



SECTION 1. IDENTIFICATION

Product Identifier	ZemaSol
Other Means of Identification	<i>Not Applicable</i>
Recommended Use	Solvent
Restrictions on Use	<i>Not Applicable</i>
Manufacturer Identifier	TBF Environmental Technology Inc. 1607 Derwent Way Delta, British Columbia Canada V3M 6K8 Tel: +1 877-658-3681 info@tbfenvironmental.com
Emergency Telephone Number	Toll Free: +1 (877) 658-3681

SECTION 2. HAZARD IDENTIFICATION

GHS Classification	FLAMMABLE LIQUIDS – CATEGORY 2 SKIN CORROSION/IRRITATION CATEGORY 2 SERIOUS EYE DAMAGE/IRRITATION – CATEGORY 2A SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE – CATEGORY 3 ACUTE TOXICITY (INHALATION) – CATEGORY 4 SKIN SENSITIZER – CATEGORY 1B
Label Elements Pictograms	 
Signal Word	DANGER
Hazard Statements	H225 – Highly flammable liquid and vapour. H315 – Causes skin irritation. H317 – May cause an allergic skin reaction. H319 – Causes serious eye irritation. H335 – May cause respiratory irritation. H336 – May cause drowsiness or dizziness. H332 – Harmful if inhaled.
Precautionary Statements	
Prevention:	P210 – Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233 – Keep container tightly closed. P240 – Ground/bond container and receiving equipment. P241 – Use explosion-proof electrical/ventilating/lighting equipment. P242 – Use only non-sparking tools. P243 – Take precautionary measures against static discharge. P261 – Avoid breathing mist or vapour. P264 – Wash hands and affected areas 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 must not be allowed out of the workplace. P280 – Wear protective gloves/eye protection/face protection.

Response:	P303 + P361 + P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. P302 + P352 – IF ON SKIN: Wash with plenty of water. P333 + P313 – If skin irritation or rash occurs: Get medical advice/attention. P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. P337 + P313 – If eye irritation persists: Get medical advice/attention. P304 + P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312 – Call a POISON CENTER/doctor if you feel unwell. P362 + P364 – Take off contaminated clothing and wash it before reuse. P370 + P378 – In case of fire: Use water fog, dry chemical, or CO ₂ to extinguish.
Storage:	P403 + P235 – Store in a well-ventilated place. Keep cool. P405 – Store locked up.
Disposal:	P501 – Dispose of contents/container in accordance with local/regional/national/international regulations.
Other Hazards	<i>Not Applicable</i>
NOTES	

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration	Common name / Synonyms
Acetate Ester	Proprietary	Proprietary	<i>Not Available</i>
Aryl Halides	Proprietary	Proprietary	<i>Not Available</i>

Notes	US GHS Trade Secret: The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200. HMIRA Exemption: An exemption was filed on August 28, 2015 (HMIRA Registry No. 9615) under the Hazardous Materials Information Review Act to withhold the chemical identities and proportions of the ingredients in this product.
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SECTION 4. FIRST-AID MEASURES

Inhalation	Remove victim to fresh air and keep comfortable for breathing. Seek medical attention if symptoms persist.
Skin Contact	Rinse with copious amounts of water for at least 15 minutes. Remove clothing and continue rinsing. If irritation occurs, seek medical attention.
Eye Contact	Immediately flush contaminated eye(s) gently running water. Remove contact lenses, if present and easy to do so. Continue rinsing for several minutes. Seek medical attention if symptoms persist.
Ingestion	Rinse mouth. Do NOT induce vomiting. Seek medical attention if symptoms persist.
Most Important Symptoms and Effects, Acute and Delayed	Acute: EYE CONTACT: Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct contact with eyes may cause temporary irritation. SKIN CONTACT: Symptoms may include itching, redness, rash. Effects will be transient. INHALATION: Vapours have a narcotic effect and may cause headache, fatigue, dizziness and nausea. May irritate the respiratory tract causing coughing, breathing difficulties. Chronic: <i>Not applicable.</i>
Immediate Medical Attention and Special Treatment	Treat symptomatically. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible).

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media	
Suitable Extinguishing Media	Water fog, foam, dry chemical, carbon dioxide.
Unsuitable Extinguishing Media	<i>Not Available</i>
Specific Hazards Arising from the Product	Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special Protective Equipment and Precautions for Fire-Fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures	Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate personal protective equipment (See Section 8). Avoid inhalation of vapours/mists. Ventilate closed spaces before entering. Contact local authorities if significant spill cannot be contained.
Methods for Containment and Cleaning Up	Implement spill control plan. Restrict access to area until completion of cleanup. Eliminate all sources of ignition and use non-sparking tools. Isolate material and stop flow of material if safe to do so. Dike well ahead of spill to contain material. Cover with a plastic sheet to prevent spreading. Use inert, non-combustible material (vermiculite, sand) to soak up the product and place into a proper container for disposal. Never re-use spilled material. Clean surface thoroughly to remove residual contamination. Flush area with water. Prevent entry into waterways, sewer, confined areas. For disposal, see Section 13.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling	Vapours may form explosive mixtures with air. Keep away from ignition sources. Protect from direct sunlight. Protect from static discharges. Ground all equipment used when handling. Use non-sparking tools. Avoid contact with eyes, skin, clothing. Avoid generating/breathing mists/dust/vapour. Wear all appropriate personal protective equipment (Section 8). Provide adequate ventilation. Always observe good industrial hygiene practices.
Conditions for Safe Storage	Keep container tightly closed, and store in a cool location away from incompatible materials (Section 10) and direct sunlight. Keep away from ignition sources and all combustible materials. Inspect periodically for damage or leaks. Have appropriate spill clean-up equipment in or near storage area. Keep out of reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Canada, Alberta, British Columbia, Ontario – Occupational Exposure Limit (OEL)		
Chemical Name	Short-Term OEL	TWA OEL
Acetate Ester	250 ppm	200 ppm

Canada, Quebec – Permissible Exposure Values for airborne contaminants (PEV)		
Chemical Name	Short-Term PEV	TWA PEV
Acetate Ester	250 ppm	200 ppm

USA ACGIH Threshold Limit Values (TLV), OSHA Limits for Air Contaminants – Permissible Exposure Limits (PEL)				
Chemical Name	ACGIH® TLV®		OSHA PEL	
	Short-Term	TWA	Short-Term	TWA
Acetate Ester	250 ppm	200 ppm	<i>Not Available</i>	200 ppm
Notes	*Exposure limits may vary from time to time and from one jurisdiction to another. Check with local regulatory agency for the exposure limits in your area. Chemicals not listed here do not have establish limit values for ACGIH or OSHA PEL. TWA = Time Weighted Average			

Appropriate Engineering Controls	Use general or local exhaust ventilation to maintain exposure below the exposure limits. Ensure proper ventilation if dust, mist, vapour is created during use.
Individual Protection Measures	
Eye/Face Protection	Wear safety glasses with side shields (or goggles).
Skin Protection	Wear impervious gloves. Confirm with reputable supplier.
Respiratory Protection	If exposure guideline levels may be exceeded, use an approved NIOSH respirator.
Other	Use proper industrial hygiene practices. Wash hands and face with soap and water after handling and before breaks. Ensure eyewash station is present.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear colourless liquid	Relative Density (Water = 1)	1.0
Odour	Mild, acetic	Solubility in Water	0.212 g/ml
Odour Threshold	<i>Not Available</i>	Solubility in Other Liquids	<i>Not Available</i>
pH	<i>Not Available</i>	Partition Coefficient, n-Octanol / Water	<i>Not Available</i>
Melting Point and Freezing Point	-88.3°C (-126.9°F)	Auto-ignition Temperature	461.8°C (863.2°F)
Initial Boiling Point and Boiling Range	70°C (158°F) (Boiling Range: <i>Not Available</i>).	Decomposition Temperature	<i>Not Applicable</i>
Flash Point	4.0°C (39.2°F) CC	Viscosity	0.44 cP (Dynamic)
Evaporation Rate	5.1 (n-Butyl acetate = 1)	Flammability (solid, gas)	<i>Not Applicable</i>
Vapour Density (air = 1)	3.14	Upper and Lower Flammability or Explosive Limit	Upper = 15.18% Lower = 2.69%
Vapour Pressure	147.85 mm Hg @ 20°C	Pour Point	<i>Not Applicable</i>


SECTION 10. STABILITY AND REACTIVITY

Reactivity	May react with oxidizing agents.
Chemical Stability	Stable under normal conditions.
Possibility of Hazardous Reactions	Hazardous polymerization does not occur.
Conditions to Avoid	Avoid heat, sparks, open flames, and other ignition sources. Avoid temperatures exceeding the flashpoint (4°C). Keep away from incompatibles. Do not mix with other chemicals.
Incompatible Materials	Oxidizers, acids, and bases.
Hazardous Decomposition Products	May include but are not limited to: Oxides of carbon, hydrocarbons, hydrogen chloride, hydrogen fluoride.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

X Inhalation X Skin contact X Eye contact X Ingestion

Acute Toxicity	
LC50 (inhalation)	>16000 ppm (Rat) [Acetate Ester] 33 mg/L/4h (Rat) [Aryl halides]
LD50 (oral)	>5000 mg/kg (Rat) [Acetate Ester] >13000 mg/kg (Rat) [Aryl halides]
LD50 (dermal)	>5000 mg/kg (Rabbit) [Acetate Ester] >2000 mg/kg (Rabbit) [Aryl halides]
Notes	Category 4 Acute inhalation toxicity.
Skin Corrosion / Irritation	Causes skin irritation, irritation will be transient.
Serious Eye Damage / Irritation	Causes eye irritation. Irritation will be transient.
Inhalation	Avoid inhalation, serious exposures are harmful.
STOT (Specific Target Organ Toxicity) - Single Exposure	Narcotic effects. May cause respiratory irritation.
Aspiration Hazard	Not reported.
STOT (Specific Target Organ Toxicity) - Repeated Exposure	Not reported.
Respiratory and/or Skin Sensitization	May cause skin sensitization resulting in allergic reaction (Aryl halides).
Carcinogenicity	IARC reports inadequate evidence for classification as human carcinogen. U.S. State Regulations California Drinking Water & Toxic Enforcement Act, CA Proposition 65:  WARNING: This product can expose you to 4-chloro-alpha,alpha,alpha-trifluorotoluene (para-Chlorobenzotrifluoride – PCBTF) which is known to the State of California to cause cancer. California Proposition 65 – CRT: Listed date/Carcinogenic substance 4-chloro-alpha,alpha,alpha-trifluorotoluene (para-Chlorobenzotrifluoride – PCBTF) Listed: 28 June, 2019 For more information, go to www.P65Warnings.ca.gov
Reproductive Toxicity	
Development of Offspring	Not reported.
Sexual Function and Fertility	Not reported.
Effects on or via Lactation	Not reported.
Germ Cell Mutagenicity	Not expected to be a mutagen.
Interactive Effects	Not reported.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	Unknown ecotoxicity for mixture.		
	Ingredient	Species	LC/EC₅₀
	Acetate Ester	Algae	120 mg/L, 72h, LC ₅₀
		Daphnia	1026.7 mg/L, 48h, EC ₅₀
		Fathead Minnow	295 – 348 mg/L, 96h, LC ₅₀
Aryl Halides	Daphnia	3.68 mg/L, 48h, EC ₅₀	
Persistence and Degradability	<i>Not Available</i>		
Bioaccumulative Potential	Partition Coefficient n-octanol / water (log <i>K_{ow}</i>)		
	Acetate Ester – 0.18 (Not expected to bioaccumulate)		
Mobility in Soil	<i>Not Available</i>		
Other Adverse Effects	Not expected.		

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods	<p>Canadian Environmental Protection Act: All ingredients are listed in the DSL. Ingredients are listed on the TSCA Inventory.</p> <p>Dispose of product and containers in accordance with all federal, provincial/state, and local regulations.</p> <p>Consult with your local supplier for additional information. For disposal of unused or waste material, check with local, state and federal environmental agencies. Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.</p>
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SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Technical Name (for N.O.S. entry)	Transport Hazard Class(es)	Packing Group
Canadian TDG Regulations	UN1993	FLAMMABLE LIQUID, N.O.S.	(Methyl Acetate)	3	II
49 CFR/DOT	UN1993	FLAMMABLE LIQUID, N.O.S.	(Methyl Acetate)	3	II
IATA Regulations	UN1993	FLAMMABLE LIQUID, N.O.S.	(Methyl Acetate)	3	II
IMDG Code	UN1993	FLAMMABLE LIQUID, N.O.S.	(Methyl Acetate)	3	II
Note: Provide flashpoint, EmS codes.					
Notes: Ensure proper special provisions are followed.					

SECTION 15. REGULATORY INFORMATION

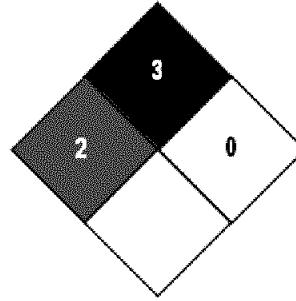
Safety, Health and Environmental Regulations	Canadian Environmental Protection Act (CEPA): All components of this product are on the Canadian DSL. All components are listed in the U.S. TSCA Inventory.	
US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.	
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Aryl halides – 1.0% One-time export notification only.	
CERCLA Hazardous Substance List (40 CFR 302.4)		
Acetate Ester	Listed	
Aryl Halides	Not Listed	
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	Not Listed	
Superfund Amendments and Reauthorization Act of 1986 (SARA)		
Hazard categories	Immediate Hazard - Yes	
	Delayed Hazard - No	
	Fire Hazard - Yes	
	Pressure Hazard – No	
	Reactivity Hazard - No	
SARA 302	No	
SARA 311/312	No	
SARA 313	Not Regulated	
Other Federal Regulations		
Clean Air Act (CAA) Section 112/112(r)	Not Regulated	
Safe Drinking Water Act (SDWA)	Not Regulated	
FDA	Not Regulated	
Canadian Federal Regulations		
WHMIS Status	Controlled	
WHMIS Classification	See Section 2	
National Pollutant Release Inventory	Not Regulated	

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes
Canada	Domestic Substances List (DSL)	Yes
*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)		

SECTION 16. OTHER INFORMATION

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	1	2
FLAMMABILITY	3	
PHYSICAL HAZARD	0	
PERSONAL PROTECTION	X	



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Disclaimer	This Safety Data Sheet (SDS) was prepared by Project Clean Inc., (www.projectclean.com) using information provided by TBF Environmental Technology Inc. The information in this SDS is offered for your consideration and guidance when working with this product. As per usual practice, accuracy of the information included is based on what was provided by the manufacturer and sole liability for the accuracy of these documents falls to TBF Environmental Technology Inc.

***SDS compliant with WHMIS2015 and OSHA HAZCOM 2012**