not determined
 Pour point: not determined
 Flash point: not determined
 Sustaining combustion: Not sustaining combustion

Explosive properties

none

Lower explosion limits: not determined
 Upper explosion limits: not determined
 Ignition temperature: not determined

Auto-ignition temperature

Gas:

not determined

Decomposition temperature: not determined

Oxidizing properties

none

Vapour pressure: not determined

Density: not determined

Water solubility: not determined

Solubility in other solvents

not determined

Partition coefficient: not determined

Viscosity / dynamic: not determined

Viscosity / kinematic: not determined

Flow time: not determined

Vapour density: not determined

Evaporation rate: not determined

Solvent separation test: not determined

Solvent content: not determined

9.2. Other information

Solid content: not determined

SECTION 10: Stability and reactivity

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10.1. Reactivity

No information available.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

No information available.

10.4. Conditions to avoid

Protect against: UV-radiation/sunlight. heat.

10.5. Incompatible materials

Oxidizing agents, strong. Reducing agents, strong. strong alkalis

10.6. Hazardous decomposition productsCan be released in case of fire: Carbon monoxide (CO), Carbon dioxide (CO₂).**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Toxicocinetics, metabolism and distribution**

No data available.

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	
67-47-0	5-(Hydroxymethyl)-2-furaldehyde				
	oral	LD50 2500 mg/kg	Rat.	ChemID	

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

5-(Hydroxymethyl)-2-furaldehyde:

In-vitro mutagenicity: There is evidence in literature for negative results as well as positive results at higher concentrations.

No experimental indications of mutagenicity in-vivo exist.

Carcinogenicity:

In mice, female, 2 years, oral at 188 mg /kg, 375 mg/kg increased liver tumor incidence.

In rats, 2 years, oral up to 750 mg /kg no evidence of carcinogenicity.

In mice, male, 2 years, oral kg to 750 mg / no evidence of carcinogenicity.

Lit: NTP TECHNICAL REPORT ON THE TOXICOLOGY AND CARCINOGENESIS STUDIES OF 5-(HYDROXYMETHYL)-2-FURFURAL (CAS NO. 67-47-0) IN F344/N RATS AND B6C3F1 MICE (GAVAGE STUDIES)

STOT-single exposure

May cause respiratory irritation. (5-(Hydroxymethyl)-2-furaldehyde)

STOT-repeated exposure

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Based on available data, the classification criteria are not met.

5-(Hydroxymethyl)-2-furaldehyde:

Subchronic oral toxicity: (Mouse. 3 months.): NOAEL = 375 mg/ kg (reduced body weight.)

Chronic oral toxicity: (Mouse. 2 years.): NOAEL = 375 mg/ kg (reduced body weight.)

Lit: NTP TECHNICAL REPORT ON THE TOXICOLOGY AND CARCINOGENESIS STUDIES OF 5-(HYDROXYMETHYL)-2-FURFURAL (CAS NO. 67-47-0) IN F344/N RATS AND B6C3F1 MICE (GAVAGE STUDIES)

Chronic oral toxicity: (Rat. 11 months.): NOEL = 80 mg/ kg (Enlargement of the spleen.)

Lit: Fundam. Appl. Toxicol., 4:843-853

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available.

SECTION 12: Ecological information

12.1. Toxicity

5-(Hydroxymethyl)-2-furaldehyde:

Acute crustacea toxicity: LC 50 (72h) = 34 mg/l (27 mg/l - 43 mg/l) daphnia magna

Acute crustacea toxicity: LC 50 (24h) = 62 mg/l (53 mg/l - 78 mg/l) daphnia magna

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
67-47-0	5-(Hydroxymethyl)-2-furaldehyde	0,090

12.4. Mobility in soil

Koc (calc.) = 2

If product enters soil, it will be mobile and may contaminate groundwater

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No data available.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.

Non-contaminated packages may be recycled.

According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Control report for waste code/ waste marking according to EAKV:

Waste disposal number of waste from residues/unused products

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances
Classified as hazardous waste.

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Waste disposal number of used product

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances
Classified as hazardous waste.

Waste disposal number of contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances
Classified as hazardous waste.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

refer to chapter 6-8

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not relevant

SECTION 15: Regulatory information

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

EU regulatory information

2010/75/EU (VOC): No information available.
 2004/42/EC (VOC): No information available.

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Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Additional information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].
REACH 1907/2006 Appendix XVII, No (mixture): : 3

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Water contaminating class (D): 1 - slightly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Rev. 1.0; Initial release: 03.11.2016

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
 CAS Chemical Abstracts Service
 DNEL: Derived No Effect Level
 IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
 International Carriage of Dangerous Goods by Road
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
 ICAO: International Civil Aviation Organization
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
 LOAEL: Lowest observed adverse effect level
 LOAEC: Lowest observed adverse effect concentration
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 NOAEL: No observed adverse effect level
 NOAEC: No observed adverse effect level
 NTP: National Toxicology Program
 N/A: not applicable
 OSHA: Concerning the International Transport of Dangerous Goods by Rail
 PNEC: predicted no effect concentration
 PBT: Persistent bioaccumulative toxic
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 SARA: Superfund Amendments and Reauthorization Act
 SVHC: substance of very high concern
 TRGS Technische Regeln für Gefahrstoffe
 TSCA: Toxic Substances Control Act
 VOC: Volatile Organic Compounds
 VwVwS: Verwaltungsvorschrift wassergefährdender Stoffe
 WGK: Wassergefährdungsklasse

Relevant H and EUH statements (number and full text)

H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.

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H412 Harmful to aquatic life with long lasting effects.

Further Information

Classification according EC regulation 1272/2008 (CLP): - Classification procedure:

Health hazards: Calculation method.

Environmental hazards: Calculation method.

Physical hazards: On basis of test data. and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)