1. Product and Company Identification

Product Code:	Z-HPLUS	
Product Name:	HARVEST PLUS	
Trade Name:	HARVEST PLUS	
Company Name:	Stoller 9090 Katy Freeway Suite 400 Houston, TX 77055	**Phone Number:** 1 (713)461-1493
Website address:	www.stollerusa.com	
Email address:	stoller@stollerusa.com	
Emergency Contact:	Chemtrec, In the US and Canada call	1 (800)424-9300
	Chemtrec, From other countries call	+1 (703)527-3887
Information:		1 (800)539-5283
Intended Use:	Plant micronutrient	

2. Hazards Identification

Acute Toxicity: Inhalation, Category 4
Acute Toxicity: Oral, Category 4
Serious Eye Damage/Eye Irritation, Category 1
Toxic To Reproduction, Category 1B
Specific Target Organ Toxicity (single exposure), Category 1
Aquatic Toxicity (Acute), Category 2
Aquatic Toxicity (Chronic), Category 2

GHS Signal Word:	**Danger**
GHS Hazard Phrases:	H332 - Harmful if inhaled.
	H302 - Harmful if swallowed.
	H318 - Causes serious eye damage.
	H360 - May damage fertility or the unborn child.
	H370 - Causes damage to organs.
	H401 - Toxic to aquatic life.
	H411 - Toxic to aquatic life with long lasting effects.
GHS Precaution Phrases:	P201 - Obtain special instructions before use.
	P202 - Do not handle until all safety precautions have been read and understood.
	P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
	P264 - Wash hands thoroughly after handling.
	P270 - Do not eat, drink or smoke when using this product.
	P271 - Use only outdoors or in a well-ventilated area.
	P273 - Avoid release to the environment

	P280 - Wear protective gloves/protective clothing/eye protection/face protection.
GHS Response Phrases:	P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+311 - If exposed of concerned: Call a POISON CENTER/Doctor/… P313 - Get medical advice/attention. P310 - Immediately call a POISON CENTER or doctor/physician. P321 - Specific treatment see ... on this label P330 - Rinse mouth. P391 - Collect spillage.
GHS Storage and Disposal Phrases:	P501 - Dispose of contents/container to treatment at a permitted facility or as advised by your local regulatory authority P405 - Store locked up.
Potential Health Effects (Acute and Chronic)	Acute: Depending on the duration of contact, overexposure can irritate the eyes, skin, mucous membranes and any other exposed tissue. Chronic: Not known. Expected toxicity hazard: slight to moderate.
Inhalation:	Causes respiratory tract irritation
Skin Contact:	May be harmful if absorbed through skin. May cause skin irritation.
Eye Contact:	Causes eye irritation. Causes redness and pain.
Ingestion:	Harmful if swallowed. May cause cardiac disturbances. May cause irritation of the digestive tract. May cause nausea and vomiting. CNS effects (excitement or depression, lethargy, headache, coma, seizures), dehydration, arrhythmias, shock and metabolic acidosis have been reported in extreme adult and pediatric cases of exposure to Boric acid

3. Composition/Information on Ingredients

CAS #	Hazardous Components (Chemical Name)	Concentration	RTECS #
7664-41-7	Ammonia	≤ 10.0 %	BO0875000
77-92-9	Citric acid	< 25.0 %	GE7350000
7446-20-0	Zinc sulfate	< 9.0 %	ZH5260000
10034-96-5	Manganous sulfate	< 10.0 %	OP0893500
10043-35-3	Boric acid	< 2.0 %	ED4550000
74-79-3	L-Arginine base	< 1.0 %	NA

4. First Aid Measures

Emergency and First Aid Procedures:	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
In Case of Inhalation:	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and call a physician.

In Case of Skin Contact:	Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Consult a physician. Launder clothing before reuse.
In Case of Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician if irritation persists.
In Case of Ingestion:	Drink plenty of water. Call a physician or poison control center immediately for advice on inducing vomiting. Do not induce vomiting or give anything by mouth to an unconscious person.
Signs and Symptoms of Exposure:	The most important known symptoms and effects are described in the labelling (see Section 2) and/or Section 11.
Note to Physician:	Treat symptomatically and supportively.

5. Fire Fighting Measures

Flash Pt:	N.A.
Explosive Limits:	LEL: N.A. UEL: N.A.
Autoignition Pt:	N.A.
Suitable Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or chemical foam. Use extinguishing measure that are appropriate to local circumstances and the surrounding environment.
Fire Fighting Instructions:	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Flammable Properties and Hazards:	Sulphur oxides, Manganese oxides, Copper oxides.
Hazardous Combustion Products:	No data available.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures:	Use proper personal protective equipment as indicated in Section 8. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Steps To Be Taken In Case Material Is Released Or Spilled:	Spills/Leaks: Wear a self-contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Evacuate personnel to safe areas. It is necessary to contain the spill into the smallest area possible by diking, scooping, shoveling, etc., and place liquid into an appropriate container, labeling it accordingly. Keep in suitable, closed containers for disposal.

7. Handling and Storage

Precautions To Be Taken in Handling:	Use with adequate ventilation. Avoid breathing dust, mist or vapor. Avoid contact with eyes, skin and clothing. Avoid ingestion and inhalation. Avoid contact with open cuts or sores. Wash thoroughly after handling and using this product.
Precautions To Be Taken in Storing:	Store product in original container. Do not heat or store near open flame. Do not reuse container. Do not contaminate water, food or feed by storage or disposal. Keep packaging closed, securely fastened and upright. Product may suspend in layers if stored below 20°F. Keep out of reach of children.

8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
7664-41-7	Ammonia	PEL: 50 ppm	TLV: 25 ppm STEL: 35 ppm	No data.

77-92-9	Citric acid	No data.	No data.	No data.
7446-20-0	Zinc sulfate heptahydrate	No data.	No data.	No data.
10034-96-5	Manganous sulfate	No data.	TLV: 0.2 mg/m³ as Mn	No data.
10043-35-3	Boric acid	No data.	TLV: 2 mg/m³ STEL: 6 mg/m³	No data.
74-79-3	L-Arginine base	No data.	No data.	No data.

Recommended Exposure Limits: No occupational exposure limits have been established for this mixture.

Respiratory Equipment (Specify Type): A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Eye Protection: Splash-proof safety goggles that meet OSHA's eye and face regulations in 29 CFR 1910.133 or European Standard EN166.

Protective Gloves: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact: Minimum layer thickness: 0.11 mm Break through time: 480 min

The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN374 derived from it.
This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers.

Other Protective Clothing: Wear long sleeve shirt, long pants, socks and rubber boots to avoid prolonged or repeated skin contact.

Engineering Controls (Ventilation etc.): Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Work/Hygienic/Maintenance Practices: Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling and use of this product. Avoid contact with eye, skin and clothing.

Environmental Exposure Controls: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. Physical and Chemical Properties

Physical States: [ ] Gas [X] Liquid [ ] Solid

Appearance and Odor: Clear colorless liquid
Slight ammonia odor

pH: 7.8 – 9.8

Melting Point: N.A.

Boiling Point: N.E.

Flash Pt: N.A.

Evaporation Rate: N.E.

Flammability (solid, gas): Product is non-flammable

Explosive Limits: LEL: N.A. UEL: N.A.

Vapor Pressure (vs. Air or mm Hg):	N.E.
Vapor Density (vs. Air = 1):	N.E.
Specific Gravity (Water = 1)	N.E.
Density:	10.75 LB/GA
Solubility in Water:	N.E.
Saturated Vapor Concentration:	N.E.
Octanol/Water Partition Coefficient:	N.E.
Percent Volatile:	N.A.
Autoignition Pt:	N.A.
Decomposition Temperature:	N.E.
Viscosity:	N.E.
Molecular Formula & Weight:	Proprietary

10. Stability and Reactivity

Reactivity:	N.E.
Stability:	Unstable [ ] Stable [X]
Conditions To Avoid – Instability:	Toxic fumes may be generated under fire conditions or by contact with incompatible materials. Excess heat.
Incompatibility – Materials to Avoid:	anhydride, alkali carbonates, Strong oxidizing agents, Bases, Reducing agents, nitrates, Powdered metals, Anhydrous copper(II) sulfate, hydroxylamine, magnesium, sodium hypochlorite, calcium hypochlorite, sodium nitrate, nitrosyl perchlorate, dichromates, liquid chlorine, permanganates, chromyl chloride.
Hazardous Decomposition or Byproducts:	Carbon monoxide, Carbon dioxide, formed under fire conditions. Zinc/zinc oxides, Sulphur oxides, oxides of nitrogen
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions to Avoid – Hazardous Reactions:	No data available

11. Toxicological Information

Toxicological Information:	Oral Toxicity: Not determined Dermal Toxicity: Not determined Inhalation Toxicity: Not determined
Irritation or Corrosion:	Eye irritation (rabbit): Causes mild irritation Skin irritation (rabbit): Causes mild irritation
Sensitization:	Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.
Carcinogenicity/Other Information:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP or OSHA.

12. Ecological Information

General Ecological Information:	Boric acid is a water-soluble white powder that may, at high concentrations, cause damage to trees or vegetation by root absorption. Do not use on Boron sensitive crops.

	The available data on this material does not indicate any undue hazard to the environment under anticipated use and storage. All work practices must be aimed at preventing environmental contamination.
Results of PBT and vPvB assessment:	No data available.
Persistence and Degradability:	No data available.
Bioaccumulative Potential:	No data available.
Mobility in Soil:	No data available.

13. Disposal Considerations

Waste Disposal Method:	Triple rinse (or equivalent) the container, adding rinsate to mixing tank. Offer container for recycling or dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. Avoid contaminating water by disposal of equipment wash waters or other product wastes.
Other:	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. Transport Information

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated. Trade Name: HARVEST PLUS

DOT Hazard Class:

UN/NA Number:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated. Trade Name: HARVEST PLUS

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated. Trade Name: HARVEST PLUS

Additional Transport Information: Placards / Markings: N.A.
Emergency Response Guide Number: N.A.

15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
7664-41-7	Ammonia	Yes 500 LB	Yes 100 LB	Yes
77-92-9	Citric acid	No	No	No
7446-20-0	Zinc sulfate heptahydrate	No	Yes 1000 LB	Yes-Cat. N982
10034-96-5	Manganous sulfate	No	No	Yes-Cat. N450
10043-35-3	Boric acid	No	No	No
74-79-3	L-Arginine base	No	No	No

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:	[X] Yes	[ ] No	Acute (immediate) Health Hazard
	[ ] Yes	[X] No	Chronic (delayed) Health Hazard
	[ ] Yes	[X] No	Fire Hazard
	[ ] Yes	[X] No	Sudden Release of Pressure Hazard

	[ ] Yes [X] No Reactive Hazard

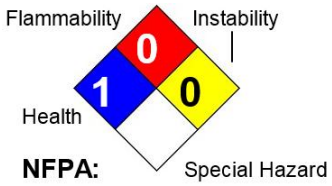
CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
7664-41-7	Ammonia	CAA HAP,ODC: No CWA NPDES: Yes TSCA: Yes - Inventory, 8A CAIR CA PROP.65: No CA TAC, Title 8: TAC, Title 8
77-92-9	Citric acid	CAA HAP,ODC: No CWA NPDES: No TSCA: Yes - Inventory CA PROP.65: No CA TAC, Title 8: No
7446-20-0	Zinc sulfate heptahydrate	CAA HAP,ODC: No CWA NPDES: No TSCA: Yes - Inventory CA PROP.65: No CA TAC, Title 8: TAC, Title 8
10034-96-5	Manganous sulfate	CAA HAP,ODC: HAP CWA NPDES: No TSCA: No CA PROP.65: No CA TAC, Title 8: TAC, Title 8
10043-35-3	Boric acid	CAA HAP,ODC: No CWA NPDES: No TSCA: Yes - Inventory CA PROP.65: No CA TAC, Title 8: No

CAS #	Hazardous Components (Chemical Name)	International Regulatory Lists
7664-41-7	Ammonia	Canadian DSL: Yes Canadian NDSL: No Mexico INSQ: Yes REACH: Yes - (R), (P)
77-92-9	Citric acid	Canadian DSL: Yes Canadian NDSL: No Mexico INSQ: Yes REACH: Yes - (R), (P)
7446-20-0	Zinc sulfate heptahydrate	Canadian DSL: Yes Canadian NDSL: No Mexico INSQ: Yes REACH: Yes - (R), (P)
10034-96-5	Manganous sulfate	Canadian DSL: Yes Canadian NDSL: No Mexico INSQ: No REACH: Yes - (P)
10043-35-3	Boric acid	Canadian DSL: Yes Canadian NDSL: No Mexico INSQ: Yes REACH: Yes - (R), (P)

Regulatory Information Statement:	If this product contains components designated as CERCLA Reportable Quantity (RQ) Substance, Section 103 of CERCLA requires the "person in charge" of a facility or vessel, as soon as he or she has knowledge of a release of a hazardous substance in an amount equal to or greater than an RQ, to report the release immediately to the

	National Response Center in Washington, DC. The NRC number is 1 (800) 424-8802, or 1 (202) 267-2675.

16. Other Information

Revision Date:	02/26/2016
Hazard Rating System:	 **NFPA:**
Additional Information About This Product:	No data available.
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