BIOADVANCED SCIENCE-BASED SOLUTIONS 5-IN-1 WEED & FEED

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name BIOADVANCED SCIENCE-BASED SOLUTIONS 5-IN-1 WEED & FEED

Product code

EPA Registration No. 92564-75

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

Use Herbicide

Restrictions on use See product label for restrictions.

Information on manufacturer

SBM Life Science Corp.
1001 Winstead, Ste 500
Cary, NC 27513 United States

Emergency Telephone Number (24hr/ 7 days) 1-877-229-3763

Product Information Telephone Number 1-877-229-3724

SDS Information or Request SDS@sbm-company.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR 1910.1200-2012

Eye irritation : None

Skin irritation ; None

Signal word: None

Hazard statements
None

Precautionary statements
None

Other hazards
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
2,4-D (dichlorophenoxyacetic acid)	94-75-7	0.818%
Quinclorac	84087-01-4	0.419%
Dicamba (3,6-dichloro-o-anisic acid)	1918-00-9	0.073%
Dithiopyr	97886-45-8	0.240%
Dimethyl Sulfoxide	67-68-5	1.95%
Urea	57-13-6	20-40%
Potassium Sulfate	7778-80-5	1-10%

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Remove person to fresh air. If irritation occurs or symptoms develop, get medical attention.

Skin contact Wash with soap and water. If irritation develops and persists, get medical attention. Remove and contaminated clothing and launder it before reuse.

Eye contact Flush eyes with water while lifting the upper and lower lids. Remove contact lenses if present and easy to do, then continue rinsing. Get medical attention if irritation persists.

Ingestion Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to a person who is unconscious or convulsing. Get medical attention if large amount is swallowed.

Most important symptoms/effects, acute and delayed:

May cause mild eye irritation. Inhalation of dust may cause mild respiratory irritation. May be harmful if swallowed or in contact with skin. Ingestion may cause intestinal upset with nausea and vomiting.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is not generally required.

Risks None

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Use any media that is suitable for the surrounding fire.

Unsuitable None known.

Special hazards arising from the substance or mixture	Product is not flammable or combustible but may burn or decompose in a fire. Combustion products may be irritating and toxic
Advice for firefighters	Do not allow run-off from firefighting to enter drains or waterways.
Special protective equipment for fire-fighters	Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for all fires involving chemicals. Cool fire exposed containers with water.
Further information	not applicable
Flash point	no data available
Autoignition temperature	no data available
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Explosivity	no data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear appropriate protective clothing and equipment as described in Section 8. Isolate the area.
Environmental precaution	Prevent spill from entering sewers and water courses. Report releases as required by local and national authorities.

Methods and materials for containment and cleaning up

Methods for cleaning up	Sweep up or vacuum spilled material. Place in appropriate container for disposal.
Additional advice	None
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Avoid the generation of airborne dust. Avoid breathing dust. Wear long-sleeve shirt and long pants, socks, shoes, and gloves. Do not apply this product in a way that will contact any person or pet, either directly or through drift. Keep people and pets out of the area during application. Do not allow people or pets to enter the treated area until dusts have settled.

Hygiene measures	Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store as indicated on product packaging. Store in original container in a cool, dry place, out of the reach of children, preferably a locked storage cabinet. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

2,4-D (dichlorophenoxyacetic acid)	10 mg/m3 (inhalable) TWA ACGIH TLV 10 mg/m3 TWA OSHA PEL
Quinclorac	None Established
Dicamba (3,6-dichloro-o-anisic acid)	None Established
Dithiopyr	0.25 mg/m3 TWA
Dimethyl Sulfoxide	None Established
Urea	10 mg/m3 TWA AIHA WEEL 15 mg/m3 (total dust), 5 mg/m3 (respirable) TWA OSHA PEL
Potassium Sulfate	None Established

Exposure controls

Appropriate engineering controls: Use with adequate general or local exhaust ventilation to minimize exposure levels and maintain exposures below if the occupation exposure limits listed above

Personal protective equipment
For normal use, refer to the product label. In manufacturing and other cases, the following applies.

Respiratory protection	If exposure levels are excessive or irritation is experienced, a NIOSH approved particulate respirator is recommended. Selection of respiratory protection depends on the contaminant type, form and concentration. Select in accordance with OSHA 1910.134 and good Industrial Hygiene practice.
Hand protection	Impervious gloves such as rubber or nitrile recommended
Eye protection	Chemical safety goggles recommended if needed to avoid eye contact
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Suitable washing facilities should be available. There are no known hazards associated with this product when used according to the label directions. The following guidelines should be followed. Avoid breathing dust. Avoid contact with skin and eyes. Do not allow children or pets to enter the treated area until granules have been watered into the soil and the grass or soil is dry. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Physical State: Multicolored granule

Odor: Slightly pungent

Odor threshold: Not determined	**pH:** 3.89 (1% solution)
Melting point/freezing point: Not determined	**Boiling Point:** Not applicable
Flash point: Not applicable	**Evaporation rate:** Not applicable
Flammability (solid, gas): Not flammable	**VOC:** Not applicable
Flammable limits: LEL: Not applicable	**UEL:** Not applicable
Vapor pressure: Not applicable	**Vapor density:** Not applicable
Relative density: Not determined	**Solubility(ies):** Not determined
Partition coefficient: n-octanol/water: Not available	**Auto-ignition temperature:** Not available
Decomposition temperature: Not available	**Viscosity:** Not applicable
Bulk Density: 55.6 lbs/ft3	

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive under normal conditions of use.

Thermal decomposition: No data available.

Chemical stability: Stable.

Possibilities of hazardous reactions: None known.

Conditions to avoid: None known.

Incompatible materials Avoid oxidizing agents.

Hazardous decomposition products Thermal decomposition may yield carbon, sulfur, nitrogen, and potassium oxides, hydrogen cyanide, ammonia, cyanuric acid, formaldehyde and chlorine compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute effects of exposure

Exposure routes: Eye contact, Inhalation, Ingestion, Skin contact

Eye contact: Contact may cause mild irritation with redness and tearing. Minimal irritant in animal studies.

Skin contact: May cause minor irritation on prolonged contact. Non-irritating in animal studies.

Ingestion:	Swallowing may cause gastrointestinal distress with nausea and diarrhea and nervous system effects.
Inhalation:	Inhalation of dust may cause irritation of the mucous membranes and upper respiratory tract
Product Acute Toxicity Values:	LD50 oral rat >2000 mg/kg, LD50 dermal rat >2000 mg/kg; LC50 inhalation rat >2.12 mg/L (no mortalities at maximum concentration)
Sensitization:	Product did not cause sensitization in the LLNA test.
Chronic Effects:	Repeated overexposure to phenoxy herbicides may affect the liver, kidneys, blood chemistry, and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods. Repeated exposure to dicamba may cause liver changes or a decrease in body weight. Repeated exposure to quinclorac may affect the kidneys, liver and blood.
Germ Cell Mutagenicity:	Components are not germ cell mutagens. There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic. In vitro and in vivo tests with dicamba did not demonstrate mutagenic effects. Quinclorac was not mutagenic in various studies.
Carcinogenicity:	The International Agency for Research on Cancer (IARC) lists 2,4-D and exposure to chlorophenoxy herbicides as a class 2B carcinogen (see Monograph 113, 2016) – inadequate evidence in humans and limited evidence in laboratory animals. The U.S. EPA has given 2,4-D a Class D classification (not classifiable as to human carcinogenicity). Dicamba did not cause cancer in long-term animal studies. The U.S. EPA has given dicamba a Class D classification (not classifiable as to human carcinogenicity). Quinclorac was negative for carcinogenicity in laboratory animals.
OSHA:	None.
Reproductive/ Developmental Toxicity:	Ingredients are not reproductive toxins. No adverse reproductive effects have been observed in laboratory animal studies with 2,4-D. Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at maternally toxic doses. Dicamba did not interfere with fertility in reproduction studies or cause developmental effects in laboratory animals. Quinclorac did not cause developmental toxicity in rats but caused adverse effects in rabbits at maternally toxic doses.
Additional Information:	*Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).*

SECTION 12: ECOLOGICAL INFORMATION

Environmental precautions:	This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate. These chemicals (2,4-D, Quinclorac, and dicamba) have properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.
Biodegradability:	2,4-D is not readily biodegradable. Quinclorac and its metabolites are persistent (with half-life > 1 year under certain conditions).
Bioaccumulation:	No data available.
Mobility in soil:	2,4-D is very mobile in some soil types, and can contaminate ground water. Dicamba is highly mobile in soil, and moderately persistent with a soil half-life of 30-60 days depending on soil type and weather conditions. Quinclorac is mobile with the potential to contaminate ground water.
Other adverse effects:	None known

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods **Product**	It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines.Never place unused product down any indoor or outdoor drain. Call your local solid waste agency or toll free 1-800-331-2867 for disposal instructions. Never place unused product down any indoor or outdoor drain.
Contaminated packaging	Do not re-use empty containers. Place empty container in trash. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated			
TDG	None	Not Regulated			
IMDG	None	Not Regulated			
IATA	None	Not Regulated			

Transport in bulk (according to Annex II of MARPOL 73/78 and the **IBC Code**): Not applicable – product is transported only in packaged form.

Special precautions: None known.

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: COMPOUNDS, TREE OR WEED KILLING, N.O.I. other than poison, HAVING A DENSITY OF 20 LBS OR GREATER PER CUBIC FOOT

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 92564-75
US Federal Regulations
TSCA list
This product is a pesticide and not subject to TSCA
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.
SARA Title III - Section 302 - Notification and Information
None.

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

EPA/FIFRA Information:
This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.:

Signal word: Caution
Harmful is swallowed or absorbed through the skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeve shirt and long pants, socks, shoes, and gloves. Remove and wash contaminated clothing before reuse.

Environmental
CERCLA

The reportable quantity (RQ) of this product is 12,225 lbs based on the RQ of 2,4-D of 100 lbs. Many states have more stringent release reporting requirements. Report spills as required under federal, state and local regulations.

Clean Water Section 307 Priority Pollutants
None.

Safe Drinking Water Act Maximum Contaminant Levels
None.

International Regulations
European Inventory of Existing Commercial Substances (EINECS)
None.

SARA Hazard Category (311/312): Refer to Section 2 for the OSHA Hazard Classification

EPA SARA 313: This product contains the following chemicals regulated under SARA Title III, section 313:

2,4-D	0.818%
Dicamba	0.073%

SECTION 16: OTHER INFORMATION

NFPA Rating:

Health = 1	Flammability = 0	Instability = 0

HMIS Rating:

Health = 1	Flammability = 0	Physical Hazard = 0

This SDS has been prepared for occupational exposure. Consumers: Refer to the product labeling for appropriate consumer-specific information about this product when used according to manufacturer's directions. This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions.

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NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision:

Date of Previous Revision: Initial Revision

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are trademarks of SBM Life Science Corp.