*M*ATERIAL *S*AFETY *D*ATA *S*HEET

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FOR PRODUCT AND SALES INFORMATION

CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

PRODUCT IDENTIFICATION

PRODUCT NAME: Formalde-Fresh Solution

COMPOSITION, INFORMATION ON INGREDIENTS

CAS #	CHEMICAL NAME	%	EINECS#
50-00-0	Formaldehyde	4.0-7.0	200-001-8
67-56-1	Methyl Alcohol	<3.0	200-

659-6

7558-79-4	Sodium Phosphate Diabasic	<1.0		231-448-7
7732-18-5	Water		Balance	231-791-2
10049-21-5	Sodium Phosphate Monobasic	<1.0		unlisted

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE: Not available.

DANGER! Causes respiratory tract irritation. Causes skin irritation. Causes eye irritation. May cause allergic skin reaction. This substance has caused adverse reproductive and fetal effects in animals. May cause central nervous system depression. Causes digestive tract irritation. May cause blindness if swallowed. May cause liver and kidney damage. Contains formaldehyde. Respiratory Sensitizer. Potential cancer hazard.

TARGET ORGANS: Kidneys, central nervous system, liver.

POTENTIAL HEALTH EFFECTS

EYE: Causes eye irritation.

SKIN: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

INGESTION: May be fatal or cause blindness if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause central nervous system depression.

INHALATION: Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause asthmatic attacks due to allergic sensitization of the respiratory tract.

CHRONIC: Possible cancer hazard based on tests with laboratory animals. Repeated exposure may cause skin discoloration and thickening and nail decay.

FIRST AID MEASURES

EYES: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.

SKIN: Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

INGESTION: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

INHALATION: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

NOTES TO PHYSICIAN: Treat symptomatically and supportively.

ANTIDOTE: No specific antidote exists.

FIRE FIGHTING MEASURES

GENERAL INFORMATION: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool.

EXTINGUISHING MEDIA: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

AUTOIGNITION TEMPERATURE: Not available.

FLASH POINT: Not available.

NFPA RATING: Not published.

EXPLOSION LIMITS:

LOWER: Not available.

UPPER: Not available.

ACCIDENTAL RELEASE MEASURES

GENERAL INFORMATION:	Use proper personal protective equipment as indicated in EXPOSURE CONTROLS, PERSONAL PROTECTION section.
SPILLS/LEAKS:	Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite.

HANDLING AND STORAGE

HANDLING:	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.
STORAGE:	Store in a cool, dry, well-ventilated area away from incompatible substances.

EXPOSURE CONTROLS, PERSONAL PROTECTION

ENGINEERING CONTROLS:	Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

EXPOSURE LIMITS

Chemical name	ACGIH	NIOSH	OSHA-Final PELs
Formaldehyde	C 0.3 ppm; C 0.37 mg/m3	0.016 ppm TWA; C 0.1 ppm (15 min)	None Listed

Methyl Alcohol	200 ppm; 262 mg/m3; 250 ppm STEL; 328 mg/m3	200 ppm TWA; 260 mg/m3 TWA 250 ppm STEL 325 mg/m3 STEL	200 ppm TWA; 260 mg/m3 TWA
Sodium Phosphate Diabasic	none listed	none listed	none listed
Water	none listed	none listed	none listed
Sodium Phosphate Monobasic	none listed	none listed	none listed

OSHA Vacated PELs:

Formaldehyde:

3 ppm TWA (unless specified in 1910.1048); 10 ppm STEL (30 min) (unless specified in 1910.1048); C 5 ppm (unless specified in 1910.1048)

Methyl Alcohol:

200 ppm TWA; 260 mg/m3 TWA; 250 ppm STEL; 325 mg/m3 STEL

Sodium Phosphate Dibasic:

No OSHA Vacated PELs are listed for this chemical.

Water:

No OSHA Vacated PELs are listed for this chemical.

Sodium Phosphate Monobasic:

No OSHA Vacated PELs are listed for this chemical.

PERSONAL PROTECTIVE EQUIPMENT

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid.
APPEARANCE: Not available.
ODOR: Not available.
pH: Not available.
VAPOR PRESSURE: 14 mm Hg @20^{o}C
VAPOR DENSITY: 0.62
EVAPORATION RATE: Not available.
VISCOSITY: Not available.
BOILING POINT: >212^{o}F
FREEZING/MELTING POINT: Not available.
DECOMPOSITION TEMPERATURE: Not available.
SOLUBILITY: Completely soluble in water.
SPECIFIC GRAVITY/ DENSITY: ~1.0
MOLECULAR FORMULA: Mixture
MOLECULAR WEIGHT: Not available.

STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal temperatures and pressures.
CONDITIONS TO AVOID: Oxidizers.
INCOMPATIBILITIES WITH OTHER MATERIALS: None Reported.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide, Oxides of phosphorus, irritating and toxic fumes and gases, carbon dioxide, toxic fumes of sodium oxide.

HAZARDOUS POLYMERIZATION: Has not been reported.

TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 50-00-0: LP8925000
CAS# 67-56-1: PC1400000
CAS# 7558-79-4: WC4500000
CAS# 7732-18-5: ZC0110000

LD50/LC50:

CAS# 67-56-1: Inhalation, rat: LC50=64000 ppm/4H; Oral, mouse: LD50=7300 mg/kg; Oral, rabbit: LD50=14200 mg/kg; Oral, rat: LD50=5628 mg/kg; Skin, rabbit: LD50=15800 mg/kg.
CAS# 7732-18-5: Oral, rat: LD50=>90 mL/kg.
CAS# 67-56-1: Inhalation, rat: LC50-64000 ppm/4H; Oral, mouse: LD50=7300 mg/kg; Oral, rabbit: LD50=14200 mg/kg; Oral, rat: LD50=5628 mg/kg; Skin, rabbit: LD50=15800 mg/kg.
CAS# 7732-18-5: Oral, rat: LD50=>90 mL/kg.
CAS# 67-56-1: Inhalation, rat: LC50=64000 ppm/4H; Oral, mouse: LD50=7300 mg/kg; Oral, rabbit: LD50=14200 mg/kg; Oral, rat: LD50=5628 mg/kg; Skin, rabbit: LD50=15800 mg/kg.

CARCINOGENICITY:

FORMALDEHYDE-
ACGIH: A2-suspected human carcinogen
California: carcinogen
NIOSH: occupational carcinogen
NTP: Suspect carcinogen
OSHA: Possible Select carcinogen
IARC: Group 2A carcinogen

METHYL ALCOHOL-
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

SODIUM PHOSPHATE DIABASIC-
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

WATER-
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

SODIUM PHOSPHATE MONOBASIC-
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

EPIDEMIOLOGY: No information available.

TERATOGENICITY: Formaldehyde effects on Newborn: behavioral, ihl-rat TCLo=50 ug/m3/4H; biochemical/metabolic and reduced weight gain, ihl-rat TCLo=12 ug/m3/24H. Embryo or Fetus: : cytological changes, ihl-rat TCLo=1 mg/m3/24H; stunted fetus and death, ipr-mouse TDLo=240

mg/kg. Specific Developmental Abnormalities: craniofacial and musculoskeletal, ipr-mouse TDLo=240 mg/kg.

REPRODUCTIVE EFFECTS: Formaldehyde effects on fertility: male index, itt-rat TDLo=400 mg/kg; post - implantation mortality, ims-mouse TDLo=259 mg/kg. Paternal effects: spermatogenesis, orl-rat TDLo=200 mg/kg; testes/sperm duct/epididymis, ipr-rat TDLo=80 mg/kg.

NEUROTOXICITY: No information available.

MUTAGENICITY: Formaldehyde DNA Damage: human fibroblast 100 umol/L DNA Inhibition: human cell types 210 umol/L Unscheduled DNA Synthesis: rat cell types 50 umol/L Gene Mutation in Mammalian Cells: human lymphocyte 130 umol/L.

OTHER STUDIES: No data available.

ECOLOGICAL INFORMATION

ECOTOXICITY:

Atlantic salmon LC50=173 uL/L/96H (formaldehyde); Catfish (fresh water) TLm=32 ppm/24H (formaldehyde); Flounder (salt water) TLm=100-330 ppm/48H (formaldehyde);Fathead minnow LC50=10-100 ul/L/96H (formaldehyde);Rainbow trout LC50=168mg/L/48H (formaldehyde):Zebrafish LC50=41mg/L/96H (formaldehyde)

WATER: flea LC50=52mg/L/24H

ENVIRONMENTAL FATE:

Formaldehyde has little potential for bioconcentration. Formaldehyde soil adsorption: log octanol/water partition coefficient=0.35 (indicates low potential for soil adsorption). Formaldehyde has a high biological oxygen demand.

PHYSICAL CHEMICAL: Not available.

OTHER: None.

DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

RCRA D-Series Maximum Concentration of Contaminants: Not listed.

RCRA D-Series Chronic Toxicity Reference Levels: Not listed.

RCRA F-Series: Not listed.

RCRA P-Series: Not listed.

RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

TRANSPORT INFORMATION

US DOT: No information available.
IMO: No information available.
IATA: No information available.
RID/ADR: No information available.
CANADIAN TDG:
Shipping Name: FORMALDEHYDE SOLUTIONS
Hazard class: 3(8)(9.2)
UN Number: UN1198
US FEDERAL:
TSCA:
CAS# 50-00-0 is listed on the TSCA inventory.
CAS# 67-56-1 is listed on the TSCA inventory.
CAS# 7558-79-4 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
CAS# 10049-21-5 is not on the TSCA inventory. It is a hydrate and exempt from TSCA Inventory requirements (40CFR270.3(u)(2)).
HEALTH AND SAFETY REPORTING LIST: None of the chemicals are on the Health and Safety Reporting List.
CHEMICAL TEST RULES: None of the chemicals in this product are under a Chemical Test Rule.
SECTION 12b: None of the chemicals are listed under TSCA Section 12b.
TSCA SIGNIFICANT NEW USE RULE: None of the chemicals in this material have a SNUR under TSCA.
SARA:
SECTION 302 (RQ):
Final RQ = 100 pounds (45.4 kg)
Final RQ=5000 pounds (2270 kg)
Final RQ=5000 pounds (2270 kg)
SECTION 302 (TPQ):
CAS# 50-00-0: TPQ=500 pounds
SARA CODES:
CAS# 50-00-0: acute, chronic.
CAS# 67-56-1: acute, flammable.
SECTION 313:
This material contains Formaldehyde (CAS# 50-00-0, 4.0-7.0%), which is subject to the reporting

requirements of Section 313 of SARA Title III and 40 CFR Part 373.
This material contains Methyl Alcohol (CAS# 67-56-1, <3.0%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

CLEAN AIR ACT:

CAS# 50-00-0 is listed as a hazardous air pollutant (HAP).
CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

CLEAN WATER ACT:

CAS# 50-00-0 is listed as a Hazardous Substance under the CWA.
CAS# 7558-79-4 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Polluntants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 50-00-0 is considered highly hazardous by OSHA.

STATE:

Formaldehyde can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Methyl alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Sodium Phosphate dibasic can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.
Not present on state lists from CA, PA, MN, MA FL, or NJ.
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
The following statement(s) is (are) made in order to comply with the California Safe drinking Water Act:
WARNING: This product contains Formaldehyde, a chemical known to the state of California to cause cancer.

CALIFORNIA NO SIGNIFICANT RISK LEVEL:
CAS# 50-00-0: no significant risk level = 40 ug/day

EUROPEAN/INTERNATIONAL REGULATIONS:

EUROPEAN LABELING IN ACCORDANCE WITH EC DIRECTIVES:
Hazard Symbols: Not available.
Risk Phrases:
Safety Phrases:S24/25-Avoid contact with skin and eyes.

WGK (WATER DANGER/PROTECTION):
CAS# 50-00-0: 2
CAS# 67-56-1: 1
CAS# 7558-79-4: 1
CAS# 7732-18-5:
CAS# 10049-21-5: 1

CANADA:
CAS# 50-00-0 is listed on Canada's DSL/NDSL List.
CAS# 67-56-1 is listed on Canada's DSL/NDSL List.
CAS# 7558-79-4 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of D1B, D2A.
CAS# 50-00-0 is listed on Canada's Ingredient Disclosure List.
CAS# 67-56-1 is listed on Canada's Ingredient Disclosure List.
CAS# 7558-79-4 is not listed on Canada's Ingredient Disclosure List.
CAS# 10049-21-5 is not listed on Canada's Ingredient Disclosure List.

EXPOSURE LIMITS:

CAS# 50-00-0: OEL-ARAB Republic of Egypt: TWA 2ppm (3 mg/m3). OEL-AUSTRALIA: TWA 1 ppm (1.5 mg/m3); STEL 2 ppm (3 mg/m3); CAR. OEL-BELGIUM: TWA 1 ppm (1.2 mg/m3); STEL 2 ppm (2.5 mg/m3); CAR. OEL-CZECHOSLOVAKIA: TWA 0.5 mg/m3; STEL 1 mg/m3; OEL-DENMARK: STEL 0.3 ppm (0.4 mg/m3); Carcinogen. OEL-FINLAND: STEL 1 ppm (1.3 mg/m3); Skin. OEL-FRANCE: STEL 2 ppm (3 mg/m3). OEL-GERMANY: TWA 0.5 ppm (0.6 mg/m3); Carcinogen. OEL-HUNGARY: STEL 0.6 mg/m3; Carcinogen. OEL-JAPAN: TWA 0.5 ppm (0.61 mg/m3); Carcinogen. OEL-THE NETHERLANDS: TWA 1 ppm (1.5 mg/m3); STEL 2 ppm (3 mg/m3). OEL-THE PHILLIPINES: TWA 5 ppm (6 mg/m3). OEL-POLAND: TWA 2 mg/m3. OEL-RUSSIA:TWA 0.5 ppm; STEL 0.5 mg/m3; Skin. OEL-SWEDEN: TWA 0.5 ppm (0.6 mg/m3); STEL 1 ppm (1 mg/m3). OEL-SWITZERLAND: TWA 0.5 ppm (0.6 mg/m3); STEL 1 pp 1.2 mg/m3). OEL-THAILAND: TWA 3 ppm; STEL 5 PPM. OEL-TURKEY: TWA 5 ppm (6 mg/m3). OEL-UNITED KINGDOM:TWA 2 ppm (2.5 mg/m3); STEL 2 ppm (2.5 mg/m3). OEL IN BULGARIA, COLUMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM

check ACGI TLV

CAS# 67-56-1:. OEL-ARAB Republic of Egypt: TWA 200 ppm (260 mg/m3); Skin. OEL-AUSTRALIA: TWA 200 ppm (260 mg/m3); STEL 250 ppm; Skin. OEL-BELGIUM: TWA 200 ppm (262 mg/m3); STEL 250 ppm; Skin. OEL-CZECHOSLOVAKIA: TWA 10 mg/m3; STEL 500 mg/m3. OEL-DENMARK: TWA 200 ppm (260 mg/m3); Skin. OEL-FINLAND: TWA 200 ppm (260 mg/m3); STEL 250 ppm; Skin. OEL-FRANCE: TWA 200 ppm (260 mg/m3); STEL 1000 ppm (1300 mg/m3). OEL-GERMANY: TWA 200 ppm (260 mg/m3); Skin. OEL-HUNGARY: TWA 50 mg/m3; STEL 100 mg/m3; Skin JAN9. OEL-JAPAN: TWA 200 ppm (260 mg/m3); Skin. OEL-THE NETHERLANDS: TWA 200 ppm (260 mg/m3); Skin. OEL-THE PHILIPPINES: TWA 200 ppm (260 mg/m3). OEL-POLAND: TWA 100 mg/m3. OEL-RUSSIA: TWA 200 ppm; STEL 5mg/m3; Skin. OEL-SWEDEN: TWA 200 ppm (250 mg/m3); STEL 250 ppm (350 mg/m3); Skin. OEL-SWITZERLAND: TWA 200 ppm (260 mg/m3); STEL 400 ppm; Skin. OEL-THAILAND: TWA 200 ppm (260 mg/m3). OEL-TURKEY: TWA 200 ppm (260 mg/m3). OEL-UNITED KINGDOM: TWA 200 ppm (260 mg/m3); STEL 250 ppm; Skin. OEL IN BULGARIA, COLUMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV.