SAFETY DATA SHEET

1. Identification

Product identifier	**FORMALDEHYDE SOLUTION, 37%, REAGENT (ACS)**
Other means of identification	
Product code	924
Synonym(s)	FORMALIN
Recommended use	professional, scientific and technical activities: scientific research and development
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell OH 43065 US	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 2
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 1
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 1 (central nervous system, visual organs)
OSHA hazard(s)	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Flammable liquid and vapor. Harmful if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Fatal if inhaled. May cause respiratory irritation. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to organs. Causes damage to organs (central nervous system, visual organs) through prolonged or repeated exposure. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting equipment. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. Immediately call a POISON CENTER or doctor/physician. Rinse mouth. In case of fire: Use appropriate media for extinction.

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

Disposal Dispose of contents/container to an approved incineration plant.

Hazard(s) not otherwise classified (HNOC) Not classified.

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 3
Hazardous to the aquatic environment, long-term hazard	Category 3

Supplemental information

Precautionary statement

Prevention Avoid release to the environment.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Mixtures

Hazardous components

Chemical name	CAS number	%
FORMALDEHYDE	50-00-0	37
METHYL ALCOHOL	67-56-1	10 - < 20

Non-hazardous components

Chemical name	CAS number	%
WATER	7732-18-5	50 - < 60

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim 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. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a physician or poison control center immediately. Call a POISON CENTER or doctor/physician if you feel unwell. For minor skin contact, avoid spreading material on unaffected skin. If skin irritation or rash occurs: Get medical advice/attention.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Get medical attention immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Corrosive effects. Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause allergic skin reaction. Narcosis. Decrease in motor functions. Behavioral changes. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water. Water fog. Dry chemical powder. Carbon dioxide (CO2). Dry chemical, CO2, water spray or alcohol resistant foam. Alcohol resistant foam. Powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	By heating and fire, harmful vapors/gases may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire-fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Immediately evacuate personnel to safe areas. Local authorities should be advised if significant spillages cannot be contained. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Avoid inhalation of vapors or mists. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Refer to attached safety data sheets and/or instructions for use. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Should not be released into the environment. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Prevent entry into waterways, sewers, basements or confined areas. Large Spills: Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Clean contaminated surface thoroughly. Use water spray to reduce vapors or divert vapor cloud drift. After removal flush contaminated area thoroughly with water. This material and its container must be disposed of as hazardous waste. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.
Environmental precautions	Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid contact during pregnancy/while nursing. Do not get this material on clothing. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in cool place. Store in a well-ventilated place. Keep container tightly closed. Keep in an area equipped with sprinklers. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA

Material	Type	Value
FORMALDEHYDE SOLUTION (CAS Mixture)	STEL	2 ppm
	TWA	0.75 ppm

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
FORMALDEHYDE (CAS 50-00-0)	STEL	2 ppm
	TWA	0.75 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
METHYL ALCOHOL (CAS 67-56-1)	PEL	260 mg/m3
		200 ppm

ACGIH

Material	Type	Value
FORMALDEHYDE SOLUTION (CAS Mixture)	Ceiling	0.3 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
FORMALDEHYDE (CAS 50-00-0)	Ceiling	0.3 ppm
METHYL ALCOHOL (CAS 67-56-1)	STEL	250 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
FORMALDEHYDE (CAS 50-00-0)	Ceiling	0.1 ppm
	TWA	0.016 ppm
METHYL ALCOHOL (CAS 67-56-1)	STEL	325 mg/m3
		250 ppm
	TWA	260 mg/m3
		200 ppm

Biological limit values

US. ACGIH. BEIs. Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
METHYL ALCOHOL (CAS 67-56-1)	15 mg/l	Methanol	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US. ACGIH Threshold Limit Values

METHYL ALCOHOL (CAS 67-56-1) Can be absorbed through the skin.

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

METHYL ALCOHOL; METHANOL (CAS 67-56-1)	Can be absorbed through the skin.

US. Minnesota Hazardous Substances List (Minn. Rules 5206.0400).

METHYL ALCOHOL (CAS 67-56-1)	Skin designation applies.

US. NIOSH: Pocket Guide to Chemical Hazards

METHYL ALCOHOL (CAS 67-56-1)	Can be absorbed through the skin.

US. OSHA Table Z-1-A (29 CFR 1910.1000)

METHYL ALCOHOL (CAS 67-56-1)	Can be absorbed through the skin.

US. Rhode Island Hazardous Substances Right-to-Know Act (R.I. Gen. Laws Section 28-21-1 et. seq.)

METHYL ALCOHOL (CAS 67-56-1)	Can be absorbed through the skin.

US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A

METHYL ALCOHOL (CAS 67-56-1)	Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. An eye wash and safety shower must be available in the immediate work area.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical goggles are recommended. Eye wash fountains are required.

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear protective gloves.

Respiratory protection Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

Thermal hazards Not available.

General hygiene considerations When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace. Handle in accordance with good industrial hygiene and safety practice. Provide eyewash station and safety shower.

9. Physical and chemical properties

Appearance Clear.

Physical state Liquid.

Form Liquid.

Color Clear. Colorless.

Odor Strong. Pungent.

Odor threshold Not available.

pH 2.8 - 4

Melting point/freezing point < 32 °F (< 0 °C)

Initial boiling point and boiling range 205 °F (96 °C)

Flash point 140.00 °F (60.00 °C)

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) 7.1 % estimated

Flammability limit - upper (%) 63.7 % estimated

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 1.3 torr

Vapor density Not available.

Relative density Not available.

Solubility(ies) Not available.

Partition coefficient (n-octanol/water) 0.4

Auto-ignition temperature	711 °F (377 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.08
Flammability class	Combustible IIIA estimated
Flash point class	Flammable IC
Molecular formula	HCHO
Molecular weight	30.03
Percent volatile	100 %
Specific gravity	1.08
VOC (Weight %)	49 - 52 %

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Risk of ignition. Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Avoid temperatures exceeding the flash point.
Incompatible materials	Oxidizing materials. Strong oxidizing agents.
Hazardous decomposition products	Nitrogen oxides (NOx). May include oxides of carbon.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns. Harmful if swallowed.
Inhalation	Fatal if inhaled.
Skin contact	Toxic in contact with skin. Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes severe eye burns. Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Narcosis. Behavioral changes. Decrease in motor functions.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Causes severe skin burns and eye damage. Toxic in contact with skin. Harmful if swallowed.

Product	Species	Test Results
FORMALDEHYDE SOLUTION (CAS Mixture)		
Acute		
Inhalation		
LC50	Cat	683.28 mg/l, 4.5 Hours, estimated
		349.44 mg/l, 6 Hours, estimated
	Mouse	1.1189 mg/l, 4 Hours, estimated
		1.1 mg/l
		1.0811 mg/l, 2 Hours, estimated
	Rat	700 mg/l, 6 Hours, estimated
		2.2162 mg/l, 0.5 Hours, estimated
		1.7568 mg/l
		1.2973 mg/l, 4 Hours, estimated
Oral		
LD50	Dog	64000 mg/kg, estimated
	Guinea pig	703 mg/kg
	Monkey	16 g/kg, estimated
	Mouse	114 mg/kg

Product	Species	Test Results
	Rabbit	115.2 g/kg, estimated
	Rat	1184 mg/kg
Other		
LD50	Dog	1486.4865 mg/kg, estimated
	Guinea pig	28448 mg/kg, estimated
	Hamster	68440 mg/kg, estimated
	Monkey	24 g/kg, estimated
	Mouse	43.1863 mg/kg, estimated
	Rabbit	621.0709 mg/kg, estimated
	Rat	231.9361 mg/kg, estimated

Components	Species	Test Results
FORMALDEHYDE (CAS 50-00-0)		
Acute		
Inhalation		
LC50	Mouse	0.414 mg/l, 4 Hours
		0.4 mg/l, 2 Hours
	Rat	0.82 mg/l, 0.5 Hours
		0.48 mg/l, 4 Hours
Oral		
LD50	Guinea pig	260 mg/kg
	Mouse	42 mg/kg
	Rat	2020 mg/kg
		800 mg/kg
		100 mg/kg
Other		
LD50	Dog	550 mg/kg
	Mouse	300 mg/kg
		16 mg/kg
	Rabbit	270 mg/kg
		240 mg/kg
	Rat	420 mg/kg
		87 mg/kg
METHYL ALCOHOL (CAS 67-56-1)		
Acute		
Dermal		
LD50	Rabbit	15800 mg/kg
Inhalation		
LC50	Cat	85.41 mg/l, 4.5 Hours
		43.68 mg/l, 6 Hours
	Rat	64000 mg/l, 4 Hours
		87.5 mg/l, 6 Hours
Oral		
LD50	Dog	8000 mg/kg
	Monkey	2 g/kg
	Mouse	7300 mg/kg
	Rabbit	14.4 g/kg
	Rat	5628 mg/kg
Other		
LD50	Guinea pig	3556 mg/kg

Components	Species	Test Results
	Hamster	8555 mg/kg
	Monkey	3 g/kg
	Mouse	4100 mg/kg
	Rabbit	1826 mg/kg
	Rat	2131 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes severe eye burns. Causes serious eye damage.

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity Suspected of causing genetic defects.

Carcinogenicity Cancer hazard.

IARC Monographs. Overall Evaluation of Carcinogenicity

FORMALDEHYDE (CAS 50-00-0) 1 Carcinogenic to humans.

NTP Report on Carcinogens

FORMALDEHYDE (CAS 50-00-0)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

FORMALDEHYDE (CAS 50-00-0) Potential cancer hazard.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure Causes damage to organs. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Causes damage to organs (central nervous system, visual organs) through prolonged or repeated exposure.

Aspiration hazard Due to lack of data the classification is not possible.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects. Components of this product are hazardous to aquatic life. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
FORMALDEHYDE SOLUTION (CAS Mixture)			
Crustacea	EC50	Daphnia	1919 mg/l, 1 Hours
			1292 mg/l, 3 Hours
			984 mg/l, 6 Hours
			609 mg/l, 24 Hours
			193 mg/l, 96 Hours
			43.28 mg/l, 48 Hours
	LC50	Daphnia	1592 mg/l, 48 Hours
			824 mg/l, 24 Hours
			558 mg/l, 96 Hours
Fish	LC50	Fish	1831 mg/l, 1 Hours
			1633 mg/l, 3 Hours
			1095 mg/l, 6 Hours
			711 mg/l, 2 Hours
			446 mg/l, 4 Hours
			373 mg/l, 8 Hours
			348 mg/l, 48 Hours
			343 mg/l, 72 Hours
			308 mg/l, 24 Hours

Product		Species	Test Results
			164 mg/l, 96 Hours
Components		**Species**	**Test Results**
FORMALDEHYDE (CAS 50-00-0)			
Aquatic			
Crustacea	EC50	Clam (Corbicula)	255 - 401.2 mg/l, 24 hours
			32.4 - 78.4 mg/l, 96 hours
		Grass shrimp,freshwater prawn (Palaemonetes kadiakensis)	779.2 - 949.2 mg/l, 3 hours
			635.2 - 909.2 mg/l, 6 hours
			358 - 544.8 mg/l, 24 hours
			147 - 235 mg/l, 96 hours
		Ostracod (Cypridopsis)	2.73 - 4.76 mg/l, 1 hours
			1.96 - 3.34 mg/l, 3 hours
			0.276 - 0.788 mg/l, 24 hours
			0.266 - 0.868 mg/l, 6 hours
			0.236 - 0.748 mg/l, 96 hours
		Ramshorn snail (Helisoma)	1280 - 1552 mg/l, 1 hours
			381 - 753.2 mg/l, 3 hours
			252 - 387 mg/l, 6 hours
			218 - 370 mg/l, 24 hours
			27.8 - 49.6 mg/l, 96 hours
		Water flea (Ceriodaphnia dubia)	12.1 - 13.92 mg/l, 48 hours
		Water flea (Daphnia magna)	57 mg/l, 24 hours
			29 mg/l, 48 hours
		Water flea (Daphnia pulex)	4.3 - 7.8 mg/l, 48 hours
			4.3 - 7.8 mg/l, 48 hours
	LC50	Asiatic clam (Corbicula manilensis)	638 - 1003 mg/l, 24 hours
			81 - 196 mg/l, 96 hours
			62 - 146 mg/l, 96 hours
		Common shrimp, sand shrimp (Crangon crangon)	330 - 1000 mg/l, 48 hours
			330 - 1000 mg/l, 48 hours
		Giant river prawn (Macrobrachium rosenbergii)	380 - 470 mg/l, 24 hours
		Greasyback shrimp (Metapenaeus ensis)	573 - 699 mg/l, 24 hours
		Jumbo tiger prawn (Penaeus monodon)	138 - 203 mg/l, 24 hours
		Kuruma shrimp (Penaeus japonicus)	123 - 149 mg/l, 24 hours
		Northern pink shrimp (Penaeus duorarum)	155 - 475 mg/l, 96 hours
			130 - 425 mg/l, 96 hours
		Redtail prawn (Penaeus penicillatus)	238 - 318 mg/l, 24 hours
		Shrimp (Penaeus semisulcatus)	157 - 216 mg/l, 24 hours
		Water flea (Daphnia magna)	100 - 1000 mg/l, 24 hours
			52 mg/l, 24 hours
Fish	LC50	American eel (Anguilla rostrata)	257.18 - 402.93 mg/l, 96 hours
			179.65 - 320.92 mg/l, 96 hours
			0 - 197.79 mg/l, 96 hours
		Atlantic salmon (Salmo salar)	419.6 - 758.4 mg/l, 3 hours

Components	Species	Test Results
		300 - 376 mg/l, 6 hours
		133 - 182 mg/l, 24 hours
		59.6 - 80.4 mg/l, 96 hours
	Black bullhead (Ameiurus melas)	49.2 - 97.2 mg/l, 24 hours
		20.4 - 30.3 mg/l, 96 hours
	Bluegill (Lepomis macrochirus)	784.4 - 1088 mg/l, 3 hours
		780 - 1085 mg/l, 3 hours
		777.6 - 1079 mg/l, 6 hours
		728.8 - 1160 mg/l, 3 hours
		722 - 1163 mg/l, 3 hours
		721.6 - 1160 mg/l, 3 hours
		612.8 - 846 mg/l, 3 hours
		599.6 - 807.6 mg/l, 3 hours
		583.2 - 811.6 mg/l, 3 hours
		560.4 - 777.2 mg/l, 6 hours
		466 - 879.2 mg/l, 6 hours
		428.4 - 564.8 mg/l, 6 hours
		415.2 - 661.6 mg/l, 6 hours
		410.8 - 551.6 mg/l, 6 hours
		370 - 1325 mg/l, 3 hours
		353 - 504 mg/l, 6 hours
		268 - 363 mg/l, 6 hours
		161 - 218 mg/l, 6 hours
		156 - 220 mg/l, 24 hours
		127 - 154 mg/l, 48 hours
		126 - 173 mg/l, 24 hours
		114 - 158 mg/l, 24 hours
		72.9 - 116 mg/l, 24 hours
		72.4 - 120 mg/l, 24 hours
		69.6 - 124 mg/l, 24 hours
		68.4 - 104 mg/l, 24 hours
		66.4 - 149 mg/l, 24 hours
		61.2 - 93.6 mg/l, 24 hours
		46 - 70.4 mg/l, 24 hours
		40.4 - 54.4 mg/l, 96 hours
		35.6 - 70 mg/l, 96 hours
		33.6 - 53.6 mg/l, 96 hours
		32.5 - 40.8 mg/l, 96 hours
		32 - 50 mg/l, 96 hours
		30 - 41.6 mg/l, 96 hours
		29 - 55.2 mg/l, 96 hours
		29 - 40.8 mg/l, 96 hours
		25.4 - 34 mg/l, 96 hours
		10 mg/l, 96 hours
		8.7 mg/l, 96 hours
	Brook trout (Salvelinus fontinalis)	187 - 206 mg/l, 24 hours
		143 - 173 mg/l, 48 hours

Components	Species	Test Results
	Brown trout (Salmo trutta)	304 - 348 mg/l, 24 hours
		165 - 208 mg/l, 48 hours
	Carp (Leuciscus idus melanotus)	108 mg/l, 48 hours
		50 mg/l, 48 hours
	Channel catfish (Ictalurus punctatus)	500 mg/l, 1 hours
		319 - 553 mg/l, 1 hours
		281 - 432 mg/l, 1 hours
		266 - 364 mg/l, 1 hours
		266 - 365 mg/l, 1 hours
		264 - 360 mg/l, 1 hours
		263 mg/l, 2 hours
		222 - 287 mg/l, 1 hours
		209 - 276 mg/l, 1 hours
		190 - 264 mg/l, 1 hours
		190 - 263 mg/l, 1 hours
		172 - 228 mg/l, 3 hours
		170 - 226 mg/l, 3 hours
		170 - 226 mg/l, 6 hours
		165 mg/l, 4 hours
		146 - 227 mg/l, 3 hours
		144 - 225 mg/l, 3 hours
		142 - 202 mg/l, 3 hours
		138 - 223 mg/l, 3 hours
		138 mg/l, 8 hours
		129 - 145 mg/l, 24 hours
		120 - 164 mg/l, 3 hours
		119 - 169 mg/l, 6 hours
		92 - 141 mg/l, 6 hours
		91.6 - 140 mg/l, 3 hours
		91.6 - 142 mg/l, 6 hours
		91.2 - 140 mg/l, 3 hours
		91.2 - 140 mg/l, 6 hours
		90.6 - 101.8 mg/l, 48 hours
		87 mg/l, 24 hours
		74 - 119 mg/l, 6 hours
		71.2 - 121 mg/l, 6 hours
		69 mg/l, 48 hours
		69 mg/l, 72 hours
		69 mg/l, 96 hours
		41.2 - 54 mg/l, 24 hours
		40.8 - 58 mg/l, 24 hours
		40.8 - 55.2 mg/l, 24 hours
		40 - 54.8 mg/l, 24 hours
		37.8 - 52 mg/l, 24 hours
		34.4 - 45.6 mg/l, 24 hours
		33.6 - 42 mg/l, 24 hours
		33.5 - 47.6 mg/l, 24 hours

Components	Species	Test Results
		25.5 - 30.7 mg/l, 96 hours
		23.4 - 27.8 mg/l, 96 hours
		23.3 - 29.5 mg/l, 96 hours
		23.2 - 29.8 mg/l, 96 hours
		21.9 - 29.9 mg/l, 24 hours
		21.8 - 28.3 mg/l, 96 hours
		21.6 - 28.4 mg/l, 96 hours
		20.6 - 24.8 mg/l, 96 hours
		17.3 - 22.2 mg/l, 96 hours
		14.5 - 20.4 mg/l, 96 hours
	Fathead minnow (Pimephales promelas)	23.2 - 29.7 mg/l, 96 hours
		22.9 - 26.2 mg/l, 96 hours
		22.61 - 25.71 mg/l, 96 hours
	Goldfish (Carassius auratus)	35 mg/l, 24 hours
	Green sunfish (Lepomis cyanellus)	100 - 167 mg/l, 24 hours
		49.2 - 97.2 mg/l, 96 hours
	Ide, silver or golden orfe (Leuciscus idus)	22 mg/l, 96 hours
	Japanese eel (Anguilla japonica)	440 mg/l, 24 hours
		400 mg/l, 48 hours
	Lake trout, siscowet (Salvelinus namaycush)	200 - 242 mg/l, 24 hours
		178 - 328 mg/l, 6 hours
		160 - 174 mg/l, 48 hours
		45.6 - 69.6 mg/l, 24 hours
		31.3 - 51.2 mg/l, 96 hours
	Largemouth bass (Micropterus salmoides)	371 - 456 mg/l, 6 hours
		91.6 - 140 mg/l, 24 hours
		51.6 - 63.6 mg/l, 96 hours
	Medaka, high-eyes (Oryzias latipes)	98 mg/l, 24 hours
		87 mg/l, 48 hours
		64 mg/l, 24 hours
		44 mg/l, 24 hours
		44 mg/l, 48 hours
	Milkfish, salmon-herring (Chanos chanos)	222 - 359 mg/l, 24 hours
		181 - 410 mg/l, 48 hours
		163 - 431 mg/l, 72 hours
		154 - 422 mg/l, 96 hours
	Nile tilapia (Tilapia nilotica)	179 mg/l, 96 hours
		148 mg/l, 96 hours
	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	> 1200 mg/l, 1 hours
		> 1000 mg/l, 1 hours
		783.6 - 1090 mg/l, 1 hours
		614.8 - 852.4 mg/l, 3 hours
		496 - 976.4 mg/l, 1 hours
		496 - 976.4 mg/l, 3 hours
		493.2 - 970.8 mg/l, 1 hours

Components	Species	Test Results
		493.2 - 970.8 mg/l, 3 hours
		428 - 1070 mg/l, 1 hours
		428 - 945.6 mg/l, 3 hours
		428 - 1070 mg/l, 3 hours
		417 - 740.8 mg/l, 1 hours
		406 - 577.2 mg/l, 1 hours
		383 - 632 mg/l, 3 hours
		382.8 - 632.4 mg/l, 3 hours
		367 - 576.8 mg/l, 3 hours
		320 mg/l, 48 hours
		315.2 - 507.6 mg/l, 3 hours
		313 - 437.2 mg/l, 6 hours
		308 - 430.8 mg/l, 6 hours
		300 - 408 mg/l, 3 hours
		300 - 372 mg/l, 6 hours
		263 - 324 mg/l, 6 hours
		> 250 mg/l, 24 hours
		232 - 296 mg/l, 6 hours
		213 - 262 mg/l, 6 hours
		209 - 308 mg/l, 6 hours
		182 - 236 mg/l, 24 hours
		154 - 183 mg/l, 48 hours
		142 - 282 mg/l, 6 hours
		142 - 157 mg/l, 96 hours
		133 - 182 mg/l, 24 hours
		117 - 167 mg/l, 24 hours
		109 - 164 mg/l, 24 hours
		94.8 - 152 mg/l, 24 hours
		92.4 - 178 mg/l, 24 hours
		88 - 163 mg/l, 24 hours
		85.2 - 113 mg/l, 96 hours
		72.4 - 117 mg/l, 24 hours
		69.6 - 110 mg/l, 24 hours
		49.2 - 96.4 mg/l, 96 hours
		48.8 - 96 mg/l, 96 hours
		43.2 - 110 mg/l, 96 hours
		42.3 - 86 mg/l, 48 hours
		42 - 69.6 mg/l, 24 hours
		39.9 - 56 mg/l, 96 hours
		39.88 - 56 mg/l, 96 hours
		31.6 - 50.8 mg/l, 96 hours
	Smallmouth bass (Micropterus dolomieui)	68.4 - 91.2 mg/l, 24 hours
		36.1 - 82 mg/l, 96 hours
	Starry flounder (Platichthys flesus flesus)	100 - 330 mg/l, 48 hours
	Starry, european flounder (Platichthys flesus)	100 - 330 mg/l, 48 hours
	Striped bass (Morone saxatilis)	2361 - 4668 mg/l, 1 hours

Components	Species	Test Results
		1138 - 1748 mg/l, 3 hours
		> 1000 mg/l, 1 hours
		> 1000 mg/l, 3 hours
		990 - 1180 mg/l, 3 hours
		809 - 1092 mg/l, 6 hours
		681 - 948 mg/l, 6 hours
		642 - 877 mg/l, 3 hours
		582 - 704 mg/l, 6 hours
		567 - 678 mg/l, 6 hours
		549 - 656 mg/l, 6 hours
		547 - 796 mg/l, 6 hours
		450 - 601 mg/l, 6 hours
		446 - 583 mg/l, 6 hours
		385 - 538 mg/l, 6 hours
		353 - 477 mg/l, 6 hours
		171 - 260 mg/l, 24 hours
		160 - 276 mg/l, 6 hours
		113 - 174 mg/l, 24 hours
		> 100 mg/l, 1 hours
		97.2 - 148 mg/l, 24 hours
		95 - 123 mg/l, 24 hours
		94.2 - 136 mg/l, 24 hours
		92.8 - 138 mg/l, 24 hours
		88.2 - 137 mg/l, 24 hours
		74.9 - 101 mg/l, 24 hours
		74.7 - 99 mg/l, 24 hours
		72.3 - 93 mg/l, 24 hours
		60.3 - 93.2 mg/l, 96 hours
		60.1 - 115 mg/l, 24 hours
		59.3 - 73.4 mg/l, 96 hours
		57 - 129 mg/l, 24 hours
		55.5 - 73.7 mg/l, 96 hours
		47.8 - 72.8 mg/l, 96 hours
		45.9 - 61.2 mg/l, 96 hours
		45.2 - 69.3 mg/l, 96 hours
		44.1 - 61.3 mg/l, 96 hours
		39.1 - 59 mg/l, 96 hours
		36.7 - 62.8 mg/l, 96 hours
		36.2 - 51.1 mg/l, 96 hours
		35 mg/l, 24 hours
		24.9 - 36.1 mg/l, 96 hours
		23 - 45 mg/l, 48 hours
		15 mg/l, 24 hours
		15 mg/l, 48 hours
		15 mg/l, 72 hours
		15 mg/l, 96 hours
		12.263 - 18.704 mg/l, 96 hours

Components		Species	Test Results
			10.302 - 16.743 mg/l, 96 hours
			10 - 32 mg/l, 96 hours
			6.61 - 15.076 mg/l, 96 hours
			6.61 - 15.076 mg/l, 96 hours
			5.337 - 15.662 mg/l, 96 hours
			0.727 - 9.193 mg/l, 96 hours
		Western mosquitofish (Gambusia affinis)	148.4 - 176.8 mg/l, 96 hours
			112.6 - 162.7 mg/l, 96 hours
			106.8 - 179.3 mg/l, 96 hours
			18.6 - 90.1 mg/l, 96 hours
		White cloud mountain minnow (Tanichthys albonubes)	2.4 mg/l, 48 hours
			2.3 mg/l, 48 hours
			2.1 mg/l, 48 hours
		Zebra danio (Danio rerio)	41 mg/l, 96 hours
METHYL ALCOHOL (CAS 67-56-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	20450 - 29350 mg/l, 48 hours
			> 10000 mg/l, 24 hours
			> 10000 mg/l, 48 hours
		Water flea (Daphnia obtusa)	22800 - 24400 mg/l, 24 hours
	LC50	Brine shrimp (Artemia salina)	> 10000 mg/l, 24 hours
			703.7 - 1723.9 mg/l, 24 hours
		Cockle (Cerastoderma edule)	3300 - 10000 mg/l, 96 hours
			1000 mg/l, 48 hours
		Common bay mussel,blue mussel (Mytilus edulis)	13400 - 17300 mg/l, 96 hours
		Common shrimp, sand shrimp (Crangon crangon)	2500 mg/l, 48 hours
			1700 mg/l, 96 hours
		Harpacticoid copepod (Nitocra spinipes)	11500 - 12500 mg/l, 96 hours
		Mussel (Anodonta imbecillis)	37.02 mg/l, 48 hours
		Oligochaete, worm (Lumbriculus variegatus)	> 100 mg/l, 96 hours
		Ramshorn snail (Helisoma trivolvis)	> 100 mg/l, 96 hours
		Scud (Gammarus fasciatus)	> 100 mg/l, 96 hours
		Water flea (Daphnia magna)	3616 - 6414 mg/l, 24 hours
			2461 - 4395 mg/l, 48 hours
			> 100 mg/l, 96 hours
Fish	LC50	Bleak (Alburnus alburnus)	> 28000 mg/l, 96 hours
			28000 mg/l, 96 hours
		Bluegill (Lepomis macrochirus)	17400 - 21000 mg/l, 24 hours
			17300 - 21100 mg/l, 48 hours
			15510 - 20240 mg/l, 72 hours
			13500 - 17600 mg/l, 96 hours
			13500 - 17600 mg/l, 96 hours
		Carp (Leuciscus idus melanotus)	> 10000 mg/l, 48 hours
		Fathead minnow (Pimephales promelas)	29000 - 30500 mg/l, 24 hours

Components		Species	Test Results
			29000 - 30500 mg/l, 48 hours
			28500 - 30400 mg/l, 96 hours
			27600 - 29200 mg/l, 72 hours
		Medaka, high-eyes (Oryzias latipes)	1400 mg/l, 48 hours
		Rainbow trout,donaldson trout (Oncorhynchus mykiss)	19800 - 20700 mg/l, 24 hours
			19500 - 20700 mg/l, 48 hours
			19500 - 20700 mg/l, 96 hours
Other	LC50	Turbellarian, flatworm (Dugesia tigrina)	> 100 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

FORMALDEHYDE SOLUTION	0.35
FORMALDEHYDE	0.35
METHYL ALCOHOL	-0.77

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Not available.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1198
UN proper shipping name	Formaldehyde solutions, flammable, MARINE POLLUTANT
Transport hazard class(es)	3
Subsidary class(es)	8
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Labels required	3, 8
Special provisions	B1, IB3, T4, TP1
Packaging exceptions	4b, 150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1198
UN proper shipping name	Formaldehyde solution, flammable
Transport hazard class(es)	3
Subsidary class(es)	8
Packaging group	III
Environmental hazards	No
Labels required	Not available.
ERG Code	3Ci
Special precautions for user	Not available.

IMDG

UN number	UN1198
UN proper shipping name	FORMALDEHYDE SOLUTION, FLAMMABLE
Transport hazard class(es)	3
Subsidary class(es)	8
Packaging group	III
Environmental hazards	
Marine pollutant	No
Labels required	Not available.
EmS	F-E, S-C
Special precautions for user	Not available.

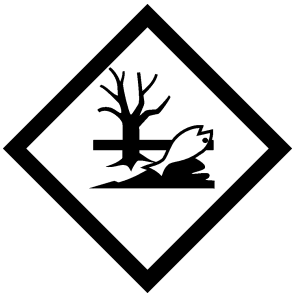
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

General information DOT Regulated Marine Pollutant.

DOT

IATA; IMDG

Marine pollutant



15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

FORMALDEHYDE (CAS 50-00-0)	LISTED
METHYL ALCOHOL (CAS 67-56-1)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Yes

SARA 311/312 Hazardous chemical
Yes

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

FORMALDEHYDE (CAS 50-00-0)
METHYL ALCOHOL (CAS 67-56-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

FORMALDEHYDE (CAS 50-00-0)

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)
Hazardous substance

Safe Drinking Water Act (SDWA)
Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA)
Not regulated.

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

US. Massachusetts RTK - Substance List

FORMALDEHYDE (CAS 50-00-0)
METHYL ALCOHOL (CAS 67-56-1)

US. New Jersey Worker and Community Right-to-Know Act

FORMALDEHYDE (CAS 50-00-0)	500 LBS
METHYL ALCOHOL (CAS 67-56-1)	500 LBS

US. Pennsylvania RTK - Hazardous Substances

FORMALDEHYDE (CAS 50-00-0)
METHYL ALCOHOL (CAS 67-56-1)

US. Rhode Island RTK

FORMALDEHYDE (CAS 50-00-0)
METHYL ALCOHOL (CAS 67-56-1)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

FORMALDEHYDE (CAS 50-00-0)
METHYL ALCOHOL (CAS 67-56-1)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date March-13-2013

Version # 01

Further information Not available.

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision Information Product and Company Identification: Synonyms
Hazards Identification: US Hazard Categories
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Transport Information: Proper Shipping Name/Packing Group
Regulatory Information: Hazard Symbol - Labeling
HazReg Data: International Inventories