

MATERIAL SAFETY DATA SHEET (MSDS)

More Flowers & Fruits (MF&F)

Revision Date: 31 December 2025Revision Number: 1

SECTION 1: Identification of the substance/mixture and of the company

Product identifier

Item	Details
Product name	Liquid Seaweed Extract with Boron and Molybdenum (Foliar Fertilizer)
CBnumber	Not Applicable
CAS Number	Mixed Product (See Section 3 for component CAS Numbers)
EINECS Number	Mixed Product (See Section 3 for component EC Numbers)
Synonyms	Seaweed-Boron-Molybdenum Liquid Fertilizer; Foliar Nutrient Solution

Relevant identified uses of the substance or mixture and uses advised against

Category	Details
Relevant identified uses	Agricultural foliar fertilizer for enhancing plant nutrition, promoting growth, and improving stress resistance in crops.
Uses advised against	Not for human consumption, animal feed, medicinal, or household use. Do not use in food processing or drinking water systems.

Company Identification

Item	Details
Company Name	Shaanxi Agrinorm Import & Export Co., Ltd.
Address	Room 1801, Unit 4, Building 1, Shangfu North District, Yicui Garden, No. 31, Zhangba 2nd Road, Xi'an High-Tech Zone, Xi'an, Shaanxi, China
Telephone	+86-029-81131922
Email	info@agrinorm.com.cn
WhatsApp	+86-18009239676
Official Websites	https://www.agrinormgroup.com ; https://agrinorm.en.alibaba.com

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Category	Details
GHS Symbol	None
GHS Classification	Not classified as hazardous under GHS criteria (agricultural fertilizer, low acute toxicity).
Precautionary statements	P264: Wash hands thoroughly after handling. P273: Avoid release to the environment. P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Category	Details
	P312: Call a poison center or doctor/physician if you feel unwell.
	H315: May cause skin irritation.
Hazard statements	H319: May cause eye irritation.
	H400: May be toxic to aquatic life.

SECTION 3: Composition/information on ingredients

Mixture Components

Item	Details
Component 1	Product name: Ascophyllum nodosum Extract (Seaweed Extract)
	Synonyms: 泡叶藻提取物
	CAS Number: 9005-38-3
	EC Number: 232-680-6
	Concentration: 160 g/L
Component 2	Harmful Impurities: None
	Product name: Water-soluble Boron (as B ₂ O ₃)
	Synonyms: 水溶性硼
	CAS Number: 1303-86-2
	EC Number: 215-125-8
Component 3	Concentration: 118 g/L
	Harmful Impurities: None
	Product name: Water-soluble Molybdenum (as MoO ₃)
	Synonyms: 水溶性钼
	CAS Number: 1313-27-5
Component 4	EC Number: 215-204-7
	Concentration: 9 g/L
	Harmful Impurities: None
	Product name: Water (Carrier)Synonyms: Deionized Water
	CAS Number: 7732-18-5
	EC Number: 231-791-2
	Concentration: Balance
	Harmful Impurities: None

SECTION 4: First aid measures

Description of first aid measures

Exposure Route	First Aid Actions
If inhaled	Move the person to fresh air. Allow the person to rest in a comfortable position. If breathing difficulty occurs, seek immediate medical attention.
In case of skin contact	Remove contaminated clothing immediately. Wash the affected area thoroughly with mild soap and plenty of running water for at least 15 minutes. If irritation persists, consult a physician.
In case of eye	Hold eyelids open and flush eyes continuously with clean, lukewarm water for 15-20

Exposure Route	First Aid Actions
contact	minutes. Remove contact lenses if present and easy to do. Do not rub eyes. Seek medical advice if irritation, redness, or blurred vision persists. Do not induce vomiting unless directed by a physician or poison control center.
If swallowed	Rinse mouth with water. Give 1-2 glasses of water to drink (if the person is conscious and able to swallow). Seek emergency medical help immediately and provide this MSDS to the attending physician.

Most important symptoms and effects, both acute and delayed

- Acute effects: Mild skin/eye irritation; gastrointestinal discomfort (nausea, abdominal pain) if ingested.
- Delayed effects: No known delayed adverse effects under normal handling and use conditions.

Indication of any immediate medical attention and special treatment needed

- Consult a physician promptly. Provide a copy of this MSDS to the attending medical professional for reference.
- No specific antidote; treat symptoms symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Category	Details
Suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical powder, or carbon dioxide (CO ₂).
Special hazards arising from the substance/mixture	Under extreme fire conditions, thermal decomposition may release non-toxic vapors (boron oxides, molybdenum oxides, and water vapor). No explosive or flammable hazards.

Advice for firefighters

- Wear self-contained breathing apparatus (SCBA) and full protective clothing (fire-resistant suit, gloves, boots) if extinguishing large fires or dealing with prolonged exposure.
- Cool adjacent containers with water spray to prevent pressure buildup and potential leakage.
- Avoid direct contact with fire-extinguishing runoff, as it may contain concentrated nutrients that could harm aquatic life.

Further information

NFPA 704 Rating	Details
HEALTH (Blue)	1 - Slight health hazard; irritation on contact.
FIRE (Red)	0 - Non-combustible; will not burn under typical fire conditions.
REACTIVITY (Yellow)	0 - Normally stable, even under fire exposure; non-reactive with water.
SPECIFIC HAZARD (White)	None

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

- Avoid direct contact with the spilled material. Wear appropriate personal protective equipment (see Section 8: safety goggles, nitrile gloves, protective apron).

- Prevent inhalation of mist or vapors; work in well-ventilated areas.

Environmental precautions

- Contain the spill immediately to prevent runoff into sewers, waterways, soil, or drainage systems.
- Do not allow the spilled material to enter lakes, rivers, streams, or groundwater.
- If accidental release to the environment occurs, notify local environmental authorities as required by regulations.

Methods and materials for containment and cleaning up

- For small spills: Absorb with inert, non-combustible materials (e.g., vermiculite, sand, diatomaceous earth). Transfer the absorbed material to sealed, labeled containers for proper disposal.
- For large spills: Dike the affected area to contain the spill. Pump the spilled liquid into suitable, corrosion-resistant containers for disposal. Flush the area with a small amount of water only after containment is complete, and collect the wash water for disposal.

Reference to other sections

- For disposal of spilled material and contaminated cleanup materials, refer to Section 13.
- For personal protective equipment, refer to Section 8.

SECTION 7: Handling and storage

Precautions for safe handling

- Use in well-ventilated areas. Avoid splashing, spraying, or generating mist.
- Wash hands, face, and any exposed skin thoroughly with soap and water after handling.
- Do not eat, drink, smoke, or apply cosmetics while handling the product.
- Avoid contact with incompatible materials (see Section 10).
- Use appropriate equipment (e.g., plastic or stainless-steel containers) for mixing or transferring the product.

Conditions for safe storage, including any incompatibilities

- Store in original, tightly sealed containers in a cool, dry, well-ventilated area.
- Recommended storage temperature: 5 – 30 ° C (41 – 86 ° F). Protect from direct sunlight and extreme temperatures (do not freeze or expose to temperatures above 40 ° C).
- Keep containers upright to prevent leakage.
- Do not store with strong acids, strong bases, oxidizing agents, or reducing agents.
- Keep away from food, feed, and drinking water supplies.
- Shelf Life: 24 months from the production date when stored unopened under recommended conditions.

Specific end use(s)

- Limited to agricultural foliar application as specified in Section 1. No other intended uses.

SECTION 8: Exposure controls/personal protection

Control parameters

Hazard composition and occupational exposure limits	Details
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Boron (as B ₂ O ₃)	OSHA TWA: 10 mg/m ³ ; ACGIH TWA: 10 mg/m ³
Molybdenum (as MoO ₃)	OSHA TWA: 5 mg/m ³ ; ACGIH TWA: 5 mg/m ³
Seaweed Extract	No established occupational exposure limits

Exposure controls

Category	Details
Appropriate engineering controls	Implement general industrial hygiene practices. Ensure adequate ventilation (natural or mechanical) to minimize mist or vapor accumulation in work areas. Use local exhaust ventilation if mixing or transferring large volumes.
Personal protective equipment (PPE)	- Eye/face protection: Wear safety goggles or a face shield tested and approved to NIOSH (US) or EN 166 (EU) standards to prevent splashes. - Skin protection: Wear nitrile rubber gloves (minimum layer thickness: 0.11 mm, breakthrough time: ≥ 480 min) complying with Regulation (EU) 2016/425 and EN 374:2016. Wear a chemical-resistant apron or protective suit if handling large quantities. - Body protection: Wear a lab coat or chemical-resistant coverall suitable for liquid exposure. - Respiratory protection: Not required under normal handling conditions. For high mist/vapor levels, use a N95 (US) or P1 (EN 143) respirator approved to NIOSH or CEN standards.
Control of environmental exposure	Avoid release to the environment. Implement spill containment measures (e.g., secondary containment trays) in storage and handling areas.

Note

- Inspect PPE before each use. Replace damaged or contaminated PPE immediately. Dispose of used PPE in accordance with local regulations.
- For use in solutions or mixed with other substances, consult the PPE supplier for compatibility and CE-approved options.

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Property	Details
Appearance	Dark brown to amber liquid; homogeneous
Odour	Characteristic earthy/seaweed odor; mild and non-offensive
Odour Threshold	No data available
pH (undiluted, 25 °C)	7.0 - 9.0
Melting point/freezing point	$\sim 0^{\circ}\text{C}$ (water-based; may form ice crystals below 0°C)
Initial boiling point and boiling range	$\sim 100^{\circ}\text{C}$ (atmospheric pressure; water-based)
Flash point	$> 100^{\circ}\text{C}$ (non-flammable)
Evaporation rate	Similar to water (slow)
Flammability (liquid, gas)	Non-flammable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	Negligible (≈ 23.3 hPa at 20°C , equivalent to water)
Vapour density	> 1 (heavier than air, based on water vapor)

Property	Details
Relative density	1.33 g/cm ³ (20°C)
Water solubility	Fully miscible with water
Partition coefficient (n-octanol/water)	No data available
Autoignition temperature	Not applicable (non-flammable)
Decomposition temperature	>200°C (may decompose to release boron/molybdenum oxides)
Viscosity	Moderate (≈10-20 mPa·s at 20°C)
Explosive properties	Not explosive
Oxidizing properties	Not oxidizing

Other safety information

· Above data are typical values based on product formulation and testing. Minor variations may occur within acceptable quality control limits.

SECTION 10: Stability and reactivity

Reactivity

· No significant reactivity under normal handling and storage conditions.

Chemical stability

· Stable when stored and handled in accordance with Section 7.

Possibility of hazardous reactions

· No hazardous reactions are expected under recommended use and storage conditions.

Conditions to avoid

· Extreme temperatures (freezing <0 ° C or >40 ° C), direct sunlight, and contact with incompatible materials.

Incompatible materials

- Strong acids (may release toxic gases or cause pH imbalance).
- Strong oxidizing agents and reducing agents (may cause chemical decomposition).

Hazardous decomposition products

· Under extreme fire or high-temperature conditions: Boron oxides, molybdenum oxides, and water vapor.

· No other hazardous decomposition products are known.

SECTION 11: Toxicological information

Information on toxicological effects

Category	Details
Acute toxicity	- Oral LD ₅₀ (rat): >2000 mg/kg (non-toxic per GHS criteria)- Dermal LD ₅₀ (rabbit): >2000 mg/kg (non-toxic per GHS criteria)- Inhalation LC ₅₀ (rat, 4h): >5 mg/L (non-toxic per GHS criteria)
Skin corrosion/irritation	Mild skin irritation (rabbit test): Reversible redness within 72 hours.
Serious eye damage/eye irritation	Mild eye irritation (rabbit test): Temporary redness and tearing; reversible within 72 hours.
Respiratory or skin	No data available; seaweed extract and trace elements are not known to be

Category	Details
sensitisation	sensitizers.
Germ cell mutagenicity	No data available; no components are classified as mutagenic.
Carcinogenicity	IARC: No component present at $\geq 0.1\%$ is classified as a probable, possible, or confirmed human carcinogen.
Reproductive toxicity	No data available; boron at high concentrations may cause reproductive effects, but exposure levels under normal use are below critical thresholds.
Specific target organ toxicity - single exposure	No known target organ effects from single exposure.
Specific target organ toxicity - repeated exposure	Prolonged or repeated inhalation of high concentrations may cause respiratory tract irritation. Prolonged skin contact may cause chronic irritation.
Aspiration hazard	No aspiration hazard (liquid is not viscous and has low volatility).
Additional Information	RTECS Numbers: Boron (B_2O_3): ED1925000; Molybdenum (MoO_3): OA4550000; Seaweed Extract: Not assigned. Note: Toxicological data is based on component testing and industry standards; full product toxicity testing has not been conducted.

SECTION 12: Ecological information

Toxicity

- Aquatic Toxicity:
- Boron (B_2O_3): LC_{50} (fish, 96h): 10-20 mg/L (toxic to aquatic life at high concentrations)
- Molybdenum (MoO_3): LC_{50} (fish, 96h): 5-10 mg/L (toxic to aquatic life at high concentrations)
- Seaweed Extract: Low aquatic toxicity; biodegradable.

Persistence and degradability

- Seaweed Extract: Biodegradable in soil and water (90% degradation within 28 days under aerobic conditions).
- Boron and Molybdenum: Persistent in the environment but may be adsorbed to soil particles, reducing bioavailability.

Bioaccumulative potential

- Low potential for bioaccumulation (boron and molybdenum are not lipophilic; do not accumulate in fatty tissues of organisms).

Mobility in soil

- Boron: Moderately mobile in soil; may leach to groundwater in sandy soils with high rainfall.
- Molybdenum: Low mobility in soil; strongly adsorbed to clay and organic matter.

Results of PBT and vPvB assessment

- This substance/mixture contains no components considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of $\geq 0.1\%$.

Other adverse effects

- No known long-term adverse effects on terrestrial ecosystems when used as directed. Avoid excessive application to soil or direct release to water bodies.

SECTION 13: Disposal considerations

Waste treatment methods

Category	Details
Product	Classified as non-hazardous agricultural waste (per local/regional regulations). Dispose of surplus or expired product through licensed waste disposal companies. Do not discharge directly to waterways, sewers, or soil. Comply with local, regional, and national environmental regulations for waste disposal.
Contaminated packaging	Rinse containers thoroughly with water (collect rinse water for disposal with the product). Dispose of rinsed packaging as non-hazardous solid waste or recycle if local facilities allow. Do not reuse contaminated packaging for food, feed, or other non-industrial purposes.

SECTION 14: Transport information

Item	ADR/RID	IMDG	IATA
UN number	Not Regulated	Not Regulated	Not Regulated
UN proper shipping name	Liquid Agricultural Fertilizer (non-hazardous)	Liquid Agricultural Fertilizer (non-hazardous)	Liquid Agricultural Fertilizer (non-hazardous)
Transport hazard class(es)	-	-	-
Packaging group	-	-	-
Environmental hazards	No (Marine Pollutant)	No (Marine Pollutant)	No
Special precautions for user	Avoid rough handling; protect containers from damage, freezing, and direct sunlight. Do not mix with food, feed, or hazardous materials during transport. Ensure containers are tightly sealed to prevent leakage.		

Additional note

• UN Class: Not regulated as dangerous goods under international transport regulations (ADR/RID, IMDG, IATA). Follow local transport requirements for agricultural fertilizers.

SECTION 15: Regulatory information

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

Regulation/Inventory	Status & Details
Regulations on the Safety Management of Hazardous Chemicals (China)	Not listed in the China Catalog of Hazardous Chemicals (2015). Website: https://www.mem.gov.cn/
Chinese Chemical Inventory of	All components are listed. Website: https://www.mee.gov.cn/

Regulation/Inventory	Status & Details
Existing Chemical Substances (China IECSC)	
European Inventory of Existing Commercial Chemical Substances (EINECS)	All components are listed. Website: https://echa.europa.eu/
United States Toxic Substances Control Act (TSCA) Inventory	All components are listed. Website: https://www.epa.gov/
Canada Chemical Substances Inventory (DSL)	All components are listed. Website: https://www.canada.ca/en/environment-climate-change/services/chemicals-management.html
Korea Existing Chemicals List (KECL)	All components are listed. Website: http://ncis.nier.go.kr
REACH (EU)	Complies with REACH regulation; no SVHCs (Substances of Very High Concern) present at $\geq 0.1\%$. Website: https://echa.europa.eu/

SECTION 16: Other information

Abbreviations and acronyms

Abbreviation	Full Name
CAS	Chemical Abstracts Service
EC	European Community
EINECS	European Inventory of Existing Commercial Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LD ₅₀	Lethal Dose 50%
LC ₅₀	Lethal Concentration 50%
TWA	Time Weighted Average
STEL	Short Term Exposure Limit
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulation concerning the International Carriage of Dangerous Goods by Rail
IMDG	International Maritime Dangerous Goods Code
IATA	International Air Transportation Association
PPE	Personal Protective Equipment

References

- CAMEO Chemicals Website: <http://cameochemicals.noaa.gov/search/simple>
- ECHA - European Chemicals Agency: <https://echa.europa.eu/>
- OECD eChemPortal: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- OSHA Hazard Communication Standard (HazCom 2012): <https://www.osha.gov/hazcom>
- ILO International Chemical Safety Cards (ICSC): <http://www.ilo.org/dyn/icsc/showcard.home>

Disclaimer

- The information contained in this MSDS is based on current knowledge and data available at the time



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of preparation. It is intended solely for the safe handling, storage, and use of the specified product.

- This MSDS applies only to the undiluted product. If the product is mixed with other substances, the user is responsible for assessing the safety of the mixture.
- The manufacturer shall not be liable for any damages or injuries resulting from improper handling, storage, or use of the product, or from non-compliance with applicable regulations.
- Users must verify compliance with local, regional, and national laws and regulations before using, storing, or transporting the product.
- This MSDS is not a guarantee of product performance. For product application guidance, refer to the product label or contact the manufacturer.