

# SAFETY DATA SHEET

## FOR INDUSTRIAL USE ONLY

### Cascophen(TM) RS-216

#### Section 1. Product and company identification

**GHS product identifier** : Cascophen(TM) RS-216  
**MSDS Number** : 000000104084  
**Product type** : Resorcinol Formaldehyde Resin  
**Material uses** : Wood Adhesives, Composites, Laminates or Related Board Products

**Manufacturer/Supplier/Importer** : Hexion Inc.  
180 East Broad Street  
Columbus, Ohio  
43215 USA

**Contact person** : 4information@hexion.com

**Telephone** : For additional health and safety or regulatory information, call  
1 888 443 9466.

**Emergency telephone number** : For Emergency Medical Assistance  
Call Health & Safety Information Services  
1-866-303-6949

For Emergency Transportation Information  
CHEMTREC US Domestic (800) 424-9300  
CHEMTREC International (703) 527-3887  
CANUTEC CA Domestic (613) 996-6666

Part of the CASCO® Brand of Adhesives and Resins from Hexion Inc.

#### Section 2. Hazards identification

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY:inhalation - Category 4  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
RESPIRATORY SENSITIZATION - Category 1  
SKIN SENSITIZATION - Category 1  
CARCINOGENICITY - Category 1B  
TOXIC TO REPRODUCTION - Category 1B  
TOXIC TO REPRODUCTION - Category 1B  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)  
[central nervous system (CNS), blood system] - Category 1  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED  
EXPOSURE) [thyroid, liver] - Category 1

#### GHS label elements

**Hazard pictograms**



**Signal word**

: Danger

**Hazard statements**

- : H226 Flammable liquid and vapor.  
 H332 Harmful if inhaled.  
 H319 Causes serious eye irritation.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H317 May cause an allergic skin reaction.  
 H350 May cause cancer.  
 H360F May damage fertility.  
 H360 May damage the unborn child.  
 H370 Causes damage to organs: (central nervous system (CNS), blood system)  
 H372 Causes damage to organs through prolonged or repeated exposure: (thyroid, liver)

**Precautionary statements**

**General**

: Not applicable.

**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.  
 In case of inadequate ventilation wear respiratory protection.  
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Keep container tightly closed.  
 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.  
 Contaminated work clothing should not be allowed out of the workplace.

**Response**

- : Get medical attention if you feel unwell.  
 IF exposed:  
 Call a POISON CENTER or physician.  
**IF INHALED:**  
 Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 Call a POISON CENTER or physician if you feel unwell.  
 If experiencing respiratory symptoms:  
 Call a POISON CENTER or physician.  
**IF ON SKIN (or hair):**  
 Take off immediately all contaminated clothing.  
 Rinse skin with water or shower.

**IF ON SKIN:**

Wash with plenty of soap and water.

If skin irritation or rash occurs:

Get medical 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 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.

**Other hazards which do not result in classification** : None known.

### Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

Ingredient name	% by weight	CAS number
Ethanol	15 - 20	64-17-5
Resorcinol	10 - 12.5	108-46-3
Methanol	0.2 - 1	67-56-1
Formaldehyde	0.1 - 0.2	50-00-0

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 10 minutes. Get medical attention. If necessary, call a poison center or physician.

**Inhalation** : 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. Get medical attention. If necessary, call a poison center or physician. 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. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : 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. Get medical attention. If necessary, call a poison center or physician. 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.

**Indication of immediate medical attention and special treatment needed, if necessary**

- 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 aid personnel** : 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, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.
- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. 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** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. 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 should wear appropriate protective equipment and self-

**fire-fighters** 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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised 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 material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. 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 of SDS). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. 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. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Follow US NFPA 30, "Flammable & Combustible Liquids Code," or other national, state and local codes on safe handling of flammable liquids. Train workers in the recognition and prevention of hazards associated with the storage, handling and transfer of flammable liquids in the plant. Store in an area designated for storage of flammable liquids (See NFPA 30, and OSHA 29 CFR 1910.106)

**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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

- : Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) 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

#### Occupational exposure limits

Ingredient name	Exposure limits
Ethanol	<b>ACGIH TLV (2008-01-01)</b> Pollutant concentration that should not be exceeded during working hours and which workers are believed to be exposed during a period of 15 minutes maximum, without experiencing: a) irritation. b) chronic or irreversible tissue damage. c) dependent toxic effects of exposure rate. d) Narcosis of sufficient magnitude to increase susceptibility to accidents. e) The reduction of ability to get to safety by their own means. 1,880 mg/m <sup>3</sup> 1,000 ppm <b>OSHA PEL (1993-06-30)</b> Time Weighted Average (TWA) 1,900 mg/m <sup>3</sup> 1,000 ppm <b>NIOSH REL (1994-06-01)</b> Time Weighted Average (TWA) 1,900 mg/m <sup>3</sup> 1,000 ppm

Resorcinol	<p><b>NIOSH REL (1994-06-01)</b>  Time Weighted Average (TWA) 45 mg/m<sup>3</sup> 10 ppm  <b>Pollutant concentration that should not be exceeded during working hours and which workers are believed to be exposed during a period of 15 minutes maximum, without experiencing: a) irritation. b) chronic or irreversible tissue damage. c) dependent toxic effects of exposure rate. d) Narcosis of sufficient magnitude to increase susceptibility to accidents. e) The reduction of ability to get to safety by their own means.</b> 90 mg/m<sup>3</sup> 20 ppm  <b>ACGIH TLV (1996-05-18)</b>  Time Weighted Average (TWA) 45 mg/m<sup>3</sup> 10 ppm  <b>Short Term Exposure Limit (STEL)</b> 90 mg/m<sup>3</sup> 20 ppm</p>
Methanol	<p><b>ACGIH TLV (1994-09-01)</b>  Time Weighted Average (TWA) 262 mg/m<sup>3</sup> 200 ppm  <b>Short Term Exposure Limit (STEL)</b> 328 mg/m<sup>3</sup> 250 ppm  <b>OSHA PEL (1993-06-30)</b>  Time Weighted Average (TWA) 260 mg/m<sup>3</sup> 200 ppm  <b>NIOSH REL (1994-06-01)</b>  Time Weighted Average (TWA) 260 mg/m<sup>3</sup> 200 ppm  <b>Pollutant concentration that should not be exceeded during working hours and which workers are believed to be exposed during a period of 15 minutes maximum, without experiencing: a) irritation. b) chronic or irreversible tissue damage. c) dependent toxic effects of exposure rate. d) Narcosis of sufficient magnitude to increase susceptibility to accidents. e) The reduction of ability to get to safety by their own means.</b> 325 mg/m<sup>3</sup> 250 ppm</p>
Formaldehyde	<p><b>ACGIH TLV (2000-03-01)</b>  Ceiling 0.37 mg/m<sup>3</sup> 0.3 ppm  <b>OSHA PEL (1993-06-30)</b>  Time Weighted Average (TWA) 0.75 ppm  <b>Pollutant concentration that should not be exceeded during working hours and which workers are believed to be exposed during a period of 15 minutes maximum, without experiencing: a) irritation. b) chronic or irreversible tissue damage. c) dependent toxic effects of exposure rate. d) Narcosis of sufficient magnitude to increase susceptibility to accidents. e) The reduction of ability to get to safety by their own means.</b> 2 ppm  <b>NIOSH REL (1994-06-01)</b>  Time Weighted Average (TWA) 0.016 ppm  <b>Ceiling</b> 0.1 ppm</p>

**Recommended monitoring procedures**

- : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**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. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### **Individual protection measures**

- Hygiene measures** :
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

- 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.

### **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., When there is a risk of ignition from static electricity, wear anti-static protective clothing., For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

- 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.

- Respiratory protection** :
- Use a properly fitted, air-purifying or air-fed 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

<b>Physical state</b>	:	Liquid
<b>Color</b>	:	Clear, reddish-brown
<b>Odor</b>	:	Slight alcoholic
<b>Odor threshold</b>	:	Not available
<b>pH</b>	:	7.0 - 7.3
<b>Melting point/ Freezing point</b>	:	0 °C (32.00 °F)
<b>Boiling point</b>	:	102 °C (215.60 °F)
<b>Flash point</b>	:	39 °C (102.20 °F)
<b>Burning time</b>	:	Not available
<b>Burning rate</b>	:	Not available
<b>Evaporation rate</b>	:	0.6 ((n-Butyl acetate=1))
<b>Flammability (solid, gas)</b>	:	Not available
<b>Lower and upper explosive (flammable) limits</b>	:	<b>Lower:</b> Not available <b>Upper:</b> Not available
<b>Vapor pressure</b>	:	50 mm Hg @ 21 °C (69.80 °F)
<b>Vapor density</b>	:	Not available
<b>Relative density</b>	:	1.1630 - 1.1730
<b>Solubility</b>	:	Not available
<b>Solubility in water</b>	:	Slightly
<b>Partition coefficient: n-octanol/water</b>	:	Not available
<b>Auto-ignition temperature</b>	:	Not available
<b>Decomposition temperature</b>	:	Not available
<b>SADT</b>	:	Not available
<b>Viscosity</b>	:	<b>Dynamic:</b> 500 - 600 cPs <b>Kinematic:</b> Not available

### Other information

*The SDS is not to be used as a specification sheet. For Specific technical information on the product listed above, a sales specification sheet should be obtained from your Hexion representative.*

## Section 10. Stability and reactivity

<b>Reactivity</b>	:	Normally stable, but will polymerize at high temperatures with some evolution of heat.
<b>Chemical stability</b>	:	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.
- Incompatible materials** : Reactive or incompatible with the following materials:  
oxidizing materials  
acids
- 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

Product/ingredient name	Result	Species	Dose	Exposure
Ethanol				
	LD50 Oral	Rat	7,000 mg/kg	-
	LC50 Inhalation	Rat	125 mg/l	4 h
Resorcinol				
	LD50 Oral	Rat	301 mg/kg	-
	LD50 Oral	Rat	202 mg/kg	-
	LD50 Dermal	Rabbit	3,360 mg/kg	-
Methanol				
	LD50 Oral	Rat	5,628 mg/kg	-
Formaldehyde				
	LD50 Oral	Rat	800 mg/kg	-
	LC50 Inhalation	Rat	0.578 mg/l	2 h
	LD50 Dermal	Rabbit	270 mg/kg	-
Cascophen(TM) RS-216				
	LD50 Oral	Rat	> 2,001 mg/kg	-
	LC50 Inhalation	Rat	> 21 mg/l	4 h
	LC50 Inhalation	Rat	> 21 mg/l	1 h
	LD50 Dermal	Rabbit	> 2,001 mg/kg	-

**Conclusion/Summary** : Not available

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ethanol	Skin - Mild irritant	Rabbit			-
	Skin - Moderate irritant	Rabbit		24 hrs	-
	eyes - Severe irritant	Rabbit			-

	eyes - Mild irritant	Rabbit		24 hrs	-
	eyes - Moderate irritant	Rabbit		0.001 hrs	-
Resorcinol	Skin - Moderate irritant	Rabbit		24 hrs	-
	Skin - Severe irritant	Rabbit			-
	eyes - Severe irritant	Rabbit			-
Formaldehyde	Skin - Erythema/E schar	Rabbit	2.5	20 hrs	-
	Skin - Edema	Rabbit	3	20 hrs	-
	eyes - Cornea opacity	Mouse	> 3		-

**Conclusion/Summary**

**Skin** : 16 CFR Part 1500.41 Rabbit Slight Skin Irritant  
**eyes** : 16 CFR Part 1500.42 Rabbit Severe Eye Irritant  
**Respiratory** : Not available

**Sensitization**

**Conclusion/Summary**

**Skin** : Not available  
**Respiratory** : Not available

**Mutagenicity**

**Conclusion/Summary**

: Not available

**Carcinogenicity**

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde	- - - - -	-		
<b>Remarks:</b>	The National Toxicology Program (NTP) classifies formaldehyde as “known to be a human carcinogen” with respect to nasopharyngeal cancer, sinonasal cancer and myeloid leukemia. The International Agency for Research on Cancer (IARC) classifies formaldehyde as “carcinogenic to humans”. U.S. OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29 CFR 1920.1048 (the “OSHA Standard”). Safe handling and use instructions are provided in this SDS and in the OSHA Standard. OSHA has identified 0.5 ppm, calculated as an eight-hour time-weighted average (“TWA”) concentration, as the “Action Level”. Please review and understand the guidance contained in this MSDS, and refer to the OSHA Standard for regulatory requirements that might be applicable to your operation and use. Many studies and other evaluations have been performed concerning formaldehyde’s potential to cause cancer. To review some of these studies and for further information go to			

	www.osha.gov/SLTC/formaldehyde; http://monographs.iarc.fr; http://ntp-server.niehs.nih.gov; http://epa.gov/iris/subst/0419.htm; http://www.nap.edu/catalog.php?record_id=13142 and other authoritative websites.
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**Conclusion/Summary** : Not available

**Reproductive toxicity**

**Conclusion/Summary** : Not available

**Teratogenicity**

**Conclusion/Summary** : Not available

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

Product/ingredient name	Category	Route of exposure	Target organs
Ethanol	Category 3 Category 1		Respiratory tract irritation Narcotic effects central nervous system (CNS)
Resorcinol	Category 3 Category 1		Respiratory tract irritation central nervous system (CNS) blood system
Methanol	Category 3 Category 1 Category 2		Respiratory tract irritation central nervous system (CNS) optic nerve
Formaldehyde	Category 3		Respiratory tract irritation

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

Product/ingredient name	Category	Route of exposure	Target organs
Ethanol	Category 1		liver
Resorcinol	Category 2 Category 1 Category 2		cardiovascular system thyroid Spleen liver kidneys
Methanol	Category 2		kidneys liver gastrointestinal tract skin respiratory tract
Formaldehyde	Category 2		respiratory tract skin

### **Aspiration hazard**

Not available

**Information on the likely routes of exposure** : Not available

### **Potential acute health effects**

**Eye contact** : Causes serious eye irritation.  
**Inhalation** : Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
**Skin contact** : May cause an allergic skin reaction.  
**Ingestion** : 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  
**Inhalation** : Adverse symptoms may include the following:  
 wheezing and breathing difficulties  
 asthma  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

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

#### **Short term exposure**

**Potential immediate effects** : Not available  
**Potential delayed effects** : Not available

#### **Long term exposure**

**Potential immediate effects** : Not available  
**Potential delayed effects** : Not available

### **Potential chronic health effects**

**Conclusion/Summary** : Not available

**General** : Causes damage to organs through prolonged or repeated exposure:  
 Once sensitized, a severe allergic reaction may occur when

<b>Carcinogenicity</b>	:	subsequently exposed to very low levels. May cause cancer. Risk of cancer depends on duration and level of exposure.
<b>Mutagenicity</b>	:	No known significant effects or critical hazards.
<b>Teratogenicity</b>	:	May damage the unborn child.
<b>Developmental effects</b>	:	No known significant effects or critical hazards.
<b>Fertility effects</b>	:	May damage fertility.

#### Numerical measures of toxicity

##### Acute toxicity estimates

Not available

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
ethanol			
	Acute LC50 42,000 µg/l Fresh water	Fish - Rainbow trout, donaldson trout	96 h
	Acute LC50 100 mg/l Fresh water	Fish - Fathead minnow	96 h
	Acute EC50 2,000 µg/l Fresh water	Aquatic invertebrates. Water flea	48 h
	Acute EC50 100 mg/l Fresh water	Aquatic invertebrates. Water flea	48 h
	Acute EC50 20,000 mg/l Fresh water	Aquatic plants - Green Flagellate	96 h
	Acute EC50 10,000 mg/l Fresh water	Aquatic plants - Algae	96 h
	Acute EC50 10,000 mg/l Fresh water	Aquatic plants - Diatom	96 h
	Chronic NOEC 0.375 mg/l Fresh water	Fish - Eastern mosquitofish	84 d
	Chronic No observable effect concentration < 6,300 mg/l Fresh water	Aquatic invertebrates. Water flea	48 h
resorcinol			
	Acute LC50 > 100 mg/l Fresh water	Fish - Rainbow trout, donaldson trout	96 h
	Acute LC50 40,000 µg/l Fresh water	Fish - Fathead minnow	96 h
	Acute LC50 100,000 µg/l Fresh water	Aquatic invertebrates. Water flea	48 h
methanol			
	Acute EC50 13,000 mg/l Fresh water	Fish - Rainbow trout, donaldson trout	4 d
formaldehyde			
	Acute LC50 6.7 mg/l -	Fish - Striped bass	96 h
	Acute LC50 6.9 mg/l -	Fish - Zebra danio	6 d
	Acute NOEC > 47.9 mg/l -	Fish - Medaka, high-eyes	28 d
	Acute EC50 5.8 mg/l Fresh water	Aquatic invertebrates. Water flea	2 d
	Acute EC50 4.9 mg/l Fresh water	Aquatic plants - Algae	72 h
	Acute EC50 4.3 mg/l Fresh water	Aquatic plants - Algae	48 h

	Acute EC50 19 mg/l -	Micro-organism - Soil organisms	3 h
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**Conclusion/Summary** : Not available

**Persistence/degradability**

**Conclusion/Summary** : Not available

**Bioaccumulative potential**

Product/ingredient name	LogPow	BCF	Potential
Ethanol	-0.35	-	low
Resorcinol	0.8	-	low
Methanol	-0.77	-	low
Formaldehyde	0.35	< 1	low

**Mobility in soil**

**Soil/water partition coefficient (KOC)** : 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 at all times 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 emptied 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

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

**International transport regulations**

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR	1866	RESIN SOLUTION, flammable (Ethanol)	Class 3 III	Resorcinol
TDG	1866	RESIN SOLUTION, flammable (Ethanol)	Class 3 III	
IMO/IMDG	1866	RESIN SOLUTION, flammable	Class 3 III	
IATA (Cargo)	1866	RESIN SOLUTION, flammable	Class 3 III	

\*PG : Packing group

**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.'

## Section 15. Regulatory information

### United States

**U.S. Federal regulations** : **United States - TSCA 12(b) - Chemical export notification:** None required.  
**United States - TSCA 5(a)2 - Final significant new use rules:** Not listed  
**United States - TSCA 5(a)2 - Proposed significant new use rules:** Not listed  
**United States - TSCA 5(e) - Substances consent order:** Not listed

### SARA 313

		Product name	CAS number
Form R - Reporting requirements	:	Formaldehyde	50-00-0
Supplier notification	:	Formaldehyde	50-00-0

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**California Prop. 65:** : WARNING: This product contains a chemical known to the State of California to cause cancer., WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Methanol	No.	Yes.	No.	No.
2-Pentanone, 4-methyl-	Yes.	No.	No.	No.

Formaldehyde	Yes.	No.	40 µg/day	No.
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**United States inventory (TSCA 8b)** : All components are listed or exempted.

#### Canada

**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-1B: Material causing immediate and serious toxic effects (Toxic).  
Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

#### Canadian lists

**Canadian NPRI** : The following components are listed: Ethanol

**CEPA Toxic substances** : The following components are listed: Formaldehyde

#### International regulations

**International lists** : **Australia inventory (AICS):** Not determined.  
**Taiwan inventory (CSNN):** Not determined.  
**Canada inventory:** All components are listed or exempted.  
**Japan inventory:** Not determined.  
**China inventory (IECSC):** Not determined.  
**Korea inventory:** Not determined.  
**New Zealand Inventory (NZIoC):** Not determined.  
**Philippines inventory (PICCS):** Not determined.  
**United States inventory (TSCA 8b):** All components are listed or exempted.

## Section 16. Other information

#### **Hazardous Material Information System III (U.S.A.) :**

<b>Health</b>	*	2
<b>Flammability</b>		2
<b>Physical hazards</b>		0

**Caution:** HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

**Full text of abbreviated H statements** : Not applicable.

#### History

**Date of printing** : 07/28/2015  
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<b>Version</b>	:	7.0
<b>Prepared by</b>	:	Product Safety Stewardship
<b>Key to abbreviations</b>	:	<p>ATE = Acute Toxicity Estimate</p> <p>BCF = Bioconcentration Factor</p> <p>GHS = Globally Harmonized System of Classification and Labelling of Chemicals</p> <p>IATA = International Air Transport Association</p> <p>IBC = Intermediate Bulk Container</p> <p>IMDG = International Maritime Dangerous Goods</p> <p>LogPow = logarithm of the octanol/water partition coefficient</p> <p>MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)</p> <p>RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail</p> <p>UN = United Nations</p>
<b>References</b>	:	Not available

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