Material Safety Data Sheet

Furfuryl alcohol

Tel: 905-685-8560  www.ifc-northamerica.com

Section 1. Identification

GHS product identifier : Furfuryl alcohol
Chemical name : Furfuryl Alcohol
Other means of identification : 2-Hydroxymethylfuran; 2-furylmethanol; 2-furancarbinol; furfuralcohol; 2-furyl carbinol; 2-hydroxymethyl furan; a-furyl carbinol; a-furancarbinol; a-hydroxymethylfuran; nci-c56224
Product type : Liquid.

Identified uses
Applications in resins, foundry, colour, lac, synthetic and electro industry. Further applications in pharmaceutical products.

Supplier's details : IFC NORTH AMERICA inc.
63 Church Street, Suite 403
St. Catharines, ON
Canada L2R 3C4
Tel: 905.685.8560
Fax: 905.685.8712
E-mail: alex@ifc-northamerica.com

Manufacturer : TRANS FURANS CHEMICALS bvba,
Industriepark Leukaard 2
2440 Geel, Belgium
Tel: +32.1457.8747
Fax: +32.1457.8767
Email: info@transfurans.be

Emergency telephone number (with hours of operation) : CANUTEC (613) 996-6666

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 4
ACUTE TOXICITY (oral) - Category 3
ACUTE TOXICITY (dermal) - Category 3
ACUTE TOXICITY (inhalation) - Category 2
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms : 

Conforms to HazCom 2012/United States

KMK Regulatory Services
Tel : +1-888-GHS-7769 (447-7769) / +1-450-GHS-7767 (447-7767)

1/13
Section 2. Hazards identification

Signal word: Danger

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

Precautionary statements

General:
- Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention:
- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection: Recommended: Safety glasses with side shields. Wear respiratory protection. Keep away from flames and hot surfaces. No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response:
- Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. IF ON SKIN: Take off immediately all contaminated clothing. Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Wash contaminated clothing before reuse. 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 attention.

Storage:
- Store locked up. Store in a well-ventilated place. Keep cool.

Disposal:
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified:
- None known.

Section 3. Composition/information on ingredients

Substance/mixture: Substance
Chemical name: Furfuryl Alcohol
Other means of identification:
- 2-Hydroxymethylfuran; 2-furylethanol; 2-furancarbinol; furfuralcohol; 2-furyl carbinol; 2-hydroxymethyl furan; a-furyl carbinol; a-furancarbinol; a-hydroxymethylfuran; nci-c56224

CAS number/other identifiers
- CAS number: 98-00-0
- Product code: Not available.

United States; Mexico

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>60-100</td>
<td>98-00-0</td>
</tr>
</tbody>
</table>

Canada

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>60-100</td>
<td>98-00-0</td>
</tr>
</tbody>
</table>
Section 3. Composition/information on ingredients

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

**Description of necessary first aid measures**

**Eye contact**: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.

**Inhalation**: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin contact**: Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Fatal if inhaled. May cause respiratory irritation.
- **Skin contact**: Toxic in contact with skin.
- **Ingestion**: Toxic if swallowed. Irritating to mouth, throat and stomach.

**Over-exposure signs/symptoms**

- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness
- **Inhalation**: Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing
- **Skin contact**: No known significant effects or critical hazards.
- **Ingestion**: No known significant effects or critical hazards.

**Indication of immediate medical attention and special treatment needed, if necessary**
Section 4. First aid measures

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet or water-based fire extinguishers.

Specific hazards arising from the chemical : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials: carbon dioxide, carbon monoxide

Special protective actions for fire-fighters : Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel”.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up
**Section 6. Accidental release measures**

**Spill**

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

**Section 7. Handling and storage**

**Precautions for safe handling**

**Protective measures**

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene**

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures. Remove contaminated clothing and protective equipment before entering eating areas.

**Conditions for safe storage, including any incompatibilities**

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

**Section 8. Exposure controls/personal protection**

**Control parameters**

**United States**

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>ACGIH TLV (United States, 2/2010). Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>STEL: 60 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>STEL: 15 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>TWA: 40 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 60 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>STEL: 15 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>TWA: 40 mg/m³ 10 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm 10 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 6/2010).</td>
</tr>
<tr>
<td></td>
<td>TWA: 200 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>
Section 8. Exposure controls/personal protection

TWA: 50 ppm 8 hours.

Mexico

Ingredient name | Exposure limits
--- | ---
Furfuryl Alcohol | NOM-010-STPS (Mexico, 9/2000). Absorbed through skin. LMPE-CT: 60 mg/m³ 15 minutes. LMPE-CT: 15 ppm 15 minutes. LMPE-PPT: 40 mg/m³ 8 hours. LMPE-PPT: 10 ppm 8 hours.

Canada

<table>
<thead>
<tr>
<th>Occupational exposure limits</th>
<th>TWA (8 hours)</th>
<th>STEL (15 mins)</th>
<th>Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredient</td>
<td>List name</td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Furfuryl Alcohol</td>
<td>US ACGIH 2/2010</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>AB 4/2009</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>BC 9/2010</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>ON 7/2010</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>QC 6/2008</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>


Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures: Appropriate techniques should be used to remove potentially contaminated clothing. IF ON SKIN (or hair): Wash contaminated clothing before reuse.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Recommended: Safety glasses with side shields.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Furfuryl alcohol

Section 8. Exposure controls/personal protection

**Respiratory protection**: Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

**Appearance**

- **Physical state**: Liquid.
- **Color**: Colorless to light yellow.
- **Odor**: Mild
- **Odor threshold**: Not available.
- **pH**: Not available.
- **Melting point**: -15°C (5°F)
- **Boiling point**: 170°C (338°F)
- **Flash point**: Open cup: 74.85°C (166.7°F) (Cleveland.).
- **Evaporation rate**: 0.04 (Butyl acetate = 1)
- **Flammability (solid, gas)**: Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. Slightly flammable in the presence of the following materials or conditions: heat.
- **Lower and upper explosive (flammable) limits**: Lower: 1.8% Upper: 16.3%
- **Vapor pressure**: 0.053 kPa (0.3975 mm Hg) [room temperature]
- **Vapor density**: 3.4 [Air = 1]
- **Relative density**: 1.13
- **Solubility**: Not available.
- **Partition coefficient: n-octanol/water**: 0.3
- **Auto-ignition temperature**: 491°C (915.8°F)
- **Decomposition temperature**: Not available.
- **Viscosity**: Not available.
- **Aerosol product**: Not available.
- **Heat of combustion**: -26.05 kJ/g

Section 10. Stability and reactivity

**Reactivity**: No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability**: The product is stable.

**Possibility of hazardous reactions**: Hazardous reactions or instability may occur under certain conditions of storage or use.

**Conditions to avoid**: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

**Incompatible materials**: Reactive or incompatible with the following materials: oxidizing materials.
Section 10. Stability and reactivity

**Hazardous decomposition products**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

**Information on toxicological effects**

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>233 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>400 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>3825 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>177 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 mg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Sensitization**

There is no data available.

**Carcinogenicity**

There is no data available.

**Specific target organ toxicity (single exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

**Specific target organ toxicity (repeated exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>Category 2</td>
<td>Not determined</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

**Aspiration hazard**

There is no data available.

**Information on the likely routes of exposure**
Dermal contact. Eye contact. Inhalation. Ingestion.

**Potential acute health effects**

**Eye contact**
Causes serious eye irritation.

**Inhalation**
Fatal if inhaled. May cause respiratory irritation.

**Skin contact**
Toxic in contact with skin.

**Ingestion**
Toxic if swallowed. Irritating to mouth, throat and stomach.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Eye contact**
Adverse symptoms may include the following:
- pain or irritation
- watering
- redness
Section 11. Toxicological information

**Inhalation**: Adverse symptoms may include the following: respiratory tract irritation, coughing.

**Skin contact**: No known significant effects or critical hazards.

**Ingestion**: No known significant effects or critical hazards.

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**
- **Potential immediate effects**: No known significant effects or critical hazards.
- **Potential delayed effects**: No known significant effects or critical hazards.

**Long term exposure**
- **Potential immediate effects**: No known significant effects or critical hazards.
- **Potential delayed effects**: No known significant effects or critical hazards.

**Potential chronic health effects**
- **General**: May cause damage to organs through prolonged or repeated exposure.
- **Carcinogenicity**: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
- **Mutagenicity**: No known significant effects or critical hazards.
- **Teratogenicity**: No known significant effects or critical hazards.
- **Developmental effects**: No known significant effects or critical hazards.
- **Fertility effects**: No known significant effects or critical hazards.

**Numerical measures of toxicity**

**Acute toxicity estimates**
There is no data available.

Section 12. Ecological information

**Toxicity**
There is no data available.

**Persistence and degradability**
There is no data available.

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>0.3</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**Mobility in soil**

- **Soil/water partition coefficient (K_{OC})**: Not available.

**Other adverse effects**: No known significant effects or critical hazards.
Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT/MEX/TDG Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN2874</td>
<td>UN2874</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>FURFURYL ALCOHOL</td>
<td>FURFURYL ALCOHOL</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>
| Additional information    | Inhalation hazard zone C  
Limited quantity  
Yes.  
Packaging instruction  
Passenger aircraft  
Quantity limitation: 60 L  
Cargo aircraft  
Quantity limitation: 220 L  
Special provisions  
IB3, T4, TP1  
Passenger and Cargo Aircraft  
Quantity limitation: 60 L  
Cargo Aircraft Only  
Quantity limitation: 220 L  
Limited Quantities - Passenger Aircraft  
Quantity limitation: 2 L | -  
PAssenger and Cargo Aircraft  
Quantity limitation: 60 L  
Cargo Aircraft Only  
Quantity limitation: 220 L  
Limited Quantities - Passenger Aircraft  
Quantity limitation: 2 L | AERG : 153 |

Special precautions for user: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.
Section 15. Regulatory information

U.S. Federal regulations
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
- Clean Air Act Section 602 Class I Substances: Not listed
- Clean Air Act Section 602 Class II Substances: Not listed
- DEA List I Chemicals (Precursor Chemicals): Not listed
- DEA List II Chemicals (Essential Chemicals): Not listed

United States inventory (TSCA 8b): This material is listed or exempted.

California Prop. 65
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
- Clean Air Act Section 602 Class I Substances: Not listed
- Clean Air Act Section 602 Class II Substances: Not listed
- DEA List I Chemicals (Precursor Chemicals): Not listed
- DEA List II Chemicals (Essential Chemicals): Not listed

SARA 302/304
Composition/information on ingredients
No products were found.

SARA 304 RQ: Not applicable.

SARA 311/312
Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furfuryl Alcohol</td>
<td>60 - 100</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>

State regulations
- Massachusetts: This material is listed.
- New York: This material is not listed.
- New Jersey: This material is listed.
- Pennsylvania: This material is listed.
- California Prop. 65: No products were found.

Mexico
Classification:

Canada
Section 15. Regulatory information

WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
                  Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
                  Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPI : This material is listed.
CEPA Toxic substances : This material is not listed.
Canada inventory : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists

Australia inventory (AICS): This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed
Chemical Weapons Convention List Schedule II Chemicals : Not listed
Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other information

Canada

WHMIS (Canada) :

WHMIS (Canada) :

History

Date of issue mm/dd/yyyy : 11/15/2013
Date of previous issue : 12/15/2010
Version : 4
Revised Section(s) : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.
Prepared by : KMK Regulatory Services Inc.
Key to abbreviations : ATE = Acute Toxicity Estimate
                        BCF = Bioconcentration Factor
                        GHS = Globally Harmonized System of Classification and Labelling of Chemicals
                        IATA = International Air Transport Association
                        IBC = Intermediate Bulk Container
                        IMDG = International Maritime Dangerous Goods
                        LogPow = logarithm of the octanol/water partition coefficient
                        MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships,
Section 16. Other information

1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

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