

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 00177
Product Name: Pie Crust Flavor
Trade Name: Pie Crust Flavor
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
- 1.3 Details of the Supplier of the Safety Data Sheet:**
Company Name: Perfumer's Apprentice
170 Technology Circle
Scotts Valley, CA 95066
- 1.4 Emergency telephone number:**

Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:**
Flammable Liquids, Category 3
Acute Toxicity: Oral, Category 3
Acute Toxicity: Skin, Category 4
Serious Eye Damage/Eye Irritation, Category 2A
Target Organ Systemic Toxicity (single exposure), Category 1
Skin Corrosion/Irritation, Category 2
Acute Toxicity: Inhalation, Category 3
Carcinogenicity, Category 2
Target Organ Systemic Toxicity (repeated exposure), Category 2
- 2.1.2 Classification according to Directive 1999/45/EC:**
Xn: Harmful
T: Toxic
Risk Phrases: R20/21/22, R36/37/38, R10, R23/25, R40
For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**
- 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



GHS Signal Word: Danger

GHS Hazard Phrases:

H226 - Flammable liquid and vapor.
H301 - Toxic if swallowed.
H312 - Harmful in contact with skin.
H319 - Causes serious eye irritation.
H370 - Causes damage to organs
H315 - Causes skin irritation.
H331 - Toxic if inhaled.
H351 - Suspected of causing cancer state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard.

GHS Precaution Phrases:

- P233 - Keep container tightly closed.
- P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P240 - Ground/bond container and receiving equipment.
- P241 - Use explosion-proof electrical/ventilating/lighting/.../ equipment.
- P243 - Take precautionary measures against static discharge.
- P242 - Use only non-sparking tools.
- P264 - Wash hands thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
- P271 - Use only outdoors or in a well-ventilated area.
- P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P281 - Use personal protective equipment as required.

GHS Response Phrases:

- P370+378 - In case of fire, use ... to extinguish.
- P303+361+353 - IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
- P301+310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P330 - Rinse mouth.
- P321 - Specific treatment see ... on this label.
- P302+352 - IF ON SKIN: Wash with plenty of soap and water.
- P312 - Call a POISON CENTER/doctor/... if you feel unwell.
- P322 - Specific measures see ... on this label.
- P363 - Wash contaminated clothing before reuse.
- P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+313 - If eye irritation persists, get medical advice/attention.
- P307+311 - IF exposed: Call a POISON CENTER or doctor/physician.
- P332+313 - If skin irritation occurs, get medical advice/attention.
- P362 - Take off contaminated clothing.
- P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P311 - Call a POISON CENTER/doctor/....
- P308+313 - IF exposed or concerned: Get medical attention/advice.

GHS Storage and Disposal Phrases:

- P403+235 - Store in cool/well-ventilated place.
- P501 - Dispose of contents/container to
- P405 - Store locked up.
- P403+233 - Store container tightly closed in well-ventilated place - if product is as volatile as to generate hazardous atmosphere.

2.2.2 Labeling according to Directive 1999/45/EC:



Xn



T

2.3 Adverse Human Health Effects and Symptoms: Prolonged or repeated contact may result in "vanillism", an allergic dermatitis. Doesn't seem likely upon a closer look since the allergic reaction is caused by a mite in the 'raw' vanilla.

Chronic ingestion may cause lactic acidosis and possible seizures.

Chronic: Exposure to large doses may cause central nervous system depression. Exposures to propylene glycol having no adverse effects on the mother should have no effect on the fetus. Birth defects are unlikely. In animal studies, propylene glycol has been shown not to interfere with reproduction. May cause liver and kidney damage. Repeated exposure may cause damage to the spleen. Laboratory experiments have shown mutagenic effects. Chronic exposure may cause blood effects. Exposure to high concentrations may cause central nervous system depression. Animal studies have reported the development of tumors. Limited evidence of a carcinogenic effect. May cause kidney damage.

2.3.1 Inhalation: Low hazard for normal industrial handling. Inhalation of a mist of this material may cause respiratory tract irritation. Material has a low vapor pressure at room temperature, so exposure to vapor is not likely. No hazard expected in normal industrial use. Dust is irritating to the respiratory tract. Causes respiratory tract irritation. May cause visual abnormalities. Causes narcotic effects including headache, dizziness, weakness, unconsciousness. Toxic if inhaled. Skin: May be harmful if absorbed through skin. May cause skin irritation. Harmful if inhaled.

2.3.2 Skin Contact: Allergic reactions have been reported. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Repeated exposures may cause problems. Negative results have consistently been obtained in guinea pigs studies for sensitization. 1,,2-Propylene glycol is not considered an occupational skin sensitizer. (CHEMINFO) Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin. Dust may cause mechanical irritation. Low hazard for normal industrial handling. Prolonged or repeated contact may dry/defat the skin and cause irritation. Harmful if absorbed through the skin.

2.3.3 Eye Contact: May cause slight transient injury. Dust may cause mechanical irritation. Low hazard for normal industrial handling. Causes eye irritation.

2.3.4 Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Low hazard for usual industrial handling. May cause hemoglobinuric nephrosis. May cause changes in surface EEG. Harmful if swallowed.

Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract. May cause irritation of the digestive tract. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause a narcotic effect with possible coma. May cause nausea and vomiting. Toxic if swallowed. Additional Information. RTECS: QJ6950000

Section 3. Composition/Information on Ingredients

CAS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
57-55-6	Propylene glycol	>=10.0 %	200-338-0 NA	No phrases apply.
121-32-4	Benzaldehyde, 3-ethoxy-4-hydroxy-	>=10.0 %	204-464-7 NA	Xn; R22
765-70-8	1,2-Cyclopentanedione, 3-methyl-	>=10.0 %	212-154-8	No phrases apply.

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121-33-5	Benzaldehyde, 4-Hydroxy-3-methoxy-	1.0 -10.0 %	NA 204-465-2	No phrases apply.
123-51-3	1-Butanol, 3-Methyl-	1.0 -10.0 %	NA 204-633-5 NA	Xn; R10-20/22 Flam. Liq. 3: H226 Acute Tox.(O) 5: H303 Acute Tox.(D) 5: H313 Eye Damage 2A: H319 TOST (SE) 1: H370 TOST (SE) 3: H335 H336
118-71-8	3-Hydroxy-2-methyl-4-pyrone	1.0 -10.0 %	204-271-8 NA	Xn; R22-36/37/38
98-01-1	2-Furancarboxaldehyde	1.0 -10.0 %	202-627-7 605-010-00-4	T;Xn; Ca:3, R21-23/25-36/37-40 Acute Tox.(O) 3: H301 Acute Tox.(D) 4: H312 Skin Corr. 2: H315 Eye Damage 2A: H319 Acute Tox.(I) 3: H331 TOST (SE) 3: H335 H336 Carcinogen 2: H351
3658-77-3	4 - Hydroxy - 2,5 - dimethylfuran - 2(3H) - one	1.0 -10.0 %	222-908-8 NA	No phrases apply.
98-00-0	Furfuryl alcohol	< 1.0 %	202-626-1 603-018-00-2	T; Ca:3, R21/22-23-36/37-40-48/20 Acute Tox.(O) 4: H302 Acute Tox.(D) 4: H312 Eye Damage 2A: H319 Acute Tox.(I) 3: H331 TOST (SE) 3: H335 H336 Carcinogen 2: H351 TOST (RE) 2: H373

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

In Case of Inhalation: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical aid. If breathed in, move person into fresh air. Remove from exposure and move to fresh air immediately. Get medical aid if cough or other symptoms appear. Get medical aid immediately. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Consult a physician.

In Case of Skin Contact: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse. Wash off with soap and plenty of water. Get medical aid if irritation develops or persists. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Consult a physician.

In Case of Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid. In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician. Flush eyes with water as a precaution. Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Rinse thoroughly with plenty of water for at least 15 minutes and consult a

physician.

In Case of Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. If swallowed, wash out mouth with water provided person is conscious. Call a physician. Rinse mouth with water. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Treat symptomatically and supportively. Get medical aid if irritation or symptoms occur. Potential for aspiration if swallowed. Get medical aid immediately. If vomiting occurs naturally, have victim lean forward. Wash mouth out with water. Call a poison control center. Consult a physician.

4.2 Important Symptoms and Effects, Both Acute and Delayed: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Note for the Doctor: Persons with impaired kidney function may be more susceptible to the effects of this substance. Treat symptomatically and supportively. Consult a physician. Show this safety data sheet to the doctor in attendance.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam. Suitable: Water spray. In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use water spray, dry chemical, carbon dioxide, or chemical foam.

5.2 Flammable Properties and Hazards:

Flash Pt:

Explosive Limits:

LEL:

UEL:

Autoignition Pt:

5.3 Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Wear self contained breathing apparatus for fire fighting if necessary. Dust from this material can form explosive organic dust cloud. Use water spray to keep fire-exposed containers cool. Containers may explode if exposed to fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Dusts at sufficient concentrations can form explosive mixtures with air. Will burn if involved in a fire. Containers may explode in the heat of a fire. Combustible liquid and vapor.

Section 6. Accidental Release Measures

6.3 Methods and Material For Containment and Cleaning Up: Use proper personal protective equipment as indicated in Section 8. Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. **PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL.** Evacuate area. **PROCEDURE(S) OF PERSONAL PRECAUTION(S)** Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Methods for cleaning up. Absorb on sand or vermiculite and place in closed containers for disposal. Personal precautions. Avoid dust formation. Avoid breathing vapors, mist or gas. Environmental precautions. Do not let product enter drains.

Sweep up and shovel. Keep in suitable, closed containers for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. A vapor suppressing foam may be used to reduce vapors. Prevent spreading of vapors through sewers, ventilation systems and confined areas. Do not let this chemical enter the environment. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Use personal protective equipment. Avoid breathing dust. Ensure adequate ventilation.

Pick up and arrange disposal without creating dust.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. User Exposure: Do not breathe vapor. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. Minimize dust generation and accumulation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Avoid breathing dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood. Avoid formation of dust and aerosols.
- 7.2 Precautions To Be Taken in Storing:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture. Suitable: Keep tightly closed. SPECIAL REQUIREMENTS: Keep container tightly closed in a dry and well-ventilated place. Store in a cool, dry place. Keep away from sources of ignition. Flammables-area. Store in a dry area. Keep refrigerated. (Store below 4°C/39°F.) Recommended storage temperature: 2 - 8 deg.C. Store under inert gas.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
57-55-6	Propylene glycol	TWA: 474 mg/m3 (150 ppm) (Total Particulates) TWA: 10 mg/m3 (Powder)		
121-32-4	Benzaldehyde, 3-ethoxy-4-hydroxy-			
765-70-8	1,2-Cyclopentanedione, 3-methyl-			
121-33-5	Benzaldehyde, 4-Hydroxy-3-methoxy-			
123-51-3	1-Butanol, 3-Methyl-	TWA: 366 mg/m3 (100 ppm) STEL: 458 mg/m3 (125 ppm)	TWA: 360 mg/m3 (100 ppm)	
118-71-8	3-Hydroxy-2-methyl-4-pyrone			
98-01-1	2-Furancarboxaldehyde	TWA: 8 mg/m3 (2 ppm) STEL: 20 mg/m3 (5 ppm)	STEL: 8 mg/m3 (2 ppm)	
3658-77-3	4 - Hydroxy - 2,5 - dimethylfuran - 2(3H) - one			
98-00-0	Furfuryl alcohol		TWA: 40 mg/m3 (10 ppm)	

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CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
57-55-6	Propylene glycol			
121-32-4	Benzaldehyde, 3-ethoxy-4-hydroxy-			
765-70-8	1,2-Cyclopentanedione, 3-methyl-			
121-33-5	Benzaldehyde, 4-Hydroxy-3-methoxy-			
123-51-3	1-Butanol, 3-Methyl-	PEL: 100 ppm	TLV: 100 ppm STEL: 125 ppm	
118-71-8	3-Hydroxy-2-methyl-4-pyrone			
98-01-1	2-Furancarboxaldehyde	PEL: 5 ppm	TLV: 2 ppm	
3658-77-3	4 - Hydroxy - 2,5 - dimethylfuran - 2(3H) - one			
98-00-0	Furfuryl alcohol	PEL: 50 ppm	TLV: 10 ppm STEL: 15 ppm	

8.2 Exposure Controls:

8.2.1 Engineering Controls (Ventilation etc.): Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Safety shower and eye bath. Mechanical exhaust required. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use explosion-proof ventilation equipment. Use only under a chemical fume hood.

8.2.2 Personal protection equipment:

Eye Protection: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Chemical safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Wear chemical splash goggles. Safety glasses.

Protective Gloves: Wear appropriate protective gloves to prevent skin exposure. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Other Protective Clothing: Wear appropriate protective clothing to prevent skin exposure. Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory Equipment (Specify Type): A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type

P1 (EN 143) respirator.

Work/Hygienic/Maintenance Practices: Wash thoroughly after handling. General industrial hygiene practice. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: [] Gas [X] Liquid [] Solid

Appearance and Odor: Transparent light brown liquid.
Pie Crust taste and aroma.

Melting Point:

Boiling Point:

Flash Pt:

Evaporation Rate:

Explosive Limits: LEL: UEL:

Vapor Pressure (vs. Air or mm Hg):

Vapor Density (vs. Air = 1):

Specific Gravity (Water = 1):

Solubility in Water:

Autoignition Pt:

9.2 Other Information

Percent Volatile:

Section 10. Stability and Reactivity

10.1 Reactivity:

10.2 Stability: Unstable [] Stable [X]

10.3 Conditions To Avoid - Hazardous Reactions:

Possibility of Hazardous Reactions: Will occur [] Will not occur [X]

10.4 Conditions To Avoid - Instability: Excess heat, moist air, No data available.
Light, dust generation, Moisture, ignition sources, Incompatible materials, Exposure to air.

10.5 Incompatibility - Materials To Avoid: Strong oxidizing agents, Strong oxidizing agents. acids, Acid chlorides, liquid oxygen.

10.6 Hazardous Decomposition Or Byproducts: Carbon monoxide, Carbon dioxide, formed under fire conditions. Carbon oxides, irritating and toxic fumes and gases.

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	<p>Acute toxicity. No data available.</p> <p>Respiratory or skin sensitization: Germ cell mutagenicity. Reproductive toxicity - no data available.</p> <p>Specific target organ toxicity -single exposure (Globally Harmonized System) Specific target organ toxicity -repeated exposure (Globally Harmonized System)</p> <p>Aspiration hazard. Epidemiology: Teratogenicity: No data available.</p> <p>Reproductive Effects: Mutagenicity: Experimental mutagen in human lymphocyte cells.</p> <p>Neurotoxicity: Other Studies: No information available.</p> <p>Teratogenicity: No information available.</p> <p>Tumorigenic effects have been reported in experimental animals.</p> <p>Teratogenicity: Teratogenic effects have occurred in experimental animals.</p> <p>Adverse reproductive effects have occurred in experimental animals.</p> <p>Mutagenic effects have occurred in humans.</p> <p>No information found.</p> <p>Mutagenic effects have occurred in experimental animals.</p>
Irritation or Corrosion:	No data available.
Carcinogenicity/Other Information:	<p>CAS# 57-55-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65. Carcinogenicity. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.</p> <p>ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.</p> <p>NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.</p> <p>OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. CAS# 121-33-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 123-51-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 118-71-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65. CAS# 98-01-1: ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans.</p> <p>California: Not listed.</p> <p>NTP: Not listed.</p> <p>IARC: Not listed. CAS# 98-00-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.</p>
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

Section 12. Ecological Information

12.1 Toxicity:	<p>Ecotoxicity: Water flea Daphnia: EC50 10000 mg/L; 48 HrUnspecified, Bacteria: Phytobacterium phosphoreum: EC50 = 710 mg/L; 30 min; Microtox testFish: Goldfish: LC50 5000 mg/L; 24 Hr; UnspecifiedFish: Guppy: LC50 1000 mg/L; 48 Hr; Unspecified If released to water, 1,2-propanediol is expected to degrade relatively rapidly via biodegradation. If released to soil, relatively rapid biodegradation should also occur. Significant leaching in soil can be predicted.</p> <p>Environmental: If released to the atmosphere, it is degraded rapidly by reaction with photochemically produced hydroxyl radicals (typical half-life of 32 hr). Physical removal from air by rainfall is possible.</p> <p>Physical: No information available.</p> <p>Other: No information available. Terrestrial: Highly mobile in soil and will leach into groundwater. Aquatic: Volatilizes into atmosphere. Atmospheric: Volatilizes rapidly, decomposed by photochemically produced hydroxyl radicals. Not expected to bioconcentrate. Readily biodegradable. No information available.</p>
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Other: Do not empty into drains. Limited data suggests that it may undergo biodegradation in soil. Volatilization from the soil surface to the atmosphere may occur; however it is not expected to be a rapid process. If released to water, 2-furaldehyde is expected to undergo microbial degradation, under both aerobic and anaerobic conditions.

2-Furaldehyde is not expected to adsorb to sediment or suspended organic matter, nor is it expected to bioconcentrate in fish and aquatic organisms. Hydrolysis is not expected to be a significant fate process under environmental conditions. In the atmosphere, furfural is expected to exist predominately in the vapor phase. Destruction by the vapor phase reaction with photochemically produced hydroxyl radicals is expected to be an important process with an estimated half-life of 0.44 days. Atmospheric removal by wet deposition may be a significant process.

If released to water, it will not be expected to adsorb to sediment or suspended particulate matter or to bioconcentrate in aquatic organisms. It may directly photolyze in surface water. It may be subject to biodegradation in natural waters. Furfuryl alcohol is expected to exist mainly in the vapor-phase in the ambient atmosphere. The estimated atmospheric half-life for vapor-phase reaction with photochemically produced hydroxyl radical with a half-life of 3.7hours.

- 12.2 Persistence and Degradability:** No data available.
- 12.3 Bioaccumulative Potential:** No data available.
- 12.4 Mobility in Soil:** No data available.

Section 13. Disposal Considerations

- 13.1 Waste Disposal Method:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
- RCRA P-Series: None listed.
- RCRA U-Series: None listed. APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
- Product.
- Offer surplus and non-recyclable solutions to a licensed disposal company.
- Contaminated packaging.
- Dispose of as unused product. RCRA U-Series:
CAS# 98-01-1: waste number U125 (Ignitable waste).: waste number U154. Observe all federal, state, and local environmental regulations.

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Furfuryl alcohol. mixture.
DOT Hazard Class: 6.1 POISON
UN/NA Number: UN2874 **Packing Group:** III

14.1 LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Not Regulated. No information available. PENTANOLS. FURALDEHYDES.
FURFURYL ALCOHOL.

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.
UN Number: 2874 **Packing Group:** III
Hazard Class: 6.1 - POISON

14.2 MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not dangerous goods.

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Furfuryl alcohol. mixture.

Section 15. Regulatory Information

European Community Hazard Symbol codes:

European Community Risk and Safety Phrases:

R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R10	Flammable.
R23/25	Toxic by inhalation and if swallowed.
R40	Limited evidence of a carcinogenic effect
S24/25	Avoid contact with skin and eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S22	Do not breathe dust.
S16	Keep away from sources of ignition.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

Section 16. Other Information

Revision Date: 03/31/2014

**Additional Information About
This Product:**