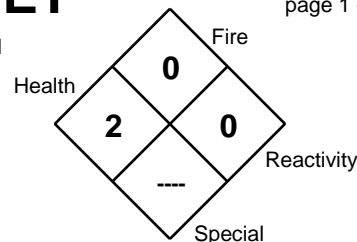




MATERIAL SAFETY DATA SHEET

NFPA 704 DESIGNATION
HAZARD RATING



4=Extreme
3=High
2=Moderate
1=Slight
0=Insignificant

Bio Huma Netics, Inc. MSDS #: BHN-0054
MSDS Revision/Issue Date: 05/05/11
Supersedes Revision Date: 04/13/06

1. CHEMICAL PRODUCT IDENTIFICATION & COMPANY IDENTIFICATION

PRODUCT IDENTIFIER: HUMA GRO Kleenstart (415)

GENERAL USE: Used as a part of a plant nutrition program.

PRODUCT DESCRIPTION: A clear to hazy, brownish liquid having no characteristic odor.

INFORMATION PROVIDED BY: Bio Huma Netics
201 South Roosevelt Ave.
Chandler, AZ 85226

EMERGENCY PHONE NUMBERS

For MSDS call: Phone: (480) 961-1220

CHEMTREC: 800-424-9300

2. 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	5 ± 1	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.	5 ± 1	None AIHA WEEL: 10 mg/m ³	None	None	None
Diammonium Phosphate	7783-28-0	Eye Irritant; Slight to Moderate Skin & Respiratory Irritant; Slightly Toxic by Ingestion; Central Nervous System toxin	7 ± 1	None	None	None	None
Ammonium Sulfate	7783-20-2	Eye, Skin & Respiratory Irritant; Human Central Nervous System Effects by Ingestion	6 ± 1	None	None	None	None
Cobalt Chloride	7646-79-9	Eye, Skin & Respiratory Irritant; Toxic by Ingestion; Possible Human Carcinogen - IARC	0.12 ± 0.02	0.02 mg/m ³ (as Co) (A3)	None	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: A clear to hazy, brownish, near neutral liquid having no characteristic odor. The liquid and mists may be irritating to the eyes and skin. Inhalation of mists may be irritating to the entire respiratory tract. Ingestion of this product may cause gastrointestinal irritation, cardiovascular and central nervous system effects.

POTENTIAL HEALTH EFFECTS

INHALATION: Inhalation of mists may cause irritation to the nose, mouth, throat, mucous membranes and lungs. Symptoms of exposure may include sneezing, coughing, shortness of breath and possible chest discomfort or pain. Inhalation of high mist concentrations, for a period of time, may cause impairment of lung function.

EYE CONTACT: Exposure to the liquid or mist can cause eye irritation. Symptoms of exposure may include tearing, redness, swelling and discomfort or pain. This product is not expected to cause corneal damage or visual impairment, when treated promptly.

SKIN CONTACT: Contact with the liquid or mist may cause moderate skin irritation. Symptoms of exposure may include redness, swelling, itching and/or discomfort or pain. Extended contact time may cause possibly severe irritation. There is no data indicating this product is absorbed through the intact skin.

INGESTION: Ingestion can cause irritation to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting and diarrhea with possible hyper motility and other central nervous system or cardiovascular effects.

CHRONIC: Repeated short time exposure to this product may result in a skin contact dermatitis. The IARC has classified Cobalt Chloride as a possible human carcinogen. Any increased risk of cancer depends upon the mode, duration and level of exposure.

4. FIRST AID MEASURES

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.

EYE CONTACT: 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 CONTACT: 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.

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 careful 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.

5. FIRE FIGHTING MEASURES

Flashpoint and Method: This product does not flash.

Flammable Limits (in air, % by volume) **Lower:** No data available **Upper:** No data available

Autoignition Temperature: No data available

GENERAL HAZARD: This product is an aqueous, near neutral 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.

FIRE FIGHTING INSTRUCTIONS: **EXTINGUISHING MEDIA:** Water, foam, CO₂ or dry chemicals.
Use a water spray or fog to cool the containers exposed to the heat of a fire.

FIRE FIGHTING EQUIPMENT: Fire fighters should wear full protective equipment, including self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: When heated to dryness and decomposition, it emits toxic Ammonia gas, chloride compounds, carbon monoxide, carbon dioxide, phosphorus oxides, sulfur oxides and nitrogen oxides with trace or ultra-trace toxic oxide amounts, of, iron, manganese, magnesium, potassium, calcium, zinc, cobalt, boron and sodium plus irritating smoke.

6. ACCIDENTAL RELEASE MEASURES

LAND SPILL: Wearing recommended protective 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 commercial absorbent; 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 product to dry in contact with combustible organic materials or reducing agents as a reaction may occur, releasing heat and possibly toxic gasses.

WATER SPILL: 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.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE: Ambient **STORAGE PRESSURE:** Ambient

GENERAL: Store in a cool, dry, well-ventilated area, away from incompatible materials and products. Protect the eyes, skin and clothing from contact with this 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 container tightly closed when not in use. Wash thoroughly after handling this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL MEASURES: Use a local or general, mechanical exhaust ventilation system capable of maintaining emissions, in the work area, below the AIHA WEEL, ACGIH-TLV or those levels that may cause irritation.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATOR: Respiratory protection is not normally required. If use produces mists or aerosols that may exceed the AIHA WEEL, ACGIH-TLV or may cause irritation, a NIOSH approved half mask or full facepiece respirator equipped with a good mist / particulate cartridge or supplied air is recommended.

EYES: Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full facepiece respirator is worn.

GLOVES: Wear Neoprene, Nitrile, Butyl Rubber or Natural Rubber gloves.

CLOTHING & EQUIPMENT: If contact is likely, wear a Neoprene, Nitrile, Butyl Rubber or Natural Rubber apron when handling this product. An eye wash station and safety shower should be available in the work area.

FOOTWEAR: In cleaning up a spill or if contact is likely, wear Neoprene, Nitrile, Butyl Rubber or Natural Rubber boots.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to hazy, brownish	Bulk Density (pounds/ft³):	Not applicable
Physical State:	Liquid	Vapor Pressure:	No data available
Odor:	No characteristic	Vapor Density (air=1):	No data available
Odor Threshold:	No data available	Evaporation Rate (n-Butyl Acetate=1):	Less than 1
Molecular Formula:	Mixture	VOC Content:	Nil
Molecular Weight:	Not applicable	% Volatile:	Approximately 81
Boiling Point:	Greater than 100° C. (212° F.)	Solubility in H₂O:	Soluble
Freezing/Melting Point:	Less than 0° C. (32° F.)	Octanol/Water Partition Coefficient:	No data available
Specific Gravity:	Approximately 1.094 @ 20° C.	pH (as is):	6.5 to 7.5
Density (pounds/gallon):	Approximately 9.13	pH (1% solution):	No data available

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

CONDITIONS TO AVOID: None known.

INCOMPATIBLE MATERIAL: Oxidizers, reducing agents, caustics and strong alkali.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to dryness and decomposition, it emits toxic Ammonia gas, chloride compounds and toxic oxides of carbon, phosphorus, sulfur and nitrogen with trace or ultra-trace toxic oxide amounts, of, iron, manganese, magnesium, potassium, calcium, zinc, cobalt, boron and sodium plus irritating smoke.

SENSITIVITY TO MECHANICAL IMPACT: This product is not sensitive to mechanical impact.

SENSITIVITY TO STATIC DISCHARGE: This product is not sensitive to static discharge.

11. TOXICOLOGICAL INFORMATION

(information continued on next page)

Components:	<u>Ammonium Nitrate</u>	<u>Urea</u>
Eye Contact:	No data available	No data available
Skin Contact:	No data available	No data available
Oral Rat LD₅₀:	2,217 mg/kg	8,471 mg/kg
Dermal Rabbit LD₅₀:	No data available	No data available (Rabbit, Subcutaneous LD ₅₀ : 3 gm/kg)
Inhalation Rat LC₅₀:	No data available	No data 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:	No data available	Dermal Human Standard Draize Test: 22 mg/3 days; Mild
Other Toxicological Data:	No data available	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:	No data available	Oral Rat TD ₀₁ : 821 gm/kg/1 year; Tumorigenic – Neoplastic by RTECS criteria; Blood – Tumors; Blood – Lymphomax including Hodgkin's disease.
Teratogenicity:	No data available	Intraplacental Woman TD ₀₁ : 1,400 mg/kg (female 16 Weeks pregnant); Effects on Fertility - Abortion
Mutagenicity:	No data available	Human DNA Inhibition; lymphocyte: 600 mmol/Liter
Synergistic Products:	None reported	None reported
Target Organs:	Eyes, Skin, Mucous membranes, Lungs & Blood	Eyes, Skin, Mucous membranes, Lungs, Cardiovascular & Central Nervous Systems
Medical Conditions		
Aggravated By Exposure:	Skin or Respiratory disorders	Skin, Respiratory or Cardiac disorders
Components:	<u>Diammonium Phosphate</u>	<u>Ammonium Sulfate</u>
Eye Contact:	No data available	No data available
Skin Contact:	No data available	No data available
Oral Rat LD₅₀:	Greater than 1,000 mg/kg	2,840 mg/kg
Dermal Rabbit LD₅₀:	No data available	No data available
Inhalation Rat LC₅₀:	No data available	No data available
Human Data:	No data available	Oral Man TD ₀₁ : 1,500 mg/kg (Gastrointestinal effects)
Other Toxicological Data:	No data available	Intraperitoneal Mouse LD ₅₀ : 610 mg/kg
Carcinogenicity:	No data available	No data available
Teratogenicity:	No data available	No data available
Mutagenicity:	No data available	No data available
Synergistic Products:	None reported	None reported
Target Organs:	Eyes, Skin, Lungs & Central Nervous System	Eyes, Skin, Mucous membranes, Lungs & Central Nervous System
Medical Conditions		
Aggravated By Exposure:	Skin or Respiratory disorders	Skin or Respiratory disorders

11. TOXICOLOGICAL INFORMATION cont.

Components: Cobalt Chloride
Eye Contact: No data available
Skin Contact: No data available
Oral Rat LD₅₀: 80 mg/kg
Dermal Rabbit LD₅₀: No data available (Subcutaneous Rabbit LD₅₀: 200 mg/kg)
Inhalation Rat LC₅₀: No data 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
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
Synergistic Products: None reported
Target Organs: Eyes, Skin, Mucous membranes & Lungs
Medical Conditions
Aggravated By Exposure: Skin or Respiratory disorders

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

This product is soluble in water and is not expected to affect the pH of water. No specific environmental fate data is available.

ENVIRONMENTAL CONSIDERATIONS:

The aquatic toxicity for this product has not been determined.

13. DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 CLASSIFICATION: Non-RCRA Hazardous Waste

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-RCRA 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.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Not Restricted

Hazard Class: Not applicable **UN Number:** Not applicable **Packing Group:** Not applicable
Primary Label: None Required **Subsidiary Label(s):** None Required
Primary/Subsidiary Placards: None Required

DOT Reportable Quantity (RQ): Not listed **RQ for Product:** Not applicable

Marine Pollutant: No

2008 North American Emergency Response Guidebook No.: Not applicable

TDG PROPER SHIPPING NAME: NOT RESTRICTED

Hazard Class: Not applicable **UN Number:** Not applicable **Packing Group:** Not applicable
Primary Label: None Required **Subsidiary Label(s):** None Required
Primary/Subsidiary Placards: None Required

TDG Reportable Quantity (RQ): # Not applicable

TDG Schedule XII: Not applicable

Regulated Limit (RL): ## Not listed **RL for Product:** Not applicable

Other Shipping Information: None

Canadian Transportation of Dangerous Goods Regulations (TDGR), Part IX, Table I, Quantities or levels for Immediate Reporting: releases of reportable quantities, RQ, that meet the definition of a "dangerous occurrence" (a threat to life, health, property, or the environment) must be reported to the appropriate authorities as outlined in TDGR 9.13(1) and 9.14(1).

Reporting to Environment Canada is required for any releases exceeding the regulated limits, RL, of 9.2 materials (primary or secondary). The regulated limits are found in Schedule XIII of the TDGR.

15. REGULATORY INFORMATION

(information continued on next page)

COMPONENTS:	Ammonium Nitrate	Urea	Diammonium Phosphate
<u>OSHA Target Organs:</u>	Eyes, Skin, Mucous membranes, Lungs & Blood	Eyes, Skin, Mucous membranes, Lungs, Cardiovascular & Central Nervous Systems	Eyes, Skin, Lungs & Central Nervous System
<u>Carcinogenic Potential:</u>			
Regulated by OSHA:	No	No	No
Listed on NTP Report:	No	No	No
Listed by IARC:	No	No	No
IARC Group:	Not applicable	Not applicable	Not applicable
ACGIH Appendix A:	Not listed	Not listed	Not listed
A1 Confirmed Human:	Not applicable	Not applicable	Not applicable
A2 Suspected Human:	Not applicable	Not applicable	Not applicable
<u>U.S. EPA Requirements</u>			
Release Reporting			
CERCLA (40 CFR 302)			
Listed Substance:	Not listed	Not listed	Not listed
Reportable Quantity:	Not applicable	Not applicable	Not applicable
Category:	Not applicable	Not applicable	Not applicable
RCRA Waste No.:	Not applicable	Not applicable	Not applicable
Unlisted Substance:	Not applicable	Not applicable	Not applicable
Reportable Quantity:	Not applicable	Not applicable	Not applicable
Characteristic:	Not applicable	Not applicable	Not applicable
RCRA Waste No.:	Not applicable	Not applicable	Not applicable
<u>SARA TITLE III</u>			
Section 302 & 303 (40 CFR 355):			
Listed Substance:	Not listed	Not listed	Not listed
Reportable Quantity:	Not applicable	Not applicable	Not applicable
Planning Threshold:	Not applicable	Not applicable	Not applicable
Section 311 & 312 (40 CFR 370):			
Hazard Categories (product):	Fire: N	Sudden Release of Pressure: N	Reactive: N
Planning threshold:	10,000 pounds	10,000 pounds	Acute Health: Y
Section 313 (40 CFR 372):			
Listed Toxic Chemical:	Yes (Aqua Ammonia & Nitrate compounds)	Not listed	Yes (Aqua Ammonia)
Reporting Threshold:	10,000 pounds	Not applicable	10,000 pounds
<u>U.S. TSCA Status</u>			
Listed (40 CFR 710):	Yes	Yes	Yes
<u>State Regulations</u>			
State of California: Safe Drinking Water and Toxins Enforcement Act, 1986 (Proposition 65):			
Carcinogen:	No	No	No
Reproductive Toxin:	No	No	No
<u>Other Regulations</u>			
State Right To Know Laws:	NJ; CA		
<u>Canadian Regulations</u>			
Product Information:			
Controlled Product:	Yes		
WHMIS Hazard Symbols:	Material Causing Other Toxic Effects		
WHMIS Class & Division:	D.2A; D.2B		
Ingredient Information:			
IDL Substance:	No	No	No
DSL or NDSL Lists:	DSL	DSL	DSL

15. REGULATORY INFORMATION cont.

COMPONENTS:	Ammonium Sulfate	Cobalt Chloride
<u>OSHA Target Organs:</u>	Eyes, Skin, Mucous membranes, Lungs & Central Nervous System	Eyes, Skin, Mucous membranes & Lungs
<u>Carcinogenic Potential:</u>		
Regulated by OSHA:	No	No
Listed on NTP Report:	No	No
Listed by IARC:	No	Yes
IARC Group:	Not applicable	Group 2B
ACGIH Appendix A:	Not listed	Yes (A3)
A1 Confirmed Human:	Not applicable	Not applicable
A2 Suspected Human:	Not applicable	Not applicable
<u>U.S. EPA Requirements</u>		
Release Reporting		
CERCLA (40 CFR 302)		
Listed Substance:	Not listed	Not listed
Reportable Quantity:	Not applicable	Not applicable
Category:	Not applicable	Not applicable
RCRA Waste No.:	Not applicable	Not applicable
Unlisted Substance:	Not applicable	Not applicable
Reportable Quantity:	Not applicable	Not applicable
Characteristic:	Not applicable	Not applicable
RCRA Waste No.:	Not applicable	Not applicable
<u>SARA TITLE III</u>		
Section 302 & 303 (40 CFR 355):		
Listed Substance:	Not listed	Not listed
Reportable Quantity:	Not applicable	Not applicable
Planning Threshold:	Not applicable	Not applicable
Section 311 & 312 (40 CFR 370):		
Planning threshold:	10,000 pounds	10,000 pounds
Section 313 (40 CFR 372):		
Listed Toxic Chemical:	Yes (Aqua Ammonia)	Yes (Cobalt compounds)
Reporting Threshold:	10,000 pounds	10,000 pounds
<u>U.S. TSCA Status</u>		
Listed (40 CFR 710):	Yes	Yes
<u>State Regulations</u>		
State of California: Safe Drinking Water and Toxins Enforcement Act, 1986 (Proposition 65):		
Carcinogen:	No	No
Reproductive Toxin:	No	No
<u>Other Regulations</u>		
State Right To Know Laws:	No	No
<u>Canadian Regulations</u>		
Ingredient Information:		
IDL Substance:	No	Yes
DSL or NDSL Lists:	DSL	DSL

16. OTHER INFORMATION

EPA Registration number: Not applicable

Approved Product Uses: Not applicable

Special Notes:

This product is not manufactured, or formulated, to contain any 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.

Special Instructions:

Store Kleen Start (415) 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 can liberate toxic, corrosive Ammonia gas

MSDS Revision Information: Information Revised This Issue Date: **Updated per new format with additional information.**

Form Revision made 2/19/09

MSDS Distributed by: Bio Huma Netics

Prepared By: Edward Doheny

Date Prepared: May 5, 2011

This Material Safety Data Sheet is provided as an information resource only. It should not be taken as a warranty or representation for which Bio Huma Netics assumes legal liability. While Bio Huma Netics believes the information contained herein is accurate and compiled from sources believed to be reliable, it is the responsibility of the user to investigate and verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with applicable federal, state, and local regulations.