

SECTION 1: IDENTIFICATION Product

Name: Growforce ZMC

Recommended Use: Fertilizer; See product label for a complete list of uses and use sites.
Restrictions on Use: See product label for any restrictions on the use of this product.
Chemical Name: Urea, Copper, Manganese and Zinc mixture
Manufactured for: Vivid Life Sciences, LLC
P.O. Box. 41632
Minneapolis, MN 55441

For Medical Exposure Concerns, Contact the Poison Control Center: 1-800-222-1222

SECTION 2: HAZARD(S) IDENTIFICATION

EMERGENCY OVERVIEW: Brown-green liquid. Inhalation of large concentrations of vapor may cause respiratory irritation.

OSHA HCS CLASSIFICATION (29 CFR 1910.1200)

Specific Target Organ Toxicity – Single Exposure	Category 3
Specific Target Organ Toxicity – Repeated Exposure	Category 2



Signal Word: WARNING
Hazard Statement(s): May cause respiratory irritation.
May cause damage to organs through prolonged or repeated inhalation.
Precautionary Statement(s): **Prevention:** Do not breathe mist/vapors/spray. Use only outdoors or in a well-ventilated area.
Response: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Storage: Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Disposal: Dispose of contents/container in accordance with Federal, state and local regulations.

The following percentage of the mixture consists of components with unknown hazards regarding the acute toxicity:

- 48.61% Acute oral toxicity
- 100.0% Acute dermal toxicity
- 100.0% Acute inhalation toxicity
- 23.86% Eye irritation
- 23.86% Skin irritation
- 23.86% Skin sensitization

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %
Zinc oxide	1314-13-2	40.0 – 45.0%
Manganese carbonate	598-62-9	21.0 – 27.0%
Copper carbonate	12069-69-1	3.0 – 8.0%
Urea	57-13-6	1.0 – 5.0%

*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

SECTION 4: FIRST AID MEASURES	
IF IN EYES:	Flush eyes with clean water for at least 15 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. Seek medical attention if irritation persists.
IF ON SKIN:	Remove contaminated clothing and wash before re-using. Flush skin with water and then wash with soap and water. Seek medical attention if irritation persists.
IF INHALED:	Remove person from contaminated area to fresh air and assist breathing as needed. Seek medical attention if irritation occurs.
IF INGESTED:	Seek medical attention or call a poison control center for treatment advice. Do not induce vomiting unless instructed to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Note to Physician: Treat symptomatically	
Most important symptoms/effects, acute and delayed: Respiratory irritation	

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water fog, foam, dry chemical, carbon dioxide (CO₂), water spray

Unsuitable Extinguishing Media: None known

Hazardous Combustion Products: Thermal decomposition may include toxic and hazardous oxides of carbon, nitrogen and zinc.

Special Protective Equipment & Precautions: Wear NIOSH/MSHA approved self-contained breathing apparatus and full bunker gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Avoid breathing vapors; keep upwind.

Unusual Fire & Explosion Hazards: Closed containers may explode from vapor expansion in high heat.

SECTION 6: ACCIDENTAL RELEASE MEASURES
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Personal Precautions: See Section 8 for personal protection equipment.

Environmental Precautions: Do not allow spilled product to enter sewers or waterways.

Methods for Containment: Contain spilled product by diking area with sand or earth.

Methods for Clean-up: Cover contained spill with an inert absorbent material such as sand, vermiculite or other appropriate material. Vacuum, scoop or sweep up material and place in a container for disposal. Do not place spilled material back in original container.

Other Information: None known

SECTION 7: HANDLING AND STORAGE

Handling: Ensure adequate ventilation during handling and use. Immediately clean up spills that occur during handling. Keep containers closed when not in use. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Storage: Store in a secured area away from children, feed and food products. Store in original container only and in a cool, well-ventilated dry place above the minimum storage temperature.

Storage Temperature (Min/Max): 40°F

Product Incompatibilities: Strong bases, acids and oxidizers.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

COMPONENT	OSHA PEL	ACGIH TLV	NIOSH REL
Nuisance particulate (liquefied mist)		10 mg/m ³ TWA	
Copper carbonate			1.0 mg/m ³ TWA
Manganese carbonate	5 mg/m ³ CEIL	0.02 mg/m ³ TWA	1.0 mg/m ³ TWA 3.0 mg/m ³ ST

Respiratory Protection: For most well-ventilated conditions, no respiratory protection should be needed. If airborne concentrations exceed permissible levels or if a pre-existing respiratory condition exists, use a NIOSH approved air-purifying respirator with cartridges/canisters approved for general particulates.

Eye Protection: Wear chemical goggles or safety glasses and full face shield. Contact lenses are not protective eye devices.

Protective Gloves: Wear chemically protective gloves.

Other Protective Clothing: Wear long-sleeve shirt, long pants and shoes plus socks to prevent skin contact.

General Safety Measures: Never eat, drink, nor use tobacco in work areas. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown-green liquid	Upper/Lower Flammability Limits:	Not determined
Odor:	Not determined	Vapor Pressure:	Not determined
Odor Threshold:	Not determined	Vapor Density:	Not determined
pH:	8.5 -10.5	Relative Density:	1.92 – 1.94
Melting /Freezing Point:	Not determined	Solubility (water):	Soluble
Boiling Point/Range:	>212°F (>100°C)	Partition Coefficient:	Not determined
Flash Point:	Not combustible	Auto-ignition Temperature:	Not determined
Evaporation Rate:	Not determined	Decomposition Temperature:	Not determined
Flammability:	Not applicable	Viscosity:	Not determined

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Contact with strong oxidizers may result in a fire.

Chemical Stability: Stable under normal storage and handling conditions.

Possibility of Hazardous Reactions: Will not occur

Conditions to Avoid: Excessive heat

Incompatible Materials: Strong bases, acids and oxidizers.

Hazardous Decomposition Products: Thermal decomposition may include toxic and hazardous oxides of carbon, nitrogen and zinc.

Engineering Controls: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

SECTION 11: TOXICOLOGICAL INFORMATION
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Symptoms of Exposure:	Respiratory irritation
Oral LD₅₀:	>5,000 mg/kg (Estimated based upon component data)
Dermal LD₅₀:	Not determined
Inhalation LC₅₀:	Not determined
Eye Irritation/Damage:	Not anticipated to cause eye irritation based upon component data.
Skin Corrosion/Irritation:	Not anticipated to cause skin irritation based upon component data.
Skin Sensitization:	Not anticipated to be a skin sensitizer based upon component data.
Chronic/Sub-chronic Toxicity:	No data available
Mutagenicity:	No data available
Reproductive Toxicity:	No data available
Neurotoxicity:	No data available
Target Organs:	Respiratory tract
Aspiration Hazard:	No data available
Carcinogenicity:	

Likely Routes of Exposure: Eye contact, Skin contact, Inhalation, Ingestion

Chemical Name	ACGIH	IARC	NTP	OSHA
None listed				

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Fish Toxicity: Not determined
Aquatic Invertebrate Toxicity: Not determined
Aquatic Plant Toxicity: Not determined
Avian Toxicity: Not determined
Honeybee Toxicity: Not determined

ENVIRONMENTAL

EFFECTS:

Persistence and Degradability: Not determined
Bioaccumulation: Not determined
Mobility: Not determined
Other Adverse Effects: Not determined

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of in accordance with applicable Federal, state and local laws and regulations.
Container Disposal: Triple rinse and recycle the container or dispose of in accordance with Federal, state and local laws and regulations.
RCRA Characteristics: It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

SECTION 14: TRANSPORTATION INFORMATION

DOT This product is not regulated by the U.S. Department of Transportation as a hazardous material
(Ground): for ground shipment.

IMDG
(Sea): This product is not regulated by the IMDG as a hazardous material for shipment by sea.

IATA
(Air): This product is not regulated by the IATA as a hazardous material for shipment by air.

SECTION 15: REGULATORY INFORMATION

TSCA Inventory: All components are either listed or exempt from listing on the TSCA inventory.

SARA Title III Information:

Section 302 – Extremely hazardous substances: None listed

Section 311/312 – Hazard Categories: Immediate (acute), Delayed (chronic)

Section 313 – This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %
Zinc compounds	N982	40.0 – 45.0%
Manganese compounds	N450	21.0 – 27.0%
Copper compounds	N100	3.0 – 8.0%

CERCLA – This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Chemical Name	CAS Number	RQ	Quantity of Finished Product
None listed			

CALIFORNIA PROPOSITION 65:

Chemical Name	CAS Number	Prop 65 Category(ies)
None listed		

U.S. STATE RIGHT-TO-KNOW REGULATIONS:

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Zinc oxide	X	X	X
Manganese compounds	X		X
Copper compounds	X		X

SECTION 16: OTHER INFORMATION

NFPA	Health Hazards 2	Flammability 1	Instability 0	Special Hazards – None
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