

# Material Safety Data Sheet

16% Formaldehyde Solution

## 1. Product and company identification

<b>Product name</b>	: 16% Formaldehyde Solution	<b>Manufacturer</b>	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723
<b>Supplier</b>	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723		
<b>Code</b>	: 0028906 0028908 1892258		
<b>MSDS #</b>	: 7600		
<b>Validation date</b>	: 3/14/2012.		
<b>Print date</b>	: 3/14/2012.		
<b>Responsible name</b>	: MSDS (Regulatory Specialist)	<b>Material uses</b>	: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.
<b>Product type</b>	: Liquid.		

## 2. Hazards identification

### Emergency overview

<b>Physical state</b>	: Liquid. [Clear sparkling liquid.]
<b>Color</b>	: Colorless.
<b>Odor</b>	: Characteristic. [Slight]
<b>Signal word</b>	: DANGER!
<b>Hazard statements</b>	: COMBUSTIBLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
<b>Precautionary measures</b>	: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Do not get in eyes. Do not get on skin. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep away from heat and flame. Keep container tightly closed. Use personal protective equipment as required. Wash thoroughly after handling.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Routes of entry</b>	: Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Potential acute health effects</b>	
<b>Inhalation</b>	: Toxic by inhalation. Corrosive to the respiratory system.

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## 2. Hazards identification

<b>Ingestion</b>	: Toxic if swallowed. May cause burns to mouth, throat and stomach.
<b>Skin</b>	: Corrosive to the skin. Causes burns. Toxic in contact with skin. May cause sensitization by skin contact.
<b>Eyes</b>	: Corrosive to eyes. Causes burns.
<b>Potential chronic health effects</b>	
<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
<b>Carcinogenicity</b>	: Contains material which can 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>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.
<b>Target organs</b>	: Contains material which may cause damage to the following organs: the nervous system, the reproductive system, upper respiratory tract, endocrine, immune system, central nervous system (CNS), eye, lens or cornea.
<b>Over-exposure signs/symptoms</b>	
<b>Inhalation</b>	: Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Ingestion</b>	: Adverse symptoms may include the following: stomach pains
<b>Skin</b>	: Adverse symptoms may include the following: pain or irritation redness blistering may occur
<b>Eyes</b>	: Adverse symptoms may include the following: pain watering redness
<b>Medical conditions aggravated by over-exposure</b>	: Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

### United States

Name	CAS number	%
Formaldehyde	50-00-0	10 - 20

### Canada

Name	CAS number	%
Formaldehyde	50-00-0	10 - 20

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.

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### 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- 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.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### 5. Fire-fighting measures

- Flammability of the product** : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
- Extinguishing media**
- Suitable** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : 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.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide
- 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.

### 6. Accidental release measures

- Personal precautions** : 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 flames, 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 (see Section 8).
- 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 for 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.

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### 6. Accidental release measures

- 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). 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 for emergency contact information and section 13 for waste disposal.

### 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). 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. 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. 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 non-sparking tools. 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. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : 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. 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.

### 8. Exposure controls/personal protection

#### United States

Ingredient	Exposure limits
Formaldehyde	<b>ACGIH TLV (United States, 2/2010). Skin sensitizer.</b> C: 0.3 ppm C: 0.37 mg/m <sup>3</sup> <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 0.75 ppm 8 hour(s). STEL: 2 ppm 15 minute(s). <b>OSHA PEL Z2 (United States, 11/2006).</b> TWA: 0.75 ppm 8 hour(s). STEL: 2 ppm 15 minute(s). <b>NIOSH REL (United States, 6/2009).</b> TWA: 0.016 ppm 10 hour(s). CEL: 0.1 ppm 15 minute(s). <b>OSHA PEL (United States, 6/2010).</b> TWA: 0.75 ppm 8 hour(s). STEL: 2 ppm 15 minute(s).

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**8. Exposure controls/personal protection**

<u>Occupational exposure limits</u>		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	Notations
Formaldehyde	US ACGIH 2/2010	-	-	-	-	-	-	0.3	0.37	-	[3]
	AB 4/2009	0.75	0.9	-	-	-	-	1	1.3	-	
	BC 9/2010	0.3	-	-	-	-	-	1	-	-	[3]
	DN 7/2010	-	-	-	1	-	-	1.5	-	-	
	QC 6/2008	-	-	-	2	3	-	-	-	-	

[3]Skin sensitization

**Consult local authorities for acceptable exposure limits.**

**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.

**Engineering measures** : 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.

**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.

Personal protection

**Respiratory** : 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.

**Hands** : 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.

**Eyes** : 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 or dusts.

**Skin** : 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.

**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.

**9. Physical and chemical properties**

**Physical state** : Liquid. [Clear sparkling liquid.]

**Flash point** : Closed cup: >60°C (>140°F)

**Flammable limits** : Lower: 7%  
Upper: 73%

**Color** : Colorless.

**Odor** : Characteristic. [Slight]

**Boiling/condensation point** : >93.33°C (>200°F)

**Relative density** : 1.08 to 1.13

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**9. Physical and chemical properties**

**Vapor pressure** : 2.3 to 2.7 kPa (17 to 20 mm Hg) [20°C]

**Vapor density** : 1 [Air = 1]

**Evaporation rate** : >1 (butyl acetate = 1)

**Solubility** : Easily soluble in the following materials: cold water and hot water.

**10. Stability and reactivity**

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

**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

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

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**11. Toxicological information**

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde	LC50 Inhalation Vapor	Rat	250 ppm	4 hours
	LD50 Dermal	Rabbit	270 mg/kg	-
	LD50 Oral	Rat	100 mg/kg	-

**Conclusion/Summary** : Not available.

Chronic toxicity

**Conclusion/Summary** : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Formaldehyde	Eyes - Mild irritant	Human	-	6 minutes 1 parts per million	-
	Eyes - Severe irritant	Rabbit	-	24 hours 750 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	750 Micrograms	-
	Skin - Mild irritant	Human	-	72 hours 150 Micrograms	-
	Skin - Mild irritant	Rabbit	-	Intermittent 540 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Severe irritant	Human	-	0.01 Percent	-

**Conclusion/Summary** : Not available.

Sensitizer

**Conclusion/Summary** : Not available.

Carcinogenicity

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11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde	Positive - Oral - TDLo	Rat	109 g/kg	2 years Continuous
	Positive - Inhalation - TCLo	Rat	14300 ppb	2 years Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	15 ppm	78 weeks Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	15 ppm	86 weeks Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	15 ppm	2 years Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	14 ppm	84 weeks Intermittent; 6 hours per day
	Equivocal - Subcutaneous - TDLo	Rat	1170 mg/kg	65 weeks Intermittent
	Equivocal - Subcutaneous - TD	Rat	350 mg/kg	78 weeks Intermittent
	Equivocal - Inhalation - TCLo	Mouse	14300 ppb	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Rat	14300 ppb	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Rat	5600 ppb	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TCLo	Mouse	15 ppm	104 weeks Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Mouse	6 ppm	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Rat	18750 ug/m <sup>3</sup>	2 years

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Formaldehyde	A2	1	B	+	Proven.	+

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Formaldehyde	DNA Adduct DNA Inhibition DNA Repair Dominant Lethal Test Cytogenetic Analysis	Subject: Bacteria Subject: Bacteria Subject: Bacteria Subject: Insect Subject: Mammalian-Animal Cell: Somatic	Positive Positive Positive Positive Positive
	Cytogenetic Analysis Dominant Lethal Test Cytogenetic Analysis	Subject: Mammalian-Animal Subject: Mammalian-Animal Subject: Mammalian-Animal Cell: Somatic	Positive Positive Positive
	DNA Adduct	Subject: Mammalian-Human	Positive

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11. Toxicological information

	Unscheduled DNA Synthesis (UDS) Micronucleus Test	Cell: Somatic Subject: Mammalian-Human	Positive
		Subject: Mammalian-Human	Positive

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Formaldehyde	-	-	Positive	Rat - Male, Female	Inhalation	-
	-	-	Positive	Mouse	Intraperitoneal	-
	-	-	-	Rat - Male	Subcutaneous: 46243 mg/kg	20 days
	-	Positive	-	Mouse	Intramuscular: 259 mg/kg	11 days During Pregnancy
	-	-	Positive	Rat	Oral	-
	-	Positive	-	Mammal - species unspecified - Male	Unreported	-

Conclusion/Summary : Not available.

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde	LC50 Inhalation Vapor	Rat	250 ppm	4 hours
	LD50 Dermal	Rabbit	270 mg/kg	-
	LD50 Oral	Rat	100 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Formaldehyde	Eyes - Mild irritant	Human	-	6 minutes 1 parts per million	-
	Eyes - Severe irritant	Rabbit	-	24 hours 750 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	750 Micrograms	-
	Skin - Mild irritant	Human	-	72 hours 150 Micrograms Intermittent	-
	Skin - Mild irritant	Rabbit	-	540 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Severe irritant	Human	-	0.01 Percent	-

Conclusion/Summary : Not available.

Sensitizer

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**11. Toxicological information**

**Conclusion/Summary** : Not available.

**Carcinogenicity**

Product/ingredient name	Result	Species	Dose	Exposure
Formaldehyde	Positive - Oral - TDLo	Rat	109 g/kg	2 years Continuous
	Positive - Inhalation - TCLo	Rat	14300 ppb	2 years Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	15 ppm	78 weeks Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	15 ppm	86 weeks Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	15 ppm	2 years Intermittent; 6 hours per day
	Positive - Inhalation - TC	Rat	14 ppm	84 weeks Intermittent; 6 hours per day
	Equivocal - Subcutaneous - TDLo	Rat	1170 mg/kg	65 weeks Intermittent
	Equivocal - Subcutaneous - TD	Rat	350 mg/kg	78 weeks Intermittent
	Equivocal - Inhalation - TCLo	Mouse	14300 ppb	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Rat	14300 ppb	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Rat	5600 ppb	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TCLo	Mouse	15 ppm	104 weeks Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Mouse	6 ppm	2 years Intermittent; 6 hours per day
	Equivocal - Inhalation - TC	Rat	18750 ug/m <sup>3</sup>	2 years

**Conclusion/Summary** : Not available.

**Classification**

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Formaldehyde	A2	1	B	+	Proven.	+

**Mutagenicity**

Product/ingredient name	Test	Experiment	Result
Formaldehyde	DNA Adduct DNA Inhibition DNA Repair Dominant Lethal Test Cytogenetic Analysis	Subject: Bacteria Subject: Bacteria Subject: Bacteria Subject: Insect Subject: Mammalian-Animal Cell: Somatic	Positive Positive Positive Positive Positive
	Cytogenetic Analysis Dominant Lethal Test	Subject: Mammalian-Animal Subject: Mammalian-Animal	Positive Positive

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**11. Toxicological information**

	Cytogenetic Analysis	Subject: Mammalian-Human Cell: Somatic	Positive
	DNA Adduct	Subject: Mammalian-Human Cell: Somatic	Positive
	Unscheduled DNA Synthesis (UDS) Micronucleus Test	Subject: Mammalian-Human	Positive
		Subject: Mammalian-Human	Positive

**Conclusion/Summary** : Not available.

**Teratogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Formaldehyde	-	-	-	Rat - Male	Subcutaneous: 46243 mg/kg	20 days
	-	-	Positive	Rat - Male, Female Mouse	Inhalation Intramuscular: 259 mg/kg	- 11 days During Pregnancy
	-	Positive	-	Mammal - species unspecified - Male Mouse	Unreported	-
	-	-	Positive	Mouse	Intraperitoneal	-
	-	-	Positive	Rat	Oral	-
	-	-	-			

**Conclusion/Summary** : Not available.

**12. Ecological information**

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

**United States**

**Aquatic ecotoxicity**

Product/ingredient name	Result	Species	Exposure
Formaldehyde	Acute EC50 0.788 mg/L Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 12.98 mg/L Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
	Acute EC50 5800 to 7800 ug/L Fresh water	Daphnia - Daphnia pulex - Neonate - <24 hours	48 hours
Acute LC50 1.41 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours	

**Conclusion/Summary** : Not available.

**Persistence/degradability**

**Conclusion/Summary** : Not available.

**Canada**

**Aquatic ecotoxicity**

Product/ingredient name	Result	Species	Exposure
Formaldehyde	Acute EC50 0.788 mg/L Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 12.98 mg/L Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
	Acute EC50 5800 to 7800 ug/L Fresh water	Daphnia - Daphnia pulex - Neonate - <24 hours	48 hours
	Acute LC50 1.41 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours

**Conclusion/Summary** : Not available.

**Persistence/degradability**

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## 12. Ecological information

**Conclusion/Summary** : Not available.

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

## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

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

## 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	NA1993	Combustible liquid, n.o.s. (Formaldehyde)	Combustible liquid.	III
IATA-DGR Class	UN3334	Aviation Regulated Liquids, n.o.s. (Formaldehyde)	9	-

PG\* : Packing group

## 15. Regulatory information

### United States

**HCS Classification** : Combustible liquid  
Toxic material  
Corrosive material  
Sensitizing material  
Carcinogen  
Target organ effects

**U.S. Federal regulations** : **TSCA 8(a) IUR Exempt/Partial exemption:** Not determined  
**United States inventory (TSCA 8b):** All components are listed or exempted.  
**SARA 302/304/311/312 extremely hazardous substances:** Formaldehyde  
**SARA 302/304 emergency planning and notification:** Formaldehyde  
**SARA 302/304/311/312 hazardous chemicals:** Formaldehyde  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**  
Formaldehyde: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Water Act (CWA) 311:** Formaldehyde

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

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## 15. Regulatory information

**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 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	Formaldehyde	50-00-0	10 - 20
Supplier notification	Formaldehyde	50-00-0	10 - 20

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.

### State regulations

**Massachusetts** : The following components are listed: FORMALDEHYDE

**New York** : The following components are listed: Formaldehyde

**New Jersey** : The following components are listed: FORMALDEHYDE; FORMALIN

**Pennsylvania** : The following components are listed: FORMALDEHYDE

### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Formaldehyde	Yes.	No.	40 µg/day (ingestion) 40 µg/day (inhalation)	No.

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

### Canadian lists

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

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

**Canada inventory** : All components are listed or exempted.

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

### International regulations

3/14/2012.

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Life Science Research PO Box 117 Rockford, IL (815) 968-0747 www.thermo.com  
Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

16% Formaldehyde Solution

## 15. Regulatory information

**International lists** : **Australia inventory (AICS)**: All components are listed or exempted.  
**China inventory (IECSC)**: All components are listed or exempted.  
**Japan inventory**: All components are listed or exempted.  
**Korea inventory**: All components are listed or exempted.  
**New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.  
**Philippines inventory (PICCS)**: All components are listed or exempted.

## 16. Other information

**Label requirements** : COMBUSTIBLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

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

Health	*	3
Flammability		2
Physical hazards		0

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** :



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**Prepared by** : MSDS (Regulatory Specialist)

Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.