MATERIAL SAFETY DATA SHEET
REQUIRED UNDER SAFETY AND HEALTH REGULATION FOR SHIP REPAIRING

DATE UPDATED: AUGUST 18, 2016

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - -

Product Name	Formaldehyde 37% Solution
Product Code(s)	C5300
Recommended Use	For Further Manufacturing Use Only
	Not for Human or Animal Drug Use

SECTION 2. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -

Emergency Overview

Target Organs

Eyes, Kidney, Liver, Heart, Central nervous system

WHMIS Classification

B3	Combustible Liquid	Combustible Liquid
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Toxic by ingestion
D2A	Very Toxic Material Causing Other Toxic Effects	Toxic by skin absorption
D2B	Toxic Material Causing Other Toxic Effects	Toxic by inhalation.
E	Corrosive Material	Carcinogen
		Specific target organ toxicity - single exposure
		Moderate eye irritant
		Skin sensitiser
		Mutagen
		Corrosive to skin

GHS Classification

Flammable liquids (Category 4)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin corrosion/irritation (Sub-category 1B)
Serious eye damage/eye irritation (Category 1)
Skin sensitisation (Category 1)
Germ cell mutagenicity (Category 2)
Carcinogenicity (Category 1B)
Specific target organ toxicity - single exposure (Category 1)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram 

Signal word	Danger
Hazard statement(s)	
H227	Combustible liquid.
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.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H370	Causes damage to organs.
H402	Harmful to aquatic life.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
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/doctor.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403	Store in a well-ventilated place.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

Potential Health Effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Skin	Toxic if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes	Causes eye burns. Causes eye irritation.
Ingestion	Toxic if swallowed.

SECTION 3. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -

Chemical Name	EC No.	CAS-No	Weight %
Formaldehyde	EEC No. 200-001-8	50-00-0	30-50
Methanol	EEC No. 200-659-6	67-56-1	10-30
Water	231-791-2	7732-18-5	20-60

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -

General advice
Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Explosion data - sensitivity to mechanical impact
No data available

Explosion data - sensitivity to static discharge
No data available

Further information
Use water spray to cool unopened containers.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -

Personal precautions
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - -

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Formaldehyde	50-00-0	(c)	1.000000 ppm 1.300000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Suspected Human Carcinogen (means that the human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as A1)			
		TWA	0.750000 ppm 0.900000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Suspected Human Carcinogen (means that the human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as A1)			
		TWA	0.300000 ppm	Canada. British Columbia OEL
	IARC '1' applies to substances categorized as carcinogenic to humans, and used when there is sufficient evidence of carcinogenicity in humans. ACGIH 'A2' applies to those substances that are considered suspected human carcinogens. Sensitizer: sensitization critical effect			
		C	1.000000 ppm	Canada. British Columbia OEL
	IARC '1' applies to substances categorized as carcinogenic to humans, and used when there is sufficient evidence of carcinogenicity in humans. ACGIH 'A2' applies to those substances that are considered suspected human carcinogens. Sensitizer: sensitization critical effect			
		STEL	1.000000 ppm	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
		C	1.500000 ppm	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
		C	2.000000 ppm 3.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	A substance which may not be recirculated in accordance with section 108 A substance to which exposure must be reduced to a minimum in accordance with section 42 Carcinogenic effect suspected in humans			
		C	0.300000 ppm	USA. ACGIH Threshold Limit Values (TLV)

		C	0.3 ppm	USA. ACGIH Threshold Limit Values (TLV)
Methanol	67-56-1	TWA	200.000000 ppm 262.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Substance may be readily absorbed through intact skin			
		STEL	250.000000 ppm 328.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			
		TWA	200.000000 ppm	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		STEL	250.000000 ppm	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		TWAEV	200.000000 ppm 262.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		STEV	250.000000 ppm 328.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		TWA	200 ppm 262 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			
		STEL	250 ppm 328 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			
		TWA	200 ppm	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		STEL	250 ppm	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		TWAEV	200 ppm	Québec. Regulation respecting occupational health

			262 mg/m3	and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		STEV	250 ppm 328 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	250.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -

Appearance

Form	liquid, clear
Colour	colourless

Safety data

pH	No data available

Melting point/freezing point	No data available
Boiling point	100 °C (212 °F)
Flash point	64 °C (147 °F) - closed cup
Ignition temperature	420 °C (788 °F)
Auto-ignition temperature	No data available
Lower explosion limit	7 %(V)
Upper explosion limit	70 %(V)
Vapour pressure	53 hPa (40 mmHg) at 39 °C (102 °F)
Density	1.09 g/cm3 at 25 °C (77 °F)
Water solubility	completely soluble
Partition coefficient: n-octanol/water	log Pow: 0.35
Relative vapour density	1.04 - (Air = 1.0)
Odour	pungent
Odour Threshold	No data available
Evaporation rate	1

SECTION 10. - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
No data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents, Aniline, Phenol, Isocyanates, Acid anhydrides, Strong acids, Strong bases, Amines, Peroxides, Acid chlorides, Alkali metals, Reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Contains the following stabiliser(s):
Methanol (>=10 - <15 %)

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -

Acute toxicity

Oral LD50
No data available

Inhalation LC50
No data available

Dermal LD50
No data available

Other information on acute toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes: No data available

Respiratory or skin sensitisation
May cause allergic skin reaction.

May cause sensitisation by skin contact.

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Formaldehyde)

Reproductive toxicity
No data available

Teratogenicity
No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available

Aspiration hazard
No data available

Potential health effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Toxic if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes	Causes eye burns. Causes eye irritation.

Signs and Symptoms of Exposure
Warning: contains methanol. May be fatal or cause blindness if swallowed. Cannot be made nonpoisonous.

Synergistic effects
No data available

Additional Information
RTECS: Not available

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -

Toxicity

No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

PBT and vPvB assessment
No data available

Other adverse effects

Harmful to aquatic life.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -

DOT (US)
UN number: 2209 Class: 8 Packing group: III
Proper shipping name: Formaldehyde solutions
Reportable Quantity (RQ): 270 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2209 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: FORMALDEHYDE SOLUTION
Marine pollutant: No

IATA
UN number: 2209 Class: 8 Packing group: III
Proper shipping name: Formaldehyde solution

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -

WHMIS Classification

B3	Combustible Liquid	Combustible Liquid
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Toxic by ingestion
D2A	Very Toxic Material Causing Other Toxic Effects	Toxic by skin absorption
D2B	Toxic Material Causing Other Toxic Effects	Toxic by inhalation.
E	Corrosive Material	Carcinogen
		Specific target organ toxicity - single exposure
		Moderate eye irritant
		Skin sensitiser
		Mutagen
		Corrosive to skin

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.

SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -

Issuing Date	13-Aug-2009
Revision Date	18-Aug-2016
Revision Note	No information available.
Recommended Restrictions	No information available

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of MSDS