

SAFETY DATA SHEET

Issuing Date 26-Mar-2024

Revision Date 26-Mar-2024

Revision Number 1

NGHS / English



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1. IDENTIFICATION

Product identifier

Product Name SeedFlare

Other means of identification

Product Code(s) 1785681

Recommended use of the chemical and restrictions on use

Recommended Use Fertilizer

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Identification Advancing Eco Agriculture

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2. HAZARDS IDENTIFICATION

Classification

Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1B



Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

Appearance Bronze**Physical state** Liquid**Odor** Tar like**GHS Label elements, including precautionary statements****Danger****Hazard statements**

May cause allergy or asthma symptoms or breathing difficulties if inhaled
 May cause an allergic skin reaction
 Suspected of causing genetic defects
 May cause cancer
 May damage fertility or the unborn child
 Causes damage to organs
 May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements - Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Wear protective gloves/protective clothing/eye protection/face protection
 In case of inadequate ventilation wear respiratory protection
 Contaminated work clothing must not be allowed out of the workplace
 Do not breathe dust/fume/gas/mist/vapors/spray
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product

Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label)
 IF exposed: Call a POISON CENTER or doctor

Skin

IF ON SKIN: Wash with plenty of water and soap
 If skin irritation or rash occurs: Get medical advice/attention
 Wash contaminated clothing before reuse

Inhalation

IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing
 If experiencing respiratory symptoms: Call a POISON CENTER or doctor

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other information

Causes mild skin irritation. Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity 9.07 % of the mixture consists of ingredient(s) of unknown toxicity
 9.07 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
 9.07 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
 9.07 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
 9.07 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
 9.07 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable.

Mixture

Chemical name	CAS No	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Cobalt sulfate	10124-43-3	2.74	-	-
Citric acid	77-92-9	1.67	-	-
Manganese sulfate monohydrate	10034-96-5	1.37	-	-
Sodium molybdate dihydrate	10102-40-6	1.35	-	-
Ferrous sulfate heptahydrate	7782-63-0	1.31	-	-
Zinc sulfate, monohydrate	7446-19-7	0.9	-	-
Copper(II) sulfate pentahydrate (1:1:5)	7758-99-8	0.45	-	-

4. FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Skin contact Wash with soap and water. May cause an allergic skin reaction. Wash off immediately with plenty of water for at least 15 minutes. If symptoms persist, call a physician.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or

clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact.
Hazardous Combustion Products	Carbon oxides.
Explosion Data	
Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
Other Information	Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling



Advice on safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure Limits**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH	
Cobalt sulfate 10124-43-3	TWA: 0.02 mg/m ³ Co inhalable particulate matter	-		
Manganese sulfate monohydrate 10034-96-5	TWA: 0.02 mg/m ³ Mn respirable particulate matter TWA: 0.1 mg/m ³ Mn inhalable particulate matter	(vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn	
Sodium molybdate dihydrate 10102-40-6	TWA: 0.5 mg/m ³ Mo respirable particulate matter	TWA: 5 mg/m ³ Mo (vacated) TWA: 5 mg/m ³ Mo	IDLH: 1000 mg/m ³ Mo	
Ferrous sulfate heptahydrate 7782-63-0	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe	
Copper(II) sulfate pentahydrate (1:1:5) 7758-99-8	TWA: 1 mg/m ³ Cu dust and mist	-	IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist	
Chemical name	Alberta	British Columbia	Ontario TWAEV	Quebec
Cobalt sulfate 10124-43-3	TWA: 0.02 mg/m ³	TWA: 0.02 mg/m ³	TWA: 0.02 mg/m ³	TWA: 0.02 mg/m ³
Manganese sulfate monohydrate 10034-96-5	TWA: 0.2 mg/m ³	TWA: 0.2 mg/m ³ TWA: 0.02 mg/m ³	TWA: 0.02 mg/m ³ TWA: 0.1 mg/m ³	TWA: 0.2 mg/m ³
Sodium molybdate dihydrate 10102-40-6	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³
Ferrous sulfate heptahydrate 7782-63-0	TWA: 1 mg/m ³	TWA: 1 mg/m ³ STEL: 2 mg/m ³	TWA: 1 mg/m ³	TWA: 1.0 mg/m ³

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters.

Appropriate engineering controls**Engineering controls**

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand protection	Wear suitable gloves.
Skin and body protection	Wear suitable protective clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Bronze
Odor	Tar like
Color	No information available
Odor Threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks Method</u>
pH	3	
Melting / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	1.054	
Water Solubility	Mostly soluble	
Solubility(ies)	No data available	None known
Partition coefficient: n-octanol/water	Not Applicable	
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	8000	

Other Information

Explosive properties	No information available
Oxidizing properties	No information available
Softening Point	No information available
Molecular Weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk Density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

10. STABILITY AND REACTIVITY

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to avoid	None known based on information supplied.
Incompatible materials	None known based on information supplied.
Hazardous Decomposition Products	Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components).
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. May cause sensitization by skin contact. (based on components). Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
Ingestion	Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation".

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives.
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Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	8,078.20 mg/kg
ATEmix (inhalation-dust/mist)	374.25 mg/L

Unknown acute toxicity	9.07 % of the mixture consists of ingredient(s) of unknown toxicity
	9.07 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
	9.07 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
	9.07 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
	9.07 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
	9.07 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Product Information

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Cobalt sulfate	= 424 mg/kg (Rat)	-	-

Citric acid	= 3 g/kg (Rat)	> 2000 mg/kg (Rat)	-
Copper(II) sulfate pentahydrate (1:1:5)	= 960 mg/kg (Rat)	> 8 g/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

- Skin corrosion/irritation** No information available.
- Serious eye damage/eye irritation** No information available.
- Respiratory or skin sensitization** May cause sensitization by inhalation. May cause sensitization by skin contact.
- Germ cell mutagenicity** Contains a known or suspected mutagen. Classification based on data available for ingredients. Suspected of causing genetic defects.
- Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Cobalt sulfate 10124-43-3	A3	Group 2B	Reasonably Anticipated	X
Sodium molybdate dihydrate 10102-40-6	A3	-	-	-

Legend

- ACGIH (American Conference of Governmental Industrial Hygienists)**
A3 - Animal Carcinogen
- IARC (International Agency for Research on Cancer)**
Group 2B - Possibly Carcinogenic to Humans
- NTP (National Toxicology Program)**
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
- OSHA (Occupational Safety and Health Administration of the US Department of Labor)**
X - Present

- Reproductive toxicity** Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.
- STOT - single exposure** Based on the classification criteria of the Globally Harmonized System as adopted in the country or region with which this safety data sheet complies, this product has been determined to cause systemic target organ toxicity from acute exposure. (STOT SE). Causes damage to organs.
- STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure.
- Aspiration hazard** No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Cobalt sulfate	72h EC50: 0.4 - 72 mg/L (Pseudokirchneriella subcapitata)	No data available	No data available	No data available



Citric acid	No data available	96h LC50: = 1516 mg/L (Lepomis macrochirus)	No data available	No data available
Copper(II) sulfate pentahydrate (1:1:5)	No data available	96h LC50: 0.09 - 0.19 mg/L (Oncorhynchus mykiss) 96h LC50: 0.1478 - 0.165 mg/L (Oncorhynchus mykiss) 96h LC50: 0.66 - 1.15 mg/L (Lepomis macrochirus) 96h LC50: 0.96 - 1.8 mg/L (Lepomis macrochirus) 96h LC50: = 0.6752 mg/L (Pimephales promelas)	EC50 < 0.25 mg/L 30 min EC50 = 0.25 mg/L 15 min EC50 = 1.3 mg/L 5 min	48h EC50: 0.147 - 0.227 mg/L (Daphnia magna)

Persistence and Degradability No information available.

Bioaccumulation

Component Information

Chemical name	Partition coefficient
Citric acid	-1.72

Mobility No information available.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

California Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Cobalt sulfate 10124-43-3	Toxic
Zinc sulfate, monohydrate 7446-19-7	Toxic
Copper(II) sulfate pentahydrate (1:1:5) 7758-99-8	Toxic

14. TRANSPORT INFORMATION

DOT NOT REGULATED
Proper Shipping Name NON-REGULATED



Hazard Class	N/A
TDG	Not applicable
MEX	Not applicable
ICAO	Not applicable
IATA	Not applicable
Proper Shipping Name	NON REGULATED
Hazard Class	N/A
IMDG/IMO	Not applicable
Hazard Class	N/A
RID	Not applicable
ADR	Not applicable
ADN	Not applicable

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AICS	Contact supplier for inventory compliance status.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). 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 No	Weight-%	SARA 313 - Threshold Values %
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Cobalt sulfate - 10124-43-3	10124-43-3	2.74	0.1
Manganese sulfate monohydrate - 10034-96-5	10034-96-5	1.37	1.0
Zinc sulfate, monohydrate - 7446-19-7	7446-19-7	0.9	1.0
Copper(II) sulfate pentahydrate (1:1:5) - 7758-99-8	7758-99-8	0.45	1.0

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ferrous sulfate heptahydrate 7782-63-0				X
Zinc sulfate, monohydrate 7446-19-7		X		
Copper(II) sulfate pentahydrate (1:1:5) 7758-99-8		X		

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Citric acid 77-92-9			RQ Section number 180.950
Ferrous sulfate heptahydrate 7782-63-0	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
Cobalt sulfate - 10124-43-3	carcinogen, 5/20/2005

U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Cobalt sulfate 10124-43-3	X		X	X	X
Manganese sulfate monohydrate 10034-96-5	X		X	X	X
Ferrous sulfate heptahydrate 7782-63-0		X	X	X	
Zinc sulfate, monohydrate	X		X	X	



7446-19-7					
Copper(II) sulfate pentahydrate (1:1:5) 7758-99-8	X		X	X	

16. OTHER INFORMATION

NFPA Health hazards 3 Flammability 0 Instability 0 Physical and Chemical Properties -
HMIS Health hazards 3 * Flammability 0 Physical hazards 0 Personal Protection X
 Chronic Hazard Star Legend * = Chronic Health Hazard

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Issuing Date 26-Mar-2024

Revision Date 26-Mar-2024

Revision Note No information available

Disclaimer
 The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

