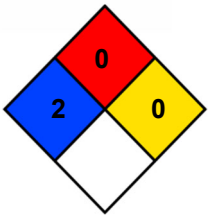
SAFETY DATA SHEET
HUMA GRO® Nickel



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HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
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SECTION 1: CHEMICAL PRODUCT & COMPANY IDENTIFICATION

PRODUCT	**HUMA GRO® Nickel**	**Product# 370**
GENERAL USE:	Used as a part of a plant nutrition program.	
PRODUCT DESCRIPTION:	A clear to slightly hazy, dark bluish green liquid with a characteristic odor.	

SUPPLIER INFORMATION:
Bio Huma Netics, Inc.
1331 W Houston Avenue
Gilbert, AZ 85233

For Additional SDS call: **PHONE: (480) 961-1220**

EMERGENCY PHONE NUMBERS

CHEMTREC: **(In the USA) 800-424-9300**
(International) 703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

HAZARDS OVERVIEW:
A clear to slightly hazy, dark bluish green liquid with a characteristic odor. The vapors, mists and liquid may be irritating or corrosive to all tissues contacted. Inhalation of mists may cause severe irritation or burns to the entire respiratory tract. Ingesting this product can be harmful or possibly fatal even if swallowed in a relatively small amount.

CLASSIFICATION: SKIN CORROSION – CATEGORY 1A
SIGNAL WORD: DANGER
HAZARD STATEMENT: H314; causes severe skin burns and eye damage
PRECAUTIONARY STATEMENT: P260; Do not breathe dusts/mist/vapors. P280; Wear protective gloves/protective clothing/eye protection/face protection P264; Wash hands thoroughly after handling

SECTION 3: COMPOSITION & INFORMATION ON INGREDIENTS

				ACGIH		OSHA	
COMPONENT	**CAS #**	**OSHA HAZARD**	**WT %**	**$TLV_{(TWA)}$**	**STEL**	**$PEL_{(TWA)}$**	**STEL**
Nickel Sulfate Hexahydrate	10101-97-0	Corrosive; Eye, Skin & Respiratory Hazard; Lung toxin; Toxic by Ingestion	43 ± 1	0.1 mg/m3	NDA	1 mg/m3	NDA
Citric Acid	77-92-9	Skin and mucous membrane irritant and eye irritant. It may cause allergic reactions in some individuals.	1 ± 0.05	NDA	NDA	N/A	N/A

NDA = No Data Available **N/A = Not Applicable**

SECTION 4: FIRST AID MEASURES

INHALATION: If inhaled, immediately move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; use the Holger Nielsen method (back pressure-arm lift) or proper respiratory device. 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 immediately.

SKIN CONTACT: In case of contact, immediately flush skin with copious amounts of clean running water for at least 15 minutes, while removing contaminated clothing. If burn or irritation occurs, call a physician.

INGESTION: If swallowed, **DO NOT** induce vomiting, unless directed to do so by medical personnel. Get medical attention immediately. If victim is fully conscious, give plenty of water to drink. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIANS: This product may be corrosive to all tissues contacted. If inhaled, delayed pulmonary edema may occur. If ingested, consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. (Avoid using carbonate / bicarbonate lavage solutions as they may liberate a large volume of Carbon Dioxide gas and that could possibly damage or rupture internal organs from the pressure.) Treat exposure symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flashpoint and Method: This product does not flash.

Flammable Limits (in air, % by volume) **Lower:** Not applicable **Upper:** Not applicable

Autoignition Temperature: Not applicable

GENERAL HAZARD: This product is an aqueous solution of a strong inorganic acid. The International Fire Code classification for this product is a health hazard: **Corrosive (Acidic).** Dilute solutions of this product may also be corrosive. This product may produce hazardous vapors and hazardous decomposition products.

FIRE FIGHTING INSTRUCTIONS: **EXTINGUISHING MEDIA:** Flood with water.
Use 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 product could potentially emit sulfur, iron, zinc, nickel, sodium and carbon.

SECTION 6: ACCIDENTAL RELEASE MEASURES

RELEASE TO LAND: Wearing recommended protective equipment and clothing, dike the spill and pick up the bulk of liquid using pumps or a vacuum truck, or absorb the liquid in sand or a commercial absorbent. Place in approved containers for recovery, disposal, or satellite accumulation. Neutralize the acidity, of the remaining liquid, using soda ash, lime, or other agent appropriate for neutralizing acidic liquids. Flush the spill area with water; collect the rinsates for disposal or sewer, as appropriate.

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

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

GENERAL: Store in a cool, dry, well-ventilated area away from incompatible materials and products. Avoid storing this product in direct sunlight. Do not allow this product to contact eyes, skin or clothing. Wear recommended personnel protective equipment when handling this product. Do not breathe vapors, mists or aerosols. Use only with adequate ventilation. Do not ingest (drink) this product. Keep the container tightly closed when not in use. Wash thoroughly after handling this product.

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 below the OSHA-PEL, ACGIH-TLV or levels that may cause irritation.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATOR: **For exposure levels above the OSHA-PEL (1mg/m3) or ACGIH-TLV (0.1 mg/m3) for Nickel Sulfate:** wear a full face supplied air respirator operated in the continuous flow mode. **Note:** Always consult the respirator manufacturer's data when determining the suitability of respiratory protective devices prior to use.

EYES: Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full face respirator is worn. **Note:** Always consult the protective eyewear manufacturer's data when determining the suitability of protective eyewear prior to use.

GLOVES: Wear 4H, Saranex, Barricade, Neoprene or Butyl Rubber gloves. **Note:** Always consult the glove manufacturer's permeation data when determining the suitability of gloves prior to use.

CLOTHING & EQUIPMENT: Wear a Neoprene or Butyl Rubber apron or full protective suit. 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 Neoprene or Butyl Rubber boots, or Natural Rubber boots with 4H inserts. **Note:** Always consult the footwear manufacturer's permeation data when determining the suitability of footwear prior to use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to slightly hazy, bluish green	**Bulk Density (pounds/ft^3):**	Not applicable
Physical State:	Liquid	**Vapor Pressure:**	No data available
Odor:	Characteristic	**Vapor Density (air=1):**	No data available
Odor Threshold:	No data available	**Evaporation Rate (n-Butyl Acetate=1):**	No data available
Molecular Formula:	Mixture	**VOC Content / Organic Matter:**	NA / 0.5%
Molecular Weight:	Not applicable	**% Volatile:**	Approximately 60
Boiling Point:	Greater than 100° C. (212° F.)	**Solubility in H_2O:**	Complete
Freezing/Melting Point:	Less than 0° C. (32° F.)	**Octanol/Water Partition Coefficient:**	No data available
Specific Gravity:	1.20 – 1.40 @ 20° C.	**pH (as is):**	1.0 - 2.0
Density (pounds/gallon):	Approximately 10.6	**pH (1% solution):**	5.0 to 5.6

SECTION 10: STABILITY AND REACTIVITY

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

CONDITIONS TO AVOID: Hot storage and storage in direct sunlight.

INCOMPATIBLE MATERIAL: Caustics and alkali, all reducing agents, oxidizable inorganic compounds, turpentine, organic chemicals, carbides, sulfides, sulfites, cyanides, chlorine releasers, most metals (especially Aluminum, Magnesium, Zinc, etc.).

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to dryness and decomposition product could potentially emit sulfur, iron, zinc, nickel, sodium and carbon.

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

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

SECTION 11: TOXICOLOGICAL INFORMATION

Components:	**Nickel Sulfate Hexahydrate**	**Citric Acid**
Eye Contact:	Causes eye irritation.	Causes eye irritation.
Skin Contact:	May be harmful if absorbed through skin. Causes skin irritation.	May cause skin irritation
Oral Rat LD_{50}:	361 mg/kg	3000 mg/kg
Dermal Rabbit LD_{50}:	No data available	No data available
Inhalation Rat LC_{50}:	4 hour - 2.48mg/L	No data available
Human Data:	No data available	No data available
Other Toxicological Data:	No data available	No data available
Carcinogenicity:	Human carcinogen. May cause cancer by inhalation	No data available
Teratogenicity:	Presumed human reproductive toxicant May damage the unborn child	No data available
Mutagenicity:	In vitro tests showed mutagenic effects	No data available
Synergistic Products:	No data available	No data available
Target Organs:	Inhalation - Causes damage to organs through prolonged or repeated exposure.	Eyes, Skin, Mucous membranes, and Gastrointestinal tract
Medical Conditions Aggravated By Exposure:	Gastrointestinal disorders, may cause allergic respiratory and skin reactions	Skin and respiratory irritation or Gastrointestinal irritation

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

This product is completely soluble in water and may significantly affect the pH of water. No specific environmental fate data is available. Inorganic products do not meet the definition of biodegradability.

ENVIRONMENTAL CONSIDERATIONS:

The aquatic toxicity of this product is related to the pH of the water and the chemical constituent nickel sulfate hexahydrate. For Rainbow trout, the reported LC_{50} is about a pH of 4.0, for a 7-day bioassay. Some species may vary from this pH level but all are susceptible to acidic conditions.

SECTION 13: DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 CLASSIFICATON: Corrosive Waste

U.S. EPA WASTE NUMBER/DESCRIPTION: D002

If this product is disposed of as shipped, it meets the criteria of a hazardous waste as defined under 40 CFR 261 as a “characteristic waste” due to its corrosivity. If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed in accordance with applicable federal, state and local regulations.

SECTION 14: TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: **Corrosive liquids, n.o.s.** (Contains Nickel Sulfate, Citric Acid)

Hazard Class: 8 **UN Number:** UN1760 **Packing Group:** II

Primary Label: Corrosive **Subsidiary Label(s):** None

Primary/Subsidiary Placards: Corrosive

DOT Reportable Quantity (RQ): Yes (Nickel Sulfate) 100 lbs. **RQ for Product:** Yes (908 lbs.)

Marine Pollutant: No

2012 North American Emergency Response Guidebook No.: **154**

TDG PROPER SHIPPING NAME: **CORROSIVE LIQUIDS, N.O.S.** (Contains Nickel Sulfate, Citric Acid)

Hazard Class: 8 **UN Number:** UN1760 **Packing Group:** II

Primary Label: Corrosive **Subsidiary Label(s):** None

Primary/Subsidiary Placards: Corrosive

TDG Reportable Quantity (RQ): * Yes

TDG Schedule XII: Not listed

Regulated Limit (RL): ** None **RL for Product:** None

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.

SECTION 15: REGULATORY INFORMATION

COMPONENTS:	**Nickel Sulfate Hexahydrate**	**Citric Acid**
OSHA Target Organs:	Eyes, Skin, Lungs, & Gastrointestinal tract	Eyes, Skin, Mucous membranes, and Gastrointestinal tract
Carcinogenic Potential:		
Regulated by OSHA:	Yes	No
Listed on NTP Report:	Yes	No
Listed by IARC:	Yes	No
IARC Group:	2B	Not applicable
ACGIH Appendix A:	Listed	Not listed
A1 Confirmed Human:	Yes	Not applicable
A2 Suspected Human:	Not applicable	Not applicable

U.S. EPA Requirements

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:	Yes	Not applicable
Reportable Quantity:	Not applicable	Not applicable
Characteristic:	Corrosive	Not applicable
RCRA Waste No.:	D002	Not applicable

SARA TITLE III

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):

Hazard Categories (**product**): **Fire: N** **Sudden Release of Pressure: N** **Reactive: N** **Acute Health: Y** **Chronic Health: Y**

Planning threshold:	Not applicable	Not applicable

SECTION 15: REGULATORY INFORMATION (Continued from Page 5)

COMPONENTS:	**Nickel Sulfate Hexahydrate**	**Citric Acid**
Section 313 (40 CFR 372):		
Listed Toxic Chemical:	No	No
Reporting Threshold:	Not applicable	Not applicable

U.S. TSCA Status

Listed (40 CFR 710):	No	No

State Regulations

State of California: Safe Drinking Water and Toxins Enforcement Act, 1986 (Proposition 65):

Carcinogen:	Yes	No
Reproductive Toxin:	Yes	No

Other Regulations

State Right To Know Laws: MA, NJ, PA, CA

Canadian Regulations

Product Information:

Controlled Product:	**Yes (for Citric Acid Only)**
WHMIS Hazard Symbols:	**Corrosive Material**
WHMIS Class & Division:	**E**

Ingredient Information:

IDL Substance:	No	Yes
DSL or NDSL Lists:	No	DSL

SECTION 16: OTHER INFORMATION

EPA Registration number: Not applicable

Approved Product Uses: Used as a part of a plant nutrition program.

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.

Special instructions:

Do not add this product to hypochlorite bleaches, chlorine sanitizers or chlorinated cleaners as this liberates toxic, corrosive Chlorine gas.

SDS Revision Information: Revised Date: 9/08/2020

SDS Distributed by: Bio Huma Netics, Inc.

Prepared By:	Frank S. Pidgeon, Sr. EHSS Director	**Date Prepared:**	October 21, 2014