SAFETY DATA SHEET

TriEst Microbiocide

1 IDENTIFICATION

PRODUCT IDENTIFIER: TriEst Microbiocide Product Number: 537-USA-TAG
OTHER MEANS OF IDENTIFICATION: Formalin
RECOMMENDED USE: Pesticide (Fumigant)

DISTRIBUTOR:	**DISTRIBUTOR EMERGENCY TELEPHONE NUMBER:**
TriEst Ag Group, Inc. P.O. Box 448 1101 Industrial Blvd. Greenville, NC 27835-0448 Customer Service: 800-637-9466	Emergency Phone: (800) 637-9466 Monday – Friday, 8:00am – 5:00 pm EST **FOR CHEMICAL EMERGENCY (Spill, Leak, Fire, Exposure, or Accident) Call CHEMTREC Day or Night** Within USA and Canada: 800-424-9300 Outside USA and Canada: 1-703-527-3887 (collect calls accepted) **Poison Control Center:** 800-222-1222 (24-hour)

NOTE TO PESTICIDE HANDLERS: If the pesticide product end-use labeling contains specific instructions or requirements that conflict with this Safety Data Sheet (SDS), **follow the instructions or requirements on the labeling**. See Section 15 of this SDS for further information.

2 HAZARDS IDENTIFICATION

GHS Classification 	• Flammable Liquids, Category 4, H227 • Acute Toxicity – Oral, Category 4, H302 • Acute Toxicity – Dermal, Category 3, H311 • Acute Toxicity – Inhalation, Category 3, H331 • Skin Corrosion/Irritation, Category 2, H315 • Serious Eye Damage/Irritation, Category 1, H318 • Respiratory Sensitization, Category 1, H334 • Skin sensitization, Category 1, H317 • Carcinogenicity, Category 1B, H350 • Toxic to Reproduction, Category 1B, H360F • Toxic to Reproduction, Category 1B, H360 • Specific Target Organ Toxicity, Single Exposure, Category 1 (CNS), H370 • Specific Target Organ Toxicity, Repeated Exposure, Category 2 (Respiratory tract, GI tract, skin, kidneys), H373
Signal Word	**DANGER**
GHS Hazard Statements	• Combustible liquid. H227 • Harmful if swallowed. H302 • Toxic in contact with skin. H311 • Toxic if inhaled. H331 • Causes skin irritation. H315 • Causes serious eye damage. H318 • May cause allergy or asthma symptoms or breathing difficulties if inhaled. H334 • May cause an allergic skin reaction. H317 • May cause cancer. H350 • May damage fertility. H360F • May damage unborn child. H360

	• Causes damage to organs (CNS). H370 • May cause damage to organs through prolonged or repeated exposure (respiratory tract, GI tract, skin, kidneys). H373

GHS PRECAUTIONARY STATEMENTS

Prevention

- Obtain special instructions before use. P201
- Do not handle until all safety precautions have been read and understood. P202
- Keep away from heat/sparks/open flames/hot surfaces. No smoking. P210
- Do not breathe gas, mist, vapors, or spray. P260
- Wash skin thoroughly after handling. P264
- Do not eat, drink or smoke when using this product. P270
- Use only outdoors or in a well-ventilated area. P271
- Contaminated work clothing should not be allowed out of the workplace. P272
- Wear protective gloves, protective clothing, eye and respiratory protection. P280
- In case of inadequate ventilation wear respiratory protection. P284

Response

- IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. P301+P312+ +P330
- IF ON SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. Call a POISON CENTER or doctor if you feel unwell. P302+P361+P364+P352+P312
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON Center or doctor. P304+P340+P311
- 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 or doctor. P305+P351+P338+P310
- Get medical attention if you feel unwell. P314
- IF exposed or concerned: Call a POISON CENTER or doctor. P308 + P311
- If experiencing respiratory symptoms: Call a POISON CENTER or doctor. P342+P311
- If skin irritation or rash occurs: Get medical advice or attention. P333 + P313
- Take off contaminated clothing and wash before reuse. P362 + P364
- In case of fire: Use water or other conventional media to extinguish. P370+P378

Storage

- Store in a well-ventilated place. Keep container tightly closed. Store locked up. P403+P233+P405

Disposal

- Dispose of contents and container in accordance with government regulations. P501

Hazards Not Otherwise Classified	None

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Identity	Synonyms	CAS #	Concentration by Weight %
Formaldehyde	Formalin	50-00-0	37.0 *
Methanol	Methyl Alcohol	67-56-1	13.0
Water		732-18-5	50.0

* Product label will reflect nominal active ingredient percentages.

4 FIRST AID MEASURES

Eyes	Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Occasionally, lift the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if discomfort continues. Chemical burns must be treated promptly by a physician.
Skin	Immediately remove contaminated clothing, shoes, and other items covering the skin. Wash contaminated skin area thoroughly with soap and water for at least 20 minutes. Chemical burns must be treated promptly by a physician. Aerate and then launder any contaminated clothing, shoes, gloves, etc. dispose of heavily contaminated clothing.
Inhalation	Get exposed person to fresh air. Keep warm. Make sure person can breathe freely. Place victim if half upright position. If breathing has stopped, give artificial respiration, preferably with the aid of a pocket mask to avoid contact with the chemical substance. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Do not give anything by mouth to an unconscious person. Maintain an open airway. Get medical attention as soon as possible. If it is suspected that vapors are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
Ingestion	If conscious and alert and able to swallow, have victim drink 4 to 8 ounces of water or milk. Immediately contact poison control center or hospital emergency room for any other additional treatment directions. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms appear slowly and include: headache, dizziness, nausea, vomiting, unconsciousness and asphyxiation.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Medical conditions aggravated by exposure include dermatitis and respiratory disorders.
There is no antidote for formaldehyde.

5 FIRE-FIGHTING MEASURES

Flash Point (°F.)	Tag Closed Cup: 62 °C (143.60 °F) (ASTM D 56)
Flammable Limits	7 – 70 %
Auto Ignition Temperature	420 °C (788 °F)

Suitable Extinguishing Media	All conventional fire extinguishing media are suitable: water spray, dry chemical, carbon dioxide, alcohol-resistant chemical foam, dry sand.
Unsuitable Extinguishing Media	Do NOT use wet jet.
Special Hazards Arising from the Chemical	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.
Hazardous Thermal Decomposition Products	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, metal oxide/oxides.
Precautions for Firefighters	Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special Protective Equipment for Firefighters	Wear appropriate protective equipment and self-contained breathing apparatus in positive pressure mode for firefighting.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures	• Use proper personal protective equipment (PPE) as indicated in Section 8. • Evacuate the surrounding area. • Eliminate all sources of ignition in immediate area. • Do not breathe vapor or mist. • Do not touch damaged containers or spilled material unless wearing appropriate PPE. • Avoid low places, ventilate closed spaces before entering, and work upwind if possible.

Methods and Materials for Containment and Cleaning Up Small Spills <5 gallons	• Isolate immediate area at least 100 feet. • Wear recommended PPE. • Ensure or provide adequate ventilation. • Stop leak if without risk. Move containers from spill area. • Dilute with water and mop up if water-soluble or absorb onto inert material such as vermiculite, dry sand, or dirt and deposit spill in a sealable polyethylene or steel container. • Use spark-proof tools and explosion-proof equipment. • Dispose of via a licensed waste disposal contractor.
Methods and Materials for Containment and Cleaning Up Large Spills >5 gallons	• Isolate at least 300 feet in all directions. • Wear recommended PPE. • Stop leak if without risk. Move containers from spill area. • Approach from upwind. • Enclose with diking material to prevent seepage into sewer systems, surface/ground water or natural bodies of water. • Wash spillages into an effluent treatment plant or proceed as follows: • If possible neutralize with dilute (<5%) solutions of ammonium hydroxide, sodium hydroxide, sodium bisulfite or sodium sulfite. • 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 of SDS). • 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.
Environmental Precautions	• Prevent further leakage or spillage, if safe to do so. • Prevent entry into waterways, sewers, basements, or confined areas. • Do not permit entry into the spill or leak area by any other person until the concentration of Formaldehyde is measured to be less than 0.75 ppm.

7 HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANLDING

- This fumigant product is a highly hazardous material and must be handled with care only by those individual experienced with its proper use. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.
- Persons moving, handling, or opening containers must wear the personal protective equipment as specified in the Hazards to Humans section of the product label.
- Avoid exposure during pregnancy.
- Ropes, slings. hooks, tongs, and similar handling devices should not be used for unloading cylinders. A suitable hand truck, fork truck, or similar device to which the cylinders can be firmly secured should be used for transporting the heavier cylinders.
- When cylinder not in use, keep valves closed and secure.
- Ventilation: Whenever possible. Open cylinder only in a well-ventilated area with the operator “upwind” from the container or provide ventilation to control airborne levels below the permissible exposure limit.
- Keep away from open flame or heat.
- Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Take precautionary measures against electrostatic discharges during transfer by grounding and bonding containers. Train workers in the recognition and prevention of hazards associated with the storage, handling and transfer of flammable liquids in the plant. Store in an area designated for storage of flammable liquids (See NPFA 30, and OSHA 29 CFR 1910.106).
- Always have adequate clean water available to wash the skin.
- If product splashes or spill on shoes or clothing, remove them at once. If liquid contacts skin where rings or bandages area worn, remove them and wash exposed skin with soap and water. Keep and wash PPE and work clothing separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product.
- Containers should never be refilled by the consumer or used for any other product or purpose.
- For disposal, see Section 13.

ADVICE ON GENERAL OCCUPATIONAL HYGIENE

- 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.
- See also Section 8 for additional information on hygiene measures.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

- Cylinders and containers should be tightly closed.
- Storage temperature should be controlled to avoid precipitation or vaporization. Formaldehyde solutions will start to precipitate paraformaldehyde if stored below their recommended storage temperatures, making the freezing point difficult to determine.
- Store in a cool, dry, well-ventilated area under lock and key (secured). Protect from direct sunlight.
- Eliminate all ignition sources. Separate from oxidizing materials.
- Use appropriate containment to avoid environmental contamination.
- Post as a pesticide storage area.
- Do not contaminate water, food, or feed by storage or disposal.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Formaldehyde (CAS 50-00-0) OCCUPATIONAL EXPOSURE LIMITS

SOURCE OF EXPOSURE LIMIT	TYPE	VALUE
US OSHA, Table Z-1 Limits for Air Contaminants, 29 CFR 1910.1000	PEL - TWA	0.1 ppm
US OSHA, 1910.1048 Specific Chemical Regulation	PEL - TWA	0.75 ppm
US OSHA, 1910.1048 Specific Chemical Regulation	STEL	2.0 ppm
US ACGIH, Threshold Limit Values (TLVs), 2019 Adoption	TLV - TWA	0.1 ppm **
US ACGIH, Threshold Limit Values (TLVs)	TLV - STEL	0.3 ppm
US NIOSH, Recommended Exposure Limit	REL - TWA	0.016 ppm
US NIOSH, Recommended Exposure Limit	Ceiling	0.1 ppm
US NIOSH, Documentation for Immediately Dangerous to Life or Health	IDLH	20 ppm
State of California, Permissible Exposure Limits (Title 8, Article 107)	PEL – TWA	0.75 ppm
State of California, Permissible Exposure Limits (Title 8, Article 107)	STEL	0.016 ppm

** Dermal sensitization, Respiratory sensitization, Upper Respiratory Tract irritation and cancer, Eye irritation. Confirmed human carcinogen. 1 ppm = 1.23 mg/m3

Methanol (CAS 67-56-1) OCCUPATIONAL EXPOSURE LIMITS

SOURCE OF EXPOSURE LIMIT	TYPE	VALUE
US OSHA, Table Z-1 Limits for Air Contaminants, 29 CFR 1910.1000	PEL - TWA	200 ppm
US ACGIH, Threshold Limit Values (TLVs), 2019 Adoption	TLV - TWA	200 ppm **
US ACGIH, Threshold Limit Values (TLVs)	TLV - STEL	250 ppm
US NIOSH, Recommended Exposure Limit	REL - TWA	200 ppm
US NIOSH, Recommended Exposure Limit	STEL	250 ppm
US NIOSH, Documentation for Immediately Dangerous to Life or Health	IDLH	6000 ppm
State of California, Permissible Exposure Limits (Title 8, Article 107)	PEL – TWA	200 ppm
State of California, Permissible Exposure Limits (Title 8, Article 107)	STEL	250 ppm

** Skin notation. Headache, Eye damage, Dizziness, Nausea. 1 ppm = 1.31 mg/m3

NOTE: Ceiling – not to be exceeded; STEL - Short Term Exposure Limit – a 15 minute Time Weighted Average (TWA)

BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS

BASIS	PARAMETER	VALUE	BIOLOGICAL SPECIMEN
US ACGIH, Biological Exposure Indices (BEI)	Methanol	15 mg/L	Urine

ENGINEERING CONTROLS

Work / Hygienic Practices	Avoid contact with skin, eyes, clothing. Wash hands, forearms, and face before eating, drinking, or smoking after handling material.
Equipment	Use explosion-proof ventilation equipment. Emergency eyewash and shower facilities should be readily accessible.
Ventilation	Use only adequate ventilation. Work upwind whenever possible.

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT

Clothing	Loose-fitting or well ventilated long-sleeved shirt, long pants or coveralls, socks with shoes. Do NOT wear jewelry when handling. Chemical resistant apron when cleaning equipment, mixing, or loading.
Eyes	Full-face shield, goggles or safety glasses with brow and side shields must be worn if full-facepiece respiratory protection is not required.
Skin	Chemical resistant gloves - barrier laminate, butyl, nitrile, and Viton appear to be impervious to formaldehyde solutions.
Respiratory NOTE: Only NIOSH-approved respirators may be used for Respiratory Protection	• A full facepiece respirator with cartridges or canisters specifically approved for formaldehyde may be used for exposure levels up to 7.5 ppm (10 times the PEL). • Full-face mask with industrial size canister specifically approved for formaldehyde may be used for exposure levels up to 75 ppm (100 times the PEL). • Above 75 ppm or unknown, a positive-pressure self-contained breathing apparatus (SCBA) must be worn. • For firefighting, a positive-pressure SCBA is required.
Measurement	The air concentration level can be measured by a direct reading detection device, such as a Dräger pump, using formaldehyde detector tube.

PERSONAL PROTECTION FOR SPILLS/EMERGENCY

Fire	In case of fire only, use normal firefighting equipment. If chemical release and fire involved, wear recommended chemical protective clothing in conjunction with normal firefighting gear.
Spills	Minimum PPE: Liquid impervious chemical coveralls and gloves. Upgrade respiratory protection in accordance with the "Routine Use" table above in this Section.
Chemical Protective Clothing	• For cleanup where liquid splash will be incidental, a liquid impervious chemical coveralls may be worn such as Tyvek QC or Saranex SL. • In confined areas or where liquid splash is likely, wear a vapor-tight suit such as Tychem TK or Kappler CPF3. • Use Responder, or Tychem against permeation by Formaldehyde for periods greater than 8 hours.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid
Odor	Pungent (hay-like)
Odor Threshold	1.1 ppm (1.47 mg/m3) for Formaldehyde Irritation concentration is 1.2 ppm (1.5 mg/m3)
pH	3.0 – 4.5
Freezing/Melting Point	No data available.
Boiling Point and Range	212 °F (100 °C)
Flash Point	143.6 °F (62 °C) Tag Closed Cup (ASTM D 56)
Evaporation Rate	< 1 (Butyl Acetate = 1)
Flammability (solid/gas)	No data available
Flammable Limits	7 – 70 %
Vapor Pressure	40 mmHg @ 39 °C (102.20 °F) 40 mmHg = 53hPa
Vapor Density	1.04 (Air = 1)
Specific Gravity	1.08 g/cm3 at 25 °C (77 °F)
Density	9.0 pounds/gallon
Solubility	Complete in water
Partition Coefficient	log Pow: 0.35
Auto Ignition Temperature	420 °C (788 °F)
Decomposition Temperature	Not available for product

Viscosity	Not available for product
% Volatile	Not tested, presumed volatile
Molecular Formula	CH2O
Molecular Weight	30.03 g/mol

10 STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Stability	Product is stable under normal temperatures and pressures. Contains methanol as a stabilizer. At low temperatures will self-polymerize to form paraformaldehyde.
Possibility of Hazardous Reactions	Hazardous polymerization will not occur under normal conditions of storage and use.
Conditions to Avoid	Incompatible materials; temperature extremes, heat, flames, sparks. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat or sources of ignition.
Incompatible Materials to Avoid	Reaction with phenol, strong acids or alkalis may be violent. Avoid aniline, isocyanates, acid anhydrides amines, peroxides, acid chlorides, alkali metals, reducing agents. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA regulated carcinogen.
Hazardous Decomposition Products	Decomposes to carbon monoxide and carbon dioxide under fire conditions. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Other Hazards	May further react at high temperatures for form methanol, formic acid or methylals. At low temperatures will self-polymerize to form paraformaldehyde.

11 TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure	• Inhalation; skin and eye contact. • Formaldehyde is absorbed well by the lungs, gastrointestinal tract, and, to a lesser extent, skin.
Symptoms Including Delayed Effects	• Eye pain, watering, redness. • Symptoms appear slowly and include: headache, dizziness, nausea, vomiting, unconsciousness and asphyxiation. • Inhalation of formaldehyde can cause airway irritation, bronchospasm (wheezing), and pulmonary edema. Asthma may be triggered. • Absorption of large amounts of formaldehyde via any route can cause severe systemic toxicity, leading to metabolic acidosis, tissue and organ damage, and coma.
Eyes	• Chemical burns are possible. Causes serious eye damage.
Skin	• May be harmful if absorbed through skin. Causes skin irritation, redness, or pain. • May cause blistering of skin.
Ingestion	• May be harmful if swallowed and cause stomach pain. Ingestion may cause blindness. Can cause central nervous system depression. If accidentally swallowed, burns or irritation to mucous membranes, esophagus or GI tract can result.
Inhalation	• Toxic if inhaled. Can cause central nervous system depression. Can cause irritation of nose, throat and lungs. • May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Chronic:	• Chronic overexposure may cause respiratory sensitization, such as asthma, and that pre-existing respiratory and skin disorders may be aggravated by exposure.
Carcinogenicity	**Formaldehyde** • OSHA regulates formaldehyde as a potential human carcinogen (may cause cancer). • NTP - Known to be human carcinogen based on sufficient evidence from studies in humans. Nasopharyngeal cancer, sinonasal cancer, and lymphohematopoietic cancer, specifically myeloid leukemia has been observed in humans with higher level of exposure or duration to formaldehyde.

	• IARC - Group 1: Carcinogenic to humans. Sufficient evidence in humans for carcinogenicity – nasopharynx and leukemia. Positive association between exposure to formaldehyde and sinonasal cancer. Sufficient evidence in experimental animals for carcinogenicity of formaldehyde. **Methanol** • Methanol is not listed by OSHA, NTP, or IARC for carcinogenicity.
Germ Cell Mutagenicity	Negative results. No known significant effects or critical hazards. • Ames test (S. typhimurium) • In vitro assay fibroblast; mutation in mammalian somatic cells • In vivo mammalian bone-marrow cytogenetic test, chromosomal analysis), mouse - male and female
Reproductive Toxicity	• Exposure via any route can damage fetus or fertility. Reduced fetal weight, increase in fetal deaths, and skeletal malformations observed.
Specific target organ toxicity - single exposure	**Formaldehyde** • Category 3 Respiratory tract irritation **Methanol** • Category 3 Respiratory tract irritation • Category 1 Central Nervous System (CNS) • Category 2 Optic nerve
Specific target organ toxicity - repeated exposure	**Formaldehyde** • Category 2 Respiratory tract and skin **Methanol** • Category 2 Kidneys, liver, gastrointestinal tract, skin, respiratory tract
Skin Sensitization	• Does not cause skin sensitization. (OECD Test Guideline 406)
Aspiration Hazard	• Not classified

IRRITATION/CORROSION

Component	Result	Species	Score	Exposure
Formaldehyde	Skin – Erythema/Eschar	Rabbit	2.5	20 hours
Formaldehyde	Skin – Edema	Rabbit	3	20 hours
Formaldehyde	Eyes – Cornea opacity	Mouse	>3	

HUMAN TOXICOLOGY FOR FORMALDEHYDE

Value (LD_{50} or LC_{50})	Animal	Routes	Components
0.59 mg/l	Rat, 2 hr	Acute Inhalation	Formaldehyde
270 mg/kg	Rabbit	Acute Skin	Formaldehyde
800 mg/kg	Rat	Acute Oral	Formaldehyde

Rats chronically exposed to 14 ppm formaldehyde contracted nasal cancers. Based on animal data and limited epidemiological evidence, NTP and IARC have listed formaldehyde as a probable human carcinogen. OSHA regulates formaldehyde as a potential human carcinogen.

HUMAN TOXICOLOGY FOR METHANOL

Value (LD_{50} or LC_{50})	Animal	Routes	Components
128.2 mg/l 4 hr	Rat	Acute Inhalation	Methanol
17,100 mg/kg	Rabbit	Acute Skin	Methanol
1,187 - 2,769 mg/kg	Rat	Acute Oral	Methanol

Methyl alcohol may be fatal or cause blindness if swallowed. Cannot be made nonpoisonous. Effects due to ingestion may include: Headache, Dizziness, Drowsiness, Metabolic acidosis, Coma, Seizures. Symptoms may be delayed.

ACUTE TOXICITY ESTIMATES

Route	ATE Value
Oral	618.8 mg/kg
Dermal	566.7 mg/kg
Inhalation	8.044 mg/L

12 ECOLOGICAL INFORMATION

Formaldehyde

Ecotoxicity	Acute LC50 6.7 mg/l		
	Acute LC50 6.9 mg/l	Fish - Striped bass	96 h
	Acute NOEC > 47.9 mg/l	Fish - Zebra danio	6 d
	Acute EC50 5.8 mg/l Fresh water	Fish - Medaka, high-eyes	28 d
	Acute EC50 4.9 mg/l Fresh water	Aquatic invertebrates. Water flea	2 d
	Acute EC50 4.3 mg/l Fresh water	Aquatic plants - Algae	72 h
	Acute EC50 19 mg/l	Aquatic plants - Algae	48 h
Biological Oxygen Demand	• Formaldehyde – BOD5 = 60% of ThOD = 0.6 to 1.07 standard dilution at < 260 mg/L		
Persistence	• Not persistent due to rapid bio-degradation and atmospheric oxidation, and photolysis.		
Degradability	• In water or soil, formaldehyde is biodegraded in a few days. • In the atmosphere, the material is rapidly degraded by photolysis and photo oxidation		
Bioaccumulative Potential	• Experiments performed on a variety of fish and shrimp show no bioconcentration of formaldehyde. • Octanol/Water Partition Coefficient = 0.35 (Log POW) – low potential to bioaccumulate • BCF = <1		
Mobility in Soil	• Mobile in the soil		
Other Adverse Effects	• No additional information. • An environmental hazard cannot be excluded from unprofessional handling or disposal of this product.		

Methanol

Ecotoxicity	Acute EC50 13,000 mg/l Fresh water	Fish-Rainbow trout, donaldson trout	3 h
	LC50 15,400 mg/l	Fish-Lepomis macrochirus (Bluegill)	96 h
	NOEC 7,900 mg/l	Fish-Oryzias latipes	200 h
	EC50 > 10,000 mg/l	Crustacea-Daphnia magna (Water flea)	48 h
	• Available data demonstrate very low acute and chronic toxicity to aquatic organisms. • Effects of short term exposure are temporary and reversible.		
Biological Oxygen Demand	• 0.6 to 1.12 g O		
Persistence	• Not persistent in the environment.		
Degradability	• Readily biodegradable in water and soil. • Half-life in air is 17 days		
Bioaccumulative Potential	• Log Pow = -0.77 • Low potential, BCF <500 • BCF Fish – 1 to 4.5 (72 hr, Cyprinus carpio, static system, fresh water, experimental value		
Mobility in Soil	• Highly mobile in soil		
Other Adverse Effects	• Does not contribute to Greenhouse Effect. • An environmental hazard cannot be excluded from unprofessional handling or disposal of this product.		

13 DISPOSAL CONSIDERATIONS

Return Cylinders To: TriEst Ag Group, Inc. 1101 Industrial Blvd. Greenville, NC 27834 Customer Service: (800) 637-9466	• Cylinders are the property of TriEst Ag Group, Inc. and should be returned promptly by collect auto freight and according to label instructions on the cylinder. • Do not ship cylinders without safety caps or valve protection bonnets. • When a cylinder or container is partially full and there is no further requirement for the product, contact the company for return instructions. • May contain explosive vapors. NO NOT cut, puncture or weld on or nearby.
Discharge	• Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a national discharge elimination system (NPDES) permit. • Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority.
Disposal	• Do not contaminate water, food, or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. • If these wastes cannot be disposed of by use according to label instructions or in accordance with the label Storage and Disposal instructions, contact your State Pesticide or Environmental Control Agency, the Hazardous Waste representative at the nearest EPA Regional Office, or the product manufacturer or distributor for guidance. • Do not dispose of cylinders; return to the distributor of the product.

14 TRANSPORT INFORMATION

LAND USDOT	**Shipping Paper Description for non-bulk packages:** UN2209, Formaldehyde Solution, 8, PG III, RQ **Shipping Paper Description for Bulk packages:** UN2209, Formaldehyde Solution, 8, PG III, RQ **DOT Marking on Non-Bulk Package:** UN2209, Formaldehyde Solution **DOT Marking on Bulk Package:** UN2209, Formaldehyde solutions **DOT Hazard Warning Label:** Corrosive 8 **DOT Placard:** Corrosive 8 **Environmental Hazard/Marine Pollutant:** No **Notes:** For packages that contain less than the reportable quantity of 100# of Formaldehyde, RQ is not necessary on shipping paper or marking • Do not ship cylinders without safety caps or valve protection bonnets.
WATER (IMO/IMDG)	**Shipping Paper Description for non-bulk packages:** UN2209, Formaldehyde Solution, 8, PG III
AIR (IATA/ICAO)	**Shipping Paper Description for non-bulk packages:** UN2209, Formaldehyde Solution, 8, PG III **IATA Marking on Non-Bulk Package:** UN2209, Formaldehyde Solution
Reportable Quantity	100 lbs (Formaldehyde) - 5000 lbs (Methanol)
Emergency Guide	132 (ERG-Emergency Response Guidebook)

15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

OSHA FORMALDEHYDE STANDARD

This product is capable of emitting free formaldehyde and is covered by the OSHA Formaldehyde Standard, 29 CFR 1910.1048

TSCA

TSCA Inventory:	Formaldehyde, CAS# 50-00-0 is listed Methanol, CAS# 67-56-1 is listed
TSCA 12(b) – Chemical Export Notification	None required.
TSCA 5(a)2 – Final or Proposed Significant New Use Rules	Not listed.
TSCA 5(e) – Consent Order	Not listed.

SARA

Section 302 (RQ)	RQ (Reportable Quantity) Formaldehyde is 100 lbs Methanol is 5000 lbs
Section 302 (TPQ)	TPQ (Threshold Planning Quantity) for Formaldehyde is 500 lbs
SARA Codes	TriEst Microbiocide See GHS Classification in Section 2 for Hazard Type Formaldehyde (CAS 50-00-0) Methanol (CAS 67-56-1)
Section 313	This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372) including Form R and Supplier Notification: **CAS Number** **Chemical Name** **% by Weight** 50-00-0 Formaldehyde 37 67-56-1 Methanol 11

RCRA (HAZARDOUS WASTES)

Listed U or P	U154 Methanol for ignitable U122 Formaldehyde

CLEAN AIR ACT

Hazardous Air Pollutants	Formaldehyde is listed. Methanol is listed.
Class 1 or 2 Ozone depletors	This material is not considered to be an ozone depletor

CLEAN WATER ACT / OIL POLLUTION ACT OF 1990

Section 311 (40 CFR 110)	None listed.
Priority Pollutants	None listed.

STATE

Components in this product can be found on the following state right-to-know lists:

Formaldehyde	CAS 50-00-0	New Jersey, Massachusetts, Pennsylvania, Rhode Island
Methanol	CAS 67-56-1	New Jersey, Massachusetts, Pennsylvania, Rhode Island

California Proposition 65 Component:

⚠ **WARNING**: This product can expose you to chemicals, including Formaldehyde (gas) (CAS 50-00-0), which is known to the State of California to cause cancer and Methanol (CAS 67-56-1), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16 OTHER INFORMATION

Hazard Rating Systems

	NFPA 704*	ACA-HMIS**
Category	Chloropicrin	Chloropicrin
Health	3	3
Flammability	2	2
Reactivity	0	0

Hazard Key
4 - Severe
3 - Serious
2 - Moderate
1 - Slight
0 - Minimal

* NFPA 704– *Standard System for the Identification of the Hazards of Materials for Emergency Response*
** ACA - HMIS – American Coatings Association - Hazardous Material Information System

REVISION DATE: April 1, 2019

Revision History

03-22-10	Initial	Original version
04-01-19	GHS Reformat	All Sections updated with GHS classification and formatting

WARRANTY

Notice: The information above is believed to be accurate and represents the best information currently available to us. Seller warrants that this product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.