



SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200; GHS 4th Revision

SECTION 1 IDENTIFICATION

Product Name **MICROCAT®-BE Bio-Energizer**

Identified uses Used to balance microbial ecosystems for bioremediation of water and soil for increased bio-oxidation.
Company Bioscience, Inc.
2201 Hangar Place, Suite 200
Allentown, PA 18109
Phone: (800) 627-3069
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Website <http://www.bioscienceinc.com>

SECTION 2 HAZARD IDENTIFICATION

Hazard Classification Category H-statement
5 May be harmful if swallowed (H303)

Hazard pictograms



Signal words Warning
Hazard statements May be harmful if swallowed (H303)
Precautionary statements Call a poison center or doctor if you feel unwell (P312)

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS#	OSHA Hazard	WT %	ACGIH		OSHA	
				TLV (TWA)	STEL	PEL (TWA)	STEL
Ammonium Nitrate	6484-52-2	Oxidizer; Eye, Skin & Respiratory Irritant; Blood toxin	37 +/- 3	None	None	None	None
Urea	57-13-6	Eye Irritant; Slight to Moderate Skin & Respiratory Irritant; Slightly Toxic by Chronic Dermal Contact & Inhalation, with Cardiovascular & Central Nervous system effects.	29 +/- 2	None AIHA WHEEL: 10 mg/m ³	None	None	None
Cobalt Chloride	7646-79-9	Eye, Skin & Respiratory Irritant; Toxic by Ingestion; Possible Human Carcinogen – IARC	0.13 +/- 0.02	0.02 mg/m ³ (as Co) (A3)	None	None	None

SECTION 4 FIRST-AID MEASURES

Eye In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower lids occasionally. Remove contact lenses, if worn. Get medical attention if irritation persists.

Skin In case of contact, flush skin with plenty of clean running water. Remove contaminated clothing and shoes and wash before reuse. If irritation occurs and persists, get medical attention.

Inhalation If inhaled, immediately move to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

Ingestion If large quantities of this product are swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIANS: Based on component information, this product is slightly toxic by ingestion. If a large amount is ingested, consideration should be given to carefully endoscopy as stomach or esophageal irritation may occur, with possible central nervous system effects following absorption into the blood stream. Careful gastric lavage with an endotracheal tube in place should be considered. Treat exposure symptomatically.

SECTION 5 FIRE-FIGHTING MEASURES

General Hazard Information	This product is an aqueous, slightly alkaline solution of organic and inorganic compounds with small amounts of mineral salts. The Uniform Fire Code health hazard classification for this product is: Irritant. It may produce hazardous decomposition products.
Suitable extinguishing media	Extinguishing media: Water fog, foam, CO2 or dry chemicals Use a water fog or spray to cool the containers exposed to the heat of a fire.
Specific hazards arising from the chemical	When heated to dryness and decomposition, it emits toxic Ammonia gas, chloride compounds, carbon dioxide, carbon monoxide, and nitrogen oxides with trace or ultra-trace toxic oxide amounts of iron, sulfur, manganese, magnesium, potassium, calcium, phosphorus, zinc, cobalt, boron, and sodium.
Special protective actions for fire-fighters	Fire fighters should wear full protective equipment, including self-contained breathing apparatus.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Release to Land	Wearing recommended protecting equipment and clothing, dike the spill and pick up the bulk of the liquid using pumps or vacuum truck for disposal in accordance with Federal, State and local regulations. Absorb the remaining liquid using sand, or commercially absorbent material; dispose as Federal, State and local requirements dictate. Flush the spill area with water; collect the rinsates for disposal as the regulations require. Note: This product contains Ammonium Nitrate, an oxidizing fertilizer. Do not allow this concentrated product to dry in contact with combustible organic materials or reducing agents as a reaction may occur, releasing heat and possibly toxic gasses.
Release to Water	Wear recommended protective equipment and clothing if contact with hazardous material can occur. Stop or divert water flow. Dike contaminated water and remove for disposal and/or treatment. As appropriate, notify all downstream users of possible contamination.

SECTION 7 HANDLING AND STORAGE

Conditions for safe storage, including any incompatibilities	Store in a cool, dry, well-ventilated area away from incompatible materials and products. Protect eyes, skin and clothing from contact with product. Wear recommended personal protective equipment when handling this product. Avoid breathing vapors or mists. Use with adequate ventilation. Do not take internally. Keep the containers tightly closed when not in use. Wash thoroughly after handling this product.
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SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Measures	Use a local or general, mechanical exhaust ventilation system capable of maintaining emissions, in the work area, above the ACGIH-TLV, AIHA WEEL or levels that may cause irritation.
Personal Safety Equipment	
Eye Protection	Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full facepiece respirator is worn. Note: Always consult the protective eyewear manufacturer's data when determining the suitability of protective eyewear prior to use.
Gloves	Wear Butyl Rubber, Neoprene or Natural Rubber gloves. Note: Always consult the glove manufacturer's permeation data when determining the suitability of gloves prior to use.
Clothing & Equipment	Wear a Butyl Rubber, Neoprene or Natural Rubber apron when handling this product. An eye wash station and safety shower should be available in the work area. Note: Always consult the clothing/equipment manufacturer's permeation data when determining the suitability of clothing/equipment prior to use.
Footwear	Wear Butyl Rubber, Neoprene or Natural Rubber boots. Note: Always consult the footwear manufacturer's permeation data when determining the suitability of footwear prior to use.
Respiratory protection	Respiratory protection is not normally required. If use creates mists or aerosols, or if an ACGIH-TLV is exceeded, a NIOSH approved full facepiece or half mask air-purifying cartridge respirator equipped with an organic vapor cartridge and a dust/mist pre-filter or supplied air is required. Note: Always consult the respirator manufacturer's data when determining the suitability of respiratory protective devices prior to use.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

BASIC PHYSICAL AND CHEMICAL PROPERTIES	
Appearance	Clear, brownish purple liquid
Odour	Slight, characteristic
Odour threshold	Information Not Available
pH (as is)	5.5-7.5
Melting point /Freezing Point	Less than 0° C (32° F)
Boiling point	Greater than 100° C (212° F)
Flash Point	Information Not Available
Evaporation rate (n-Butyl Acetate = 1)	Less than 1
Flammability (solid; gas)	Information Not Available
Upper/lower flammability or explosive limits	Information Not Available
Vapour pressure	Approximately equal to water
Vapour density	Information Not Available
Density (pounds/gallon)	Approximately 10.43
Solubility in H ₂ O	Soluble
Partition coefficient: n-octanol/water	Information Not Available
Auto-ignition temperature	Information Not Available
Decomposition temperature	Information Not Available
Viscosity	Information Not Available
Specific gravity	1.20 – 1.35 @ 20° C
% Volatile	Approximately 32
VOC Content/Organic Matter	Nil/9.46%

SECTION 10 STABILITY AND REACTIVITY

Reactivity	This product is stable and hazardous polymerization will not occur.
Possibility of hazardous reactions	Information Not Available
Conditions to avoid	Do not store this product below 50° F (10° C) or above 90° F (30° C)
Incompatible materials	Oxidizers, reducing agents, caustics & strong alkali and readily oxidized materials.
Hazardous decomposition products	When heated to dryness and decomposition, it emits toxic Ammonia gas and chloride compounds plus toxic oxides of carbon, nitrogen and cobalt with trace or ultra-trace toxic oxide amounts of iron, sulfur, manganese, magnesium, potassium, calcium, phosphorus, boron , zinc and sodium.

SECTION 11 TOXICOLOGICAL INFORMATION

Ammonium Nitrate	
Eye Contact	Information Not Available
Skin Contact	Information Not Available
Oral	Oral Rat LD ₅₀ (2,217 mg/kg)
Dermal	Information Not Available
Inhalation	Information Not Available
Human Data	Information Not Available
Other Toxicological Data	Information Not Available
Carcinogenicity	Information Not Available
Teratogenicity	Information Not Available
Mutagenicity	Information Not Available
Synergistic Products	Information Not Available
Target Organs	Eyes, Skin, Mucous membranes, Lungs & Blood
Medical Conditions Aggravated by Exposure	Skin or respiratory disorders
General Remarks	Information Not Available
Urea	
Eye contact	Information Not Available
Skin Contact	Information Not Available
Oral	Oral Rat LD ₅₀ : 8,471 mg/kg
Dermal	No data available (Rabbit, Subcutaneous LD ₅₀ : 3 gm/kg)
Inhalation	Information Not Available (Rat, Inhalation, Chronic – Multiple Dose, 288 mg/m ³ /17 weeks; Toxic effects: kidney, Ureter & Bladder – other changes in urine composition; Blood – Other changes; Nutritional and gross metabolic changes.)
Human Data	Dermal Human Standard Draize Test: 22 mg/3 days; Mild
Other Toxicological Data	Rat, Dermal, Chronic – Multiple Dose, 3, 024 mg/kg/4 weeks; Toxic effects: Liver – changes in liver weight; Endocrine – changes in Thymus weight; Death

Carcinogenicity	Oral Rat TD _{Lo} : 821 gm/kg/1 year; Tumerigenic – Neoplastic by RTECS criteria; Blood – Tumors; Blood – Lymphomax including Hodgkin’s disease.
Teratogenicity	Intraplacental Woman LD _{Lo} : 1,400 mg/kg (female 16 weeks pregnant); Effects on Fertility - Abortion
Mutagenicity	Human DNA Inhibition; lymphocyte; 600 mmol/Liter
Specific Organ Toxicity – Repeated Exposure	Information Not Available
Aspiration Hazard	Information Not Available
Target Organs	Eyes, Skin, Mucous membranes, Lungs, Cardiovascular & Central Nervous Systems
Medical Conditions Aggravated by Exposure	Skin, respiratory, or cardiac disorders

Cobalt Chloride	
Eye contact	Information Not Available
Skin Contact	Information Not Available
Oral	Oral Rat LD ₅₀ : 80 mg/kg
Dermal	No data available (Rabbit, Subcutaneous LD _{Lo} : 200 gm/kg)
Inhalation	Information Not Available
Human Data	Oral Child TD _{Lo} : 48 mg/kg; Toxic Effects; Behavioral – Anorexia (human); Endocrine – Thyroid (goiter)
Other Toxicological Data	Dermal Rat LD _{Lo} : 2 gm/kg; Toxic Effects: Nutritional and gross metabolic – Weight loss or decreased weight gain
Carcinogenicity	Subcutaneous Rat TD _{Lo} : 400 mg/kg/19 Days – I; Toxic Effects: Tumorigenic – Carcinogenic by RTECS criteria; Tumors at site of application
Teratogenicity	Oral Rat TD _{Lo} : 11 mg/kg (female 1-22 Days pregnant); Effects on Fertility – post-implantation mortality
Mutagenicity	Human DNA Inhibition, HeLa cell: 1 mmol/Liter
Specific Organ Toxicity – Repeated Exposure	Information Not Available
Aspiration Hazard	Information Not Available
Target Organs	Eyes, Skin, Mucous membranes & Lungs
Medical Conditions Aggravated by Exposure	Skin or respiratory disorders

SECTION 12 ECOLOGICAL INFORMATION

Environmental Fate	This product is completely soluble in water is not expected to affect the pH of water. No specific environmental fate data is available, but the organic portion of the product is expected to be biodegradable.
Environmental Considerations	The aquatic toxicity for this product has not been determined.

SECTION 13 DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 Classification	Non-RCRA Hazardous Waste (USA)
U.S. EPA Waste Number/Description	Not applicable If this product is disposed of as shipped, it does not meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of a hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D due to toxicity. As a non-hazardous liquid waste, it should be disposed of in accordance with all local, state, and federal regulations. Consult state or local officials for proper disposal method.

SECTION 14 TRANSPORTATION INFORMATION

DOT Proper Shipping Name	Not DOT Regulated
TDG Proper Shipping Name	Not Restricted
Transport Hazard Class	n/a
Packing Group (if applicable)	n/a
Environmental Hazards	n/a
Special Precautions for User	n/a
Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code	n/a

SECTION 15 REGULATORY INFORMATION

Components	Ammonium Nitrate	Urea	Cobalt Chloride
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OSHA Target Organs:	Eyes, Skin, Mucous membranes, Lungs & Blood	Eyes, Skin, Mucous membranes, Lungs, Cardiovascular & Central Nervous Systems	Eyes, Skin, Mucous membranes & Lungs
Carcinogenic Potential:			
Regulated by OSHA	No	No	No
Listed on NTP Report	No	No	No
Listed by IARC	No	No	Yes
IARC Group:	Not applicable	Not applicable	Group 2B
ACGIH Appendix A	Not listed	Not listed	Yes (A3)
A1 Confirmed Human	Not applicable	Not applicable	Not applicable
A2 Suspected Human	Not applicable	Not applicable	Not applicable
SARA Title III			
Section 302 & 312 (40 CFR 355)	Not listed	Not listed	Not Listed
Section 311 & 312 (40 CFR 370)			
Hazard Categories (product) Fire: N Sudden Release Pressure: N Reactive: N Acute Health: Y Chronic Health: Y			
Planning Threshold	10,000 pounds	10,000 pounds	10,000 pounds
Section 313 (40 CFR 372)			
Listed Toxic Chemical	Yes (Aqua Ammonia & Nitrate Compounds)	Not listed	Yes (Cobalt compounds)
Reporting Threshold	10,000 pounds	Not applicable	10,000 pounds
US TSCA Status (Listed 40 CFR 710)	Yes	Yes	Yes
State of California: Safe Drinking water and toxins Enforcement Act, 1986 (Proposition 65)			
Carcinogen	No	No	No
Reproductive Toxin	No	No	No
State Right to Know Laws:	NJ		
Canadian Regulations			
Controlled Product	Yes		
WHMIS Hazard Symbols	Material Causing Other Toxic Effects		
WHMIS Class & Division	D.2A; D.2B		
IDL Substance	No	No	Yes
DSL or NDSL Lists	DSL	DSL	DSL

SECTION 16 OTHER INFORMATION

Key: N/A, n/a – Not available

EPA Regulation Number: Not applicable

Approved Product Uses: To balance microbial ecosystems for bioremediation of water and soil for increased bio-oxidation.

Special Notes:

This product is not manufactured, or formulated to contain substances, which the State of California has found to cause cancer and/or birth defects or other reproductive harm. However, as it contains mined minerals, this product may contain trace (parts per million) or ultra-trace (parts per billion) of elements known to the State of California to cause cancer, birth defects or other reproductive harm.

Store this product in a cool, dry, well ventilated area away from incompatible materials and products. When making dilutions, always add this product to water, or aqueous solutions, with adequate mixing to ensure a uniform solution. Do not add strong alkali or caustics to this product, as that will liberate toxic Ammonia gas.

The information contained in this Safety Data Sheet, as of the issue date, is believed to be true and correct. However, the accuracy or completeness of this information and any recommendations or suggestions are made without warranty or guarantee. Since the conditions of use are beyond the control of our company, it is the responsibility of the user to determine the conditions of safe use of this product. The information in this sheet does not represent analytical specifications; for this information contact Bioscience, Inc. Technical Department.