

SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA Hazard Communication Standard (29 CFR 1910.1200)



Product Name Furfuryl Alcohol, Natural

1. Identification

Product identifier

Product Name Furfuryl Alcohol, Natural

Other means of identification

Chemical name Furfuryl Alcohol

Product Code(s) NA2491

UN number or ID number 2874

Recommended use of the chemical and restrictions on use

Recommended use flavors

Restrictions on use No information available

Details of the supplier of the safety data sheet

Manufacturer Address

Axxence Corporation
1050 Cypress Creek Rd.
Oakdale, La 71463
www.axxence.com
Tel. 318-215-1456
Fax 318-335-1579

Emergency telephone number

Emergency Telephone EMERGENCY 24 HOUR CONTACT
ChemTrec: 1-800-424-9300
Contract # 219030

2. Hazard(s) identification

Classification

Classification according to Regulation 29 CFR 1910.1200

| | |
|---|-------------|
| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Dermal | Category 4 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 3 |
| Serious eye damage/eye irritation | Category 2A |
| Carcinogenicity | Category 2 |

| | |
|--|------------|
| Specific target organ toxicity (single exposure) | Category 3 |
| Specific target organ toxicity (repeated exposure) | Category 2 |
| Flammable liquids | Category 4 |

Hazards not otherwise classified (HNOC)

Not applicable.

Label elements

Danger

Hazard statements

Combustible liquid.
Harmful if swallowed.
Harmful in contact with skin.
Toxic if inhaled.
Causes serious eye irritation.
Suspected of causing cancer.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves, protective clothing, eye protection and face protection.
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Do not breathe dust.
Keep away from flames and hot surfaces. - No smoking.
Keep cool.

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water and soap.
Call a POISON CENTER or doctor if you feel unwell.
Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor.
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
Rinse mouth.
In case of fire: Use CO₂, dry chemical, or foam to extinguish.

Precautionary Statements - Storage

Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements - Disposal

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

Other information

3. Composition/information on ingredients

Product Name Furfuryl Alcohol, Natural

Substance

Formula C₅H₆O₂

Molecular weight 98.1 g/mol

| Chemical name | CAS No. | EC No (EU Index No) | Weight-% | Trade secret |
|------------------|---------|-----------------------------|----------|--------------|
| Furfuryl Alcohol | 98-00-0 | 202-626-1 (603-018-00-2) | 100 | - |

4. First-aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. Immediate medical attention is required.

Inhalation Remove to fresh air. IF exposed or concerned: Get medical advice/attention. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not breathe vapor or mist. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

Flash point 75 °C / 167 °F

Flammability Limit in Air

Upper flammability or explosive limits No data available

Lower flammability or explosive limits No data available

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol resistant foam.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

| | |
|---|--|
| Specific hazards arising from the chemical | Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. |
| Explosion data | |
| Sensitivity to mechanical impact | None. |
| Sensitivity to static discharge | Yes. |
| Special protective equipment and precautions for fire-fighters | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |
| Special attention to fire and explosion | None |

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

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|-----------------------------|--|
| Personal precautions | Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Take precautionary measures against static discharges. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe vapor or mist. Keep people away from and upwind of spill/leak. |
| Other information | Refer to protective measures listed in Sections 7 and 8. |

Methods and material for containment and cleaning up

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|--|--|
| Methods for containment | Stop leak if you can do it without risk. Do not touch or walk through spilled material. Dike far ahead of liquid spill for later disposal. |
| Methods for cleaning up | Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. |
| Prevention of secondary hazards | Clean contaminated objects and areas thoroughly observing environmental regulations. |

7. Handling and storage

Precautions for safe handling

| | |
|--------------------------------|---|
| Advice on safe handling | Use personal protection equipment. Do not breathe vapor or mist. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Take off contaminated clothing and wash before reuse. |
|--------------------------------|---|

Conditions for safe storage, including any incompatibilities

| | |
|---------------------------|---|
| Storage Conditions | Cool, Dark area. Purge with Nitrogen after each opening. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Keep out of the reach of children. Store locked up. |
|---------------------------|---|

8. Exposure controls/personal protection

Working area parameters, subject to mandatory control (MAC or TSEL)

Exposure Limits

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH |
|-----------------------------|---------------------|---|---|
| Furfuryl Alcohol 98-00-0 | TWA: 0.2 ppm pSk | TWA: 50 ppm TWA: 200 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 40 mg/m ³ (vacated) STEL: 15 ppm (vacated) STEL: 60 mg/m ³ | TWA: 10 ppm; TWA: 40 mg/m ³ ; STEL: 15 ppm STEL: 60 mg/m ³ IDLH: 75 ppm |

| | | | |
|--|--|-----|--|
| | | Sdv | |
|--|--|-----|--|

Appropriate engineering controls

| | |
|----------------------|--|
| Engineering controls | Showers Eyewash stations Ventilation systems |
|----------------------|--|

Individual protection measures, such as personal protective equipment

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|--------------------------------|--|
| Eye/face protection | Tight sealing safety goggles. |
| Hand protection | Wear suitable gloves. |
| Skin and body protection | Wear suitable protective clothing. Long sleeved clothing. |
| Respiratory protection | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. |
| General hygiene considerations | Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not breathe vapor or mist. Remove and wash contaminated clothing and gloves, including the inside, before re-use. |

9. Physical and chemical properties**Information on basic physical and chemical properties**

| | |
|----------------|--------------------------|
| Physical state | Liquid |
| Appearance | Clear Oily |
| Color | Colorless to light amber |
| Odor | odorless |
| Odor threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|--|-------------------|-------------------------|
| pH | No data available | None known |
| Melting point / freezing point | No data available | None known |
| Boiling point | 169 °C / 336.2 °F | None known |
| Flash point | 75 °C / 167 °F | CC (closed cup) |
| Evaporation rate | No data available | None known |
| Flammability | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability or explosive limits | No data available | |
| Lower flammability or explosive limits | No data available | |
| Vapor pressure | No data available | None known |
| Relative vapor density | >1.0 | None known |
| Relative density | 1.126 - 1.136 | None known |
| Water solubility | Soluble in water | None known |
| Solubility(ies) | Alcohol, Oil | None known |
| Partition coefficient | No data available | None known |
| Autoignition temperature | No data available | None known |
| Decomposition temperature | | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |
| Refractive Index | 1.481 - 1.489 | |

Other information

| | |
|----------------------|--------------------------|
| Explosive properties | No information available |
| Oxidizing properties | No information available |
| Softening point | No information available |
| Molecular weight | 98.1 g/mol |
| VOC content | No information available |
| Liquid Density | No information available |
| Bulk density | No information available |

10. Stability and reactivity

| | |
|---|---|
| Reactivity | No information available. |
| Chemical stability | Stable under normal conditions. |
| Possibility of hazardous reactions | None under normal processing. |
| Conditions to avoid | Heat, flames and sparks. Excessive heat. |
| Incompatible materials | None known based on information supplied. |
| Hazardous decomposition products | None known based on information supplied. |

11. Toxicological information**Information on likely routes of exposure****Product Information**

| | |
|---------------------|---|
| Inhalation | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Toxic by inhalation. (based on components). |
| Eye contact | Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain. |
| Skin contact | Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation. May be absorbed through the skin in harmful amounts. Harmful in contact with skin. (based on components). |
| Ingestion | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components). |

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|-----------------|--|
| Symptoms | May cause redness and tearing of the eyes. Coughing and/ or wheezing. Difficulty in breathing. |
|-----------------|--|

Acute toxicity**Numerical measures of toxicity****Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|-----------------------------|---------------------|------------------------|--|
| Furfuryl Alcohol 98-00-0 | = 110 mg/kg (Rat) | = 657 mg/kg (Rabbit) | = 1.18 mg/L (Rat) 4 h = 1.48 mg/L (Rat) 4 h |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|--|--|
| Skin corrosion/irritation | No information available. |
| Serious eye damage/eye irritation | Classification based on data available for ingredients. Causes serious eye irritation. |
| Respiratory or skin sensitization | No information available. |
| Germ cell mutagenicity | No information available. |
| Carcinogenicity | Contains a known or suspected carcinogen. Classification based on data available for ingredients. Suspected of causing cancer. |

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name | ACGIH | IARC | NTP | OSHA |
|-----------------------------|---|----------|-----|------|
| Furfuryl Alcohol 98-00-0 | A3 A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Group 2B | - | X |

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

Occupational Safety and Health Administration of the US Department of Labor

X - Present

| | |
|---------------------------------|--|
| Reproductive toxicity | No information available. |
| STOT - single exposure | May cause respiratory irritation. |
| STOT - repeated exposure | May cause damage to organs through prolonged or repeated exposure. |
| Target organ effects | Respiratory system, Eyes, Skin, Central nervous system. |
| Aspiration hazard | No information available. |
| Other adverse effects | No information available. |
| Interactive effects | No information available. |

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|-----------------------------|----------------------|---|----------------------------|-----------|
| Furfuryl Alcohol 98-00-0 | - | LC50: =32mg/L (96h, Pimephales promelas) | - | - |

Persistence and degradability No information available.
Bioaccumulation

PBT and vPvB assessment No information available.

| Chemical name | PBT and vPvB assessment |
|------------------|-------------------------|
| Furfuryl Alcohol | Not PBT/vPvB |

Component Information

| Chemical name | Partition coefficient |
|-----------------------------|-----------------------|
| Furfuryl Alcohol 98-00-0 | 0.8 |

Mobility in soil No information available.
Other adverse effects No information available.

13. Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging Do not reuse empty containers.

14. Transport information

DOT

UN number or ID number 2874
 Proper shipping name Furfuryl alcohol
 Transport hazard class(es) 6.1
 Packing group III
 DOT Marine Pollutant NP

IATA

UN number or ID number 2874
 UN proper shipping name Furfuryl alcohol
 Transport hazard class(es) 6.1
 Packing group III

IMDG

UN number or ID number 2874
 UN proper shipping name Furfuryl alcohol
 Transport hazard class(es) 6.1
 Packing group III
 Marine pollutant indicator NP

15. Regulatory information

International Inventories

| | |
|----------------------|--------|
| TSCA | Listed |
| DSL/NDL | Listed |
| EINECS/ELINCS | Listed |
| ENCS | Listed |
| IECSC | Listed |
| KECL | Listed |
| PICCS | Listed |
| AIIC | Listed |
| NZIoC | Listed |
| Taiwan | Listed |

Legend:**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**AIIC** - Australian Inventory of Industrial Chemicals**NZIoC** - New Zealand Inventory of Chemicals**TCSI** - Taiwan Chemical Substance Inventory**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals:

| Chemical name | California Proposition 65 |
|----------------------------|---------------------------|
| Furfuryl Alcohol - 98-00-0 | Carcinogen |

U.S. State Right-to-Know Regulations

| Chemical name | New Jersey | Massachusetts | Pennsylvania |
|-----------------------------|------------|---------------|--------------|
| Furfuryl Alcohol 98-00-0 | X | X | X |

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

| | | | | |
|--|---------------------------|-----------------------|---------------------------|------------------------------|
| NFPA | Health hazards 3 | Flammability 2 | Instability 0 | Special hazards - |
| HMIS | Health hazards 3 * | Flammability 2 | Physical hazards 0 | Personal protection X |
| <i>Chronic Hazard Star Legend * = Chronic Health Hazard</i> | | | | |

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: Exposure controls/personal protection**

| | | | |
|---------|-----------------------------|------|----------------------------------|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value | Sk* | Skin designation |

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 Environmental Protection Agency
 Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 National Institute of Technology and Evaluation (NITE)
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 U.S. National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 World Health Organization

Revision Number 1
Revision date 23-Feb-2025
Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet