Safety Data Sheet
According to the (US) Hazard Communication Standard (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Formaldehyde, ACS	
NCL Catalog Number	**F-54**	
Product Description	Laboratory chemical	
Manufacturer	EMD Chemicals Inc.	PO Box 70, 480 Democrat Road Gibbstown, NJ 08027
Supplier	NCL of Wisconsin, Inc. Telephone: 1-800-648-7836 Email: nclabs@nclabs.com	PO Box 8, Birnamwood, WI 54414 Fax: 715-449-2454 Emergency Contact: 1-800-424-9300 (Chemtrec)

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification

Flammable Liquid	Category 3
Acute Toxicity	Oral Category 4
Acute Toxicity	Inhalation Category 3
Skin Corrosion	Category 1B
Serious Eye Damage	Category 1
Skin Sensitization	Category 1A
Carcinogenicity	Category 1B
Aquatic Acute	Category 2

Signal Word Danger

Hazard Statements

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H350	May cause cancer (inhalation).
H401	Toxic to aquatic life.

Precautionary Statements

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.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe mist/vapors/spray.
P264	Wash exposed 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+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P312	Call a POISON CENTER or doctor if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310	Immediately call a POISON CENTER or doctor.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P370+P378	In case of fire: Use carbon dioxide, powder, or alcohol-resistant foam to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container to comply with local, state and federal regulations.

Other Hazards Not Contributing to the Classification None under normal conditions.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity Not applicable

Common Name Not applicable

Substance

Name	CAS #	Approximate %
Water	7732-18-5	47-53
Formaldehyde	50-00-0	37
Methanol	67-56-1	10-15

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General First Aid Measures Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

If Inhaled Remove the victim into fresh air. Immediately consult a doctor or medical service.

In Case of Skin Contact Immediately wash with lots of water/shower for 15 minutes. Do not apply neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Get medical attention. Take victim to the hospital if burned surface > 10%.

In Case of Eye Contact Immediately rinse with plenty of water for 15 minutes. Do not apply neutralizing agents. Get medical attention/see an ophthalmologist.

If Swallowed Rinse mouth. Do NOT induce vomiting. Immediately consult a doctor/medical service. Take immediately to hospital if large quantities have been ingested.

Most Important Symptoms/Effects Acute and Delayed

After Inhalation	Runny nose, coughing, irritation of the respiratory tract. Irritation of the nasal mucous membranes. Possible oedema of the upper respiratory tract. Possible laryngeal spasm, oedema. Respiratory difficulties. Risk of lung oedema.
After Skin Contact	Caustic burns/corrosion of the skin.
After Eye Contact	Corrosion of the eye tissue.
After Ingestion	Nausea, vomiting, diarrhea. Central nervous system depression. Dizziness. Blood in vomit. Blood in stool. Shock. Disturbances of consciousness. Change in the haemogramme/blood composition. Change in the urine composition. Urine discoloration.
Chronic Symptoms	Red skin, dry skin, skin rash/inflammation. Coughing. Possible inflammation of the respiratory tract. Respiratory difficulties.

Indication of Immediate Medical Attention and Special Treatment Needed

Seek medical advice if you feel unwell.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable Extinguishing Media	None known.
Special Hazards Arising from the Chemical	CO and CO_2 are formed upon combustion. Reacts violently with strong oxidizers to increase the risk of fire/explosion. Reacts with some acids to release highly toxic compounds. Unstable product polymerizes. Reacts with some bases to release carbon dioxide with pressure increase and possible bursting of container.
Special Protective Actions for Fire-Fighters	Wear self-contained breathing apparatus and protective clothing. Keep exposed containers cool with water spray. Use water moderately and if possible, collect or contain it.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Use personal protective equipment (see section 8). Safety glasses, gloves, gas/dust mask. Avoid dust formation. Avoid breathing dust, vapors, mist or gas. Ensure adequate ventilation and evacuate personnel to safe areas.
Environmental Precautions	Prevent entry to surface and ground waters. Prevent soil and water pollution.
Methods and Materials for Containment and Cleaning Up	Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Ensure compliance with local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling	Avoid contact with eyes and skin. Avoid breathing vapors. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Obtain special instructions before use. Contaminated work clothing should not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood.
Conditions for Safe Storage Including any Incompatibilities	Keep in original container, tightly closed and stored in a cool, dry, ventilated area. Store away from strong oxidizers, strong bases, metals, acid chlorides, acid anhydrides and sources of ignition.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Formaldehyde, 37% (50-00-0)		
USA ACGIH	ACGIH Ceiling (mg/m^3)	0.37 mg/m^3
USA ACGIH	ACGIH Ceiling (ppm)	0.3 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	0.75 ppm
USA OSHA	OSHA PEL (STEL) (ppm)	2 ppm
Methanol (67-56-1)		

USA ACGIH	ACGIH TWA (ppm)	200 ppm
USA OSHA	OSHA PEL (TWA) (mg/m^3)	260 mg/m^3
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm

Appropriate Engineering Controls Material should be handled or transferred in a fume hood or with equivalent ventilation. Maintain eye-wash fountain and quick-drench facilities in work area.

Individual Protection Measures Avoid all unnecessary exposure.

Eye/Face Protection Use chemical safety goggles and /or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye-wash fountain and quick-drench facilities in work area.

Skin Protection Protective gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

Respiratory Protection Wear appropriate mask.

Other Information Do not eat, drink, or smoke when using this product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid

Color Colorless

Odor Irritating/pungent odor

Odor Threshold 1 ppm, 1.2 mg/m^3

pH Not determined

Melting Point/Freezing Point Not determined

Initial Boiling Point and Boiling Range Not determined

Flash Point > 60°C

Oxidizing Properties May intensify fire

Evaporation Rate Not determined

Flammability (Solid, Gas) Not determined

Upper/Lower Flammability/Explosive Limits Not determined

Vapor Pressure Not determined

Vapor Density Not determined

Relative Density 1.08 g/ml

Solubility Soluble in ethanol, methanol, ether, acetone, and chloroform.

Partition Coefficient: n-octanol/water Not determined

Auto-Ignition Temperature Not determined

Decomposition Temperature Not determined

Viscosity Not determined

SECTION 10: STABILITY AND REACTIVITY

Reactivity CO and CO_2 are formed upon combustion. Reacts violently with strong oxidizers to increase the risk of fire/explosion. Reacts with some acids to release highly toxic compounds. Unstable product polymerizes. Reacts with some bases to release carbon dioxide with pressure increase and possible bursting of container.

Chemical Stability Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions May react violently with reducing agents.

Conditions to Avoid Direct sunlight and extremely high or low temperatures.

Incompatible Materials Strong reducing agents, strong bases, alcohols, aldehydes, aluminum, combustible materials, and metals.

Hazardous Decomposition Products Thermal decomposition generates corrosive vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity Harmful if swallowed. Toxic if inhaled.

Formaldehyde (50-00-0)	
LD50 oral rat	500 mg/kg
LD50 inhalation rat (ppm)	0.579 ppm/4h
Methanol (67-56-1)	
LD50 oral rat	>5000 mg/kg
LD50 dermal rabbit	15800 mg/kg
LC50 inhalation rat (mg/l)	85/l/4h
LC50 inhalation rat (ppm)	64000 ppm/4h
Water (7732-18-5)	
LD50 oral rat	>90000 mg/kg

Skin Corrosion/Irritation Causes severe skin burns.

Serious Eye Damage/Irritation Causes serious eye damage.

Respiratory or Skin Sensitization May cause an allergic skin reaction.

Germ Cell Mutagenicity Not classified

Carcinogenicity May cause cancer (Inhalation).
IARC**:** Group 1 Carcinogenic to humans.
National Toxicity Program (NTP) Status: 2-Known Human Carcinogens.

Reproductive Toxicity Not classified

Specific Target Organ Toxicity (Single Exposure) Not classified

Specific Target Organ Toxicity (Repeated Exposure) Not classified

Aspiration Hazard Not classified

Potential Adverse Human Health Effects and Symptoms Not available

Symptoms/Injuries After Inhalation Runny nose, coughing, irritation of the respiratory tract. Irritation of the nasal mucous membranes. Possible oedema of the upper respiratory tract. Possible laryngeal spasm, oedema. Respiratory difficulties. Risk of lung oedema.

Symptoms/Injuries After Skin Contact Caustic burns/corrosion of the skin.

Symptoms/Injuries After Eye Contact Corrosion of the eye tissue.

Symptoms/Injuries After Ingestion Nausea, vomiting, diarrhea. Central nervous system depression. Dizziness. Blood in vomit. Blood in stool. Shock. Disturbances of consciousness. Change in the haemogramme/blood composition. Change in the urine composition. Urine discoloration.

Other Information Red skin, dry skin, skin rash/inflammation. Coughing. Possible inflammation of the respiratory tract. Respiratory difficulties.

SECTION 12: ECOLOGICAL INFORMATION

Ecology – Water Toxicity Toxic to aquatic life. Harmful to fishes and invertebrates.

Formaldehyde, 37% (50-00-0)	
LC50 fishes 1	41 mg/l (96 h; Brachydanio rerio; Pure substance)
EC50 Daphnia 1	14.7 mg/l (24 h; Daphnia magna; Pure substance)
LC50 fish 2	62-109 mg/l (96 h; Salmo gairdneri, Oncorhynchus mykiss; Pure substance)
EC50 Daphnia 2	2 mg/l
TLM fish 1	50-200, (96 h; Poecilia reticulate; Pure substance)
TLM fish 2	10-100; Pisces; Pure substance
TLM other aquatic organisms 1	10-100, 96 h
Threshold limit algae 1	2.5 mg/l (192 h; Scenedesmus quadricauda; Pure substance)
Threshold limit algae 2	0.39 mg/l (192 h; Microcystis aeruginosa; Solution <50%)

Persistence and Degradability Readily biodegradable in water. Biodegradable in soil: no data available.
No test data on mobility of the components of the mixture available.
Photodegradation in air.

Biochemical Oxygen Demand (BOD*)* 0.64 g O_2/g substance

Chemical Oxygen Demand (COD) 1.06 g O_2/g substance

ThOD 1.068 g O_2/g substance

BOD (% of ThOD) 0.6% ThOD

Bioaccumulative Potential Not applicable

Log Pow -0.78-0.0

Mobility in Soil Toxic in flora.

Other Adverse Effects Not applicable

Methanol (67-56-1)	
LC50 fishes 1	15400 mg/l (96 h; Lepomis macrochirus; Lethal)
EC50 Daphnia 1	>10000 mg/l (48 h; Daphnia magna; Lethal)
LC50 fish 2	10800 mg/l (96 h; Salmo gairdneri, Onchorhynchus mymiss)
EC50 Daphnia 2	24500 mg/l (48 h; Daphnia magna)
Threshold limit other aquatic organisms 1	6600 mg/l (16 h; Pseudomonas putida)
Threshold limit algae 1	530 mg/l (192 h; Microcystis aeruginosa)
Threshold limit algae 2	8000 mg/l (168 h; Scenedesmus quadricauda)

Persistence and Degradability Readily biodegradable in water. Biodegradable in soil: no data available. No test data on mobility of the components of the mixture available. Photodegradation in air.

Biochemical Oxygen Demand (BOD*)* 0.6-1.12 g O_2/g substance

Chemical Oxygen Demand (COD) 1.42 g O_2/g substance

ThOD 1.5 g O_2/g substance

BOD (% of ThOD) 0.8% ThOD

Bioaccumulative Potential Low potential for bioaccumulation (BCF<500)

Log Pow -0.77
BCF fish 1: <10 (Leuciscus idus)

Mobility in Soil Toxic in flora.

Other Adverse Effects Not applicable

Mobility in Soil Not established

Other Adverse Effects Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Methods of Disposal

Disposal Recommendations Dispose of contents/containers in accordance with local, state and federal regulations. Hazardous waste shall not be mixed together with other waste.

Other Information Hazardous waste due to toxicity. Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

UN Number 1198

UN Shipping Name Formaldehyde solutions, flammable

Transport Hazard Class(es) 3 – flammable

Packing Group III

Environmental Hazards Not applicable

Transport in Bulk Not applicable

Other Precautions Not applicable

SECTION 15: REGULATORY INFORMATION

Formaldehyde (50-00-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on SARA Section 313 (Specific Toxic Chemical Listings)

Reportable Quantity	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic health hazard)
Methanol (67-56-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific Toxic Chemical Listings)	
Reportable Quantity	5000 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard
Water (7732-18-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

SECTION 16: OTHER INFORMATION

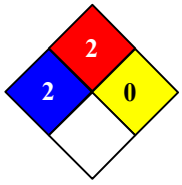
Revision Date: 04/07/2015

NFPA Hazards

Health Hazard — 2: Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.

Fire Hazard — 2: Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and some finely divided suspended solids that do not require heating before ignition can occur.

Reactivity/Instability — 0: Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health — 3: Major injury likely unless prompt action is taken and medical treatment is given.

Flammability — 2: Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur.

Physical Hazard — 0: Materials that are normally stable, even under fire conditions, and will not react with water.

Personal Protection — H

F-54	
Health	3
Flammability	2
Physical Hazard	0
Personal Protection	H

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END OF SAFETY DATA SHEET