

SAFETY DATA SHEET



Alcoholic Formalin 30 percent

Section 1. Identification

1.1 Product identifier

Product name : Alcoholic Formalin 30 percent
Part No. : AR179, AR182
Validation date : 9/6/2016

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

Material uses : Laboratory use
 Container type: Dispenser Pack
 AR179 // Alcoholic Formalin 30% // Artisan Reticulin-Nuclear Fast Red Stain Kit // 65 mL & 115 mL
 AR182 // Alcoholic Formalin 30% // Artisan Reticulin-No Counterstain Kit // 65 mL & 115 mL
 Reference number: SDS008

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Dako North America, Inc.
 6392 Via Real
 Carpinteria, California 93013
 United States
 Tel: (805) 566-6655
 www.Dako.com
 SDS@Dako.com

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

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

Classification of the substance or mixture

H225	FLAMMABLE LIQUIDS - Category 2
H301	ACUTE TOXICITY (oral) - Category 3
H311	ACUTE TOXICITY (dermal) - Category 3
H331	ACUTE TOXICITY (inhalation) - Category 3
H314	SKIN CORROSION - Category 1B
H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1
H341	GERM CELL MUTAGENICITY - Category 2
H350	CARCINOGENICITY - Category 1B
H360	TOXIC TO REPRODUCTION (Fertility) - Category 1B
H360	TOXIC TO REPRODUCTION (Unborn child) - Category 1B
H371	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS)) - Category 2
H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (liver) - Category 2

Section 2. Hazards identification

2.2 GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H225 - Highly flammable liquid and vapor.
 H301 + H311 + H331 - Toxic if swallowed, in contact with skin or if inhaled.
 H314 - Causes severe skin burns and eye damage.
 H317 - May cause an allergic skin reaction.
 H350 - May cause cancer.
 H360 - May damage fertility or the unborn child.
 H341 - Suspected of causing genetic defects.
 H371 - May cause damage to organs. (central nervous system (CNS))
 H335 - May cause respiratory irritation.
 H336 - May cause drowsiness or dizziness.
 H373 - May cause damage to organs through prolonged or repeated exposure. (liver)

Precautionary statements

Prevention

: P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
 P242 - Use only non-sparking tools.
 P243 - Take precautionary measures against static discharge.
 P233 - Keep container tightly closed.
 P271 - Use only outdoors or in a well-ventilated area.
 P260 - Do not breathe vapor.
 P270 - Do not eat, drink or smoke when using this product.
 P264 - Wash hands thoroughly after handling.
 P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.

Response

: P314 - Get medical attention if you feel unwell.
 P308 + P311 - IF exposed or concerned: Call a POISON CENTER or physician.
 P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
 P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician.
 P302 + P361+P364 + P352 + P312 + P363 - IF ON SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Wash contaminated clothing before reuse.
 P333 + P313 - If skin irritation or rash occurs: Get medical attention.
 P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage

: P405 - Store locked up.
 P403 - Store in a well-ventilated place.
 P235 - Keep cool.

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Supplemental label elements : Do not taste or swallow. Wash thoroughly after handling.

2.3 Other hazards

Hazards not otherwise classified : Causes digestive tract burns.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Ethanol	≥50 - ≤75	64-17-5
Formaldehyde, solution	≥25 - ≤50	50-00-0
Methanol	≤5	67-56-1

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

4.1 Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.
- 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** : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. 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. Chemical burns must be treated promptly by a 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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First aid measures

- Eye contact** : Causes serious eye damage.
- Inhalation** : Toxic if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes severe burns. Toxic in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Toxic if swallowed. Corrosive to the digestive tract. Causes burns. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

4.3 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-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

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : Highly 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
Formaldehyde.

5.3 Advice for firefighters

- 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** : 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

6.1 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".

6.2 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).

6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems 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.
- 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.

7.2 Conditions for safe storage, including any incompatibilities

- : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). 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.

7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Ethanol	<p>ACGIH TLV (United States, 3/2016). STEL: 1000 ppm 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 1000 ppm 10 hours. TWA: 1900 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p>
Formaldehyde, solution	<p>ACGIH TLV (United States, 3/2016). Skin sensitizer. Inhalation sensitizer. C: 0.37 mg/m³ C: 0.3 ppm</p> <p>NIOSH REL (United States, 10/2013).</p>

Section 8. Exposure controls/personal protection

Methanol

CEIL: 0.1 ppm 15 minutes.
 TWA: 0.016 ppm 10 hours.
OSHA PEL (United States, 2/2013).
 STEL: 2 ppm 15 minutes.
 TWA: 0.75 ppm 8 hours.
OSHA PEL 1989 (United States, 3/1989).
 STEL: 2 ppm 15 minutes.
 TWA: 0.75 ppm 8 hours.
OSHA PEL Z2 (United States, 2/2013).
 STEL: 2 ppm 15 minutes.
 TWA: 0.75 ppm 8 hours.
ACGIH TLV (United States, 3/2016).
Absorbed through skin.
 TWA: 200 ppm 8 hours.
 TWA: 262 mg/m³ 8 hours.
 STEL: 250 ppm 15 minutes.
 STEL: 328 mg/m³ 15 minutes.
OSHA PEL 1989 (United States, 3/1989).
Absorbed through skin.
 TWA: 200 ppm 8 hours.
 TWA: 260 mg/m³ 8 hours.
 STEL: 250 ppm 15 minutes.
 STEL: 325 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
Absorbed through skin.
 TWA: 200 ppm 10 hours.
 TWA: 260 mg/m³ 10 hours.
 STEL: 250 ppm 15 minutes.
 STEL: 325 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
 TWA: 200 ppm 8 hours.
 TWA: 260 mg/m³ 8 hours.

8.2 Exposure controls

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.

Section 8. Exposure controls/personal protection

- 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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- 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** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Alcohol-like. Pungent.
- Odor threshold** : Not available.
- pH** : 3.98 to 4.98
- Melting point** : Not available.
- Boiling point** : 78°C (172.4°F)
- Flash point** : Closed cup: 16.6°C (61.9°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : Lower: 3.3%
Upper: 19%
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : Not available.
- Solubility** : Soluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 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.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials:
oxidizing materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Rat	7 g/kg	-
Formaldehyde, solution	LC50 Inhalation Vapor	Rat	578 mg/m ³	4 hours
	LD50 Dermal	Rabbit	270 mg/kg	-
	LD50 Oral	Rat	100 mg/kg	-
Methanol	LC50 Inhalation Vapor	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapor	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
Formaldehyde, solution	Eyes - Severe irritant	Rabbit	-	24 hours 750 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	750 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
Methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-

Section 11. Toxicological information

	Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit	- -	40 milligrams 24 hours 20 milligrams	- -
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Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Ethanol	-	1	-
Formaldehyde, solution	+	1	Known to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Ethanol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Formaldehyde, solution	Category 3	Not applicable.	Respiratory tract irritation
Methanol	Category 1	Not determined	central nervous system (CNS)
	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Ethanol	Category 2	Not determined	liver

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Toxic if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes severe burns. Toxic in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Toxic if swallowed. Corrosive to the digestive tract. Causes burns. Can cause central nervous system (CNS) depression.

Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
stomach pains
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

- General** : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : Suspected of causing genetic defects.
- Teratogenicity** : May damage the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Route	ATE value
Oral	298.5 mg/kg
Dermal	814.5 mg/kg
Inhalation (vapors)	8.955 mg/l

Other information : Adverse symptoms sometimes include the following: Eye contact can result in corneal damage or blindness.

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 100 µl/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Formaldehyde, solution	Acute EC50 3.48 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 3.05 mg/l Marine water	Algae - Isochrysis galbana - Exponential growth phase	96 hours
	Acute EC50 12.98 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute EC50 14000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
Methanol	Acute LC50 1.41 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 953.9 ppm Fresh water	Fish - Oncorhynchus tshawytscha - Egg	43 days
	Acute EC50 24500000 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Formaldehyde, solution	301D Ready Biodegradability - Closed Bottle Test	90 % - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ethanol	-	-	Readily
Formaldehyde, solution	-	-	Readily

12.3 Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Ethanol	-0.35	0.5	low
Formaldehyde, solution	0.35	-	low
Methanol	-0.77	<10	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

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.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Formaldehyde	50-00-0	Listed	U122
Methanol (I); Methyl alcohol (I)	67-56-1	Listed	U154

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.







The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.





Section 14. Transport information

Additional information : Special provisions
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Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT	UN2924	Flammable liquids, corrosive, n.o.s. (Ethanol, Formaldehyde, solution) RQ (Formaldehyde, solution)	3 (8)	II	 	<p>Reportable quantity 333.33 lbs / 151.33 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 1 L Cargo aircraft Quantity limitation: 5 L</p> <p>Special provisions IB2, T11, TP2, TP27</p>
TDG	UN2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethanol, Formaldehyde, solution)	3 (8)	II	 	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.40-2.42 (Class 8).</p> <p>Explosive Limit and Limited Quantity Index 1</p> <p>Passenger Carrying Road or Rail Index 1</p> <p>Special provisions 16</p>
Mexico	UN2924	LIQUIDO INFLAMABLE, CORROSIVO, N.E.P. (Ethanol, Formaldehyde, solution)	3 (8)	II	 	<p>Special provisions 274</p>

Section 14. Transport information

IMDG	UN2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethanol, Formaldehyde, solution)	3 (8)	II	 	Emergency schedules (EmS) F-E, S-C Special provisions 274
IATA	UN2924	Flammable liquid, corrosive, n.o.s. (Ethanol, Formaldehyde, solution)	3 (8)	II	 	Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 352 Cargo Aircraft Only Quantity limitation: 5 L Packaging instructions: 363 Limited Quantities - Passenger Aircraft Quantity limitation: 0.5 L Packaging instructions: Y340 Special provisions A3, A803

PG* : Packing group

Section 15. Regulatory information

[15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture](#)

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
Clean Water Act (CWA) 311: Formaldehyde, solution

Clean Air Act (CAA) 112 regulated toxic substances: Formaldehyde, solution

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : 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](#)

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Formaldehyde, solution	≥25 - ≤50	Yes.	500	73.9	100	14.8

Section 15. Regulatory information

SARA 304 RQ : 333.3 lbs / 151.3 kg

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Ethanol	≥50 - ≤75	Yes.	No.	No.	Yes.	Yes.
Formaldehyde, solution	≥25 - ≤50	Yes.	No.	No.	Yes.	Yes.
Methanol	≤5	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Formaldehyde, solution	50-00-0	≥25 - ≤50
	Methanol	67-56-1	≤5
Supplier notification	Formaldehyde, solution	50-00-0	≥25 - ≤50
	Methanol	67-56-1	≤5

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

State regulations

- Massachusetts** : The following components are listed: ETHYL ALCOHOL; DENATURED ALCOHOL; FORMALDEHYDE; FORMALIN; METHANOL; METHYL ALCOHOL
- New York** : The following components are listed: Formaldehyde; Methanol
- New Jersey** : The following components are listed: ETHYL ALCOHOL; ALCOHOL; FORMALDEHYDE; FORMALIN; METHYL ALCOHOL; METHANOL
- Pennsylvania** : The following components are listed: DENATURED ALCOHOL; ETHANOL; FORMALDEHYDE; METHANOL

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Formaldehyde, solution	Yes.	No.	Yes.	No.
Methanol	No.	Yes.	No.	23000 µg/day (ingestion) 47000 µg/day (inhalation)

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Section 15. Regulatory information

[Rotterdam Convention on Prior Informed Consent \(PIC\)](#)

Not listed.

[UNECE Aarhus Protocol on POPs and Heavy Metals](#)

Not listed.

[Inventory list](#)

Australia	: All components are listed or exempted.
Canada inventory	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (ENCS) : All components are listed or exempted. Japan inventory (ISHL) : All components are listed or exempted.
Malaysia	: All components are listed or exempted.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Turkey	: All components are listed or exempted.

Section 16. Other information

[History](#)

Date of issue	: 09/06/2016
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Version	: 2.1

✔ Indicates information that has changed from previously issued version.

[Notice to reader](#)

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