

**SECTION 1: IDENTIFICATION**

**1.1 Product Identifier:** AQ-TY-0001-050

**Trade Name:**

**Growthful™ – Pre-Emerge**

**1.2 Product Use:** Agricultural

**Identified Use:** Soil Amendment to be used as a treatment for seeds at pre-emergence.

**Product Form:** Acidic Mixture

**1.3 Manufacturer/Supplier:**

**Company:** Aqueus LLC

**Address:** 1132 E. Big Beaver Road Troy, MI 48083

**Telephone:** + 1 (231) 412-2420

**Email:** hello@aqueus.com

**1.4 Emergency Telephone Number:**

**(800) 424-9300 CHEMTREC (USA)**

24 hours/day, 7 days/week

**SECTION 2: HAZARDS IDENTIFICATION**

Classification of the Substance or Mixture: Complies with OSHA 29 CFR 1910.1200 Appendix B (B.16 Corrosive to Metals, B.16.1).

**Hazard Classification:**

- Skin Corrosion / Irritation, Category 2, H315 (Causes skin irritation)
- Serious Eye Irritation, Category 2, H319 (Causes serious eye irritation)
- Corrosive to Metals, Category 1, H290 (May be corrosive to metals.)

**Signal Word:** Warning

**Hazard Statement(s):** Causes skin irritation and serious eye irritation. May be corrosive to metals.

**Pictogram(s):**

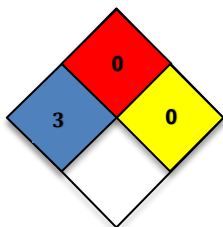


**Precautionary Statement(s):** Do not get into the eyes. Wash hands, forearms, and face thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. May damage metal application equipment containing zinc and/or low carbon steel substrates if used improperly.


**Hazardous Materials Information System (HMIS):**

<b>HEALTH</b>	<b>2</b>	<b>Moderate Hazard</b>	Temporary or minor injury may occur.
<b>FLAMMABILITY</b>	<b>0</b>	<b>Minimal Hazard</b>	Materials that will not burn.
<b>PHYSICAL HAZARD</b>	<b>0</b>	<b>Minimal Hazard</b>	Materials that are normally stable, under fire conditions and will not react to water, polymerize, decompose, condense, or self-react.
<b>PERSONAL PROTECTION</b>	<b>D</b>		Face Shield and Eye Protection, Gloves, Synthetic Apron.

**National Fire Protection Association (NFPA)**



<b>Health Hazard</b>	<b>3</b>	<b>Serious or permanent injury.</b>
<b>Flammability Hazard</b>	<b>0</b>	<b>Will not burn under normal fire conditions.</b>
<b>Instability Hazard</b>	<b>0</b>	<b>Normally stable.</b>
<b>Specific Hazard</b>		

**California Proposition 65:**  **WARNING** – This product can expose you to chemicals known to the State of California to cause cancer and birth defects or reproductive harm.

**SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS**

Classification of the Substance or Mixture: Complies with OSHA 29 CFR 1910.1200(i) "Trade Secrets".

Chemical Identity	CAS No.	%W/W	GHS Hazards H – phrases
Purified Water – H <sub>2</sub> O	7732-18-5	90.5 – 92.0%	Not Classified
Hydrogen Sulfate – HSO <sub>4</sub> <sup>-</sup> (See Note Below)	14996-02-2	6.25 – 7.25%	H315 (Causes skin irritation) H319 (Causes serious eye irritation)
Hydronium – H <sub>3</sub> O <sup>+</sup>	13968-08-6	1.75 – 2.25%	H315 (Causes skin irritation) H319 (Causes serious eye irritation)

Note: Hydrogen sulfate is a key ingredient of Growthful – Pre-Emerge. Hydrogen sulfate (HSO<sub>4</sub><sup>-</sup>) is acidic in nature and is a weaker form of acid than Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) (CAS No, 7664-03-9).

**SECTION 4: FIRST AID MEASURES**
**4.1 Description of First Aid Measures**

**First-aid measures - general:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**Inhalation:** Not a likely route of exposure. Remove to fresh air if irritation occurs. If symptoms develop, obtain medical attention.

**Skin Contact:** Exposure to skin causes irritation or redness. No toxicity associated with the product being absorbed through skin. Wash exposed areas with water. In the event of irritation or redness, seek medical advice.

**Eye Contact:** This product causes irritation to the eyes. Rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In the event of irritation, seek medical advice.

**Ingestion:** Ingesting large volumes may cause minor gastrointestinal distress due to separation of grease and oil in the digestive tract. Drink water to assist in digestion if swallowed. Contact a poison control center and seek medical advice/attention.

**4.2 Most Important Symptoms and Effects, Both Acute and Delayed**

**Acute:** Ingestion will cause minor distress to the gastrointestinal tract. May cause chemical and mechanical eye irritation with direct contact.

**Delayed and Chronic Effects:** Expected to be similar to acute exposures.

**4.3 Indication of the Immediate Medical Attention and Special Treatment Needed:** Treat symptomatically. Obtain medical assistance if required.

**SECTION 5: FIREFIGHTING MEASURES**

**Not flammable or combustible by OSHA/WHMIS criteria. Not sensitive to mechanical impact and static discharge.**

**Flash Point:** > 428° F (220° C)

**Explosive Limits:** Not Applicable (Auto-Ignition)

**Temperatures:** Not Applicable

**5.1 Extinguishing Media**

**Suitable Extinguishing Media:** Use extinguishing media appropriate to surrounding fire conditions.

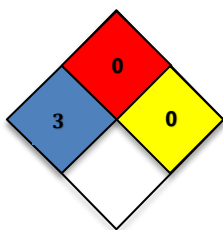
**Unsuitable Extinguishing Media:** None known

**5.2 Special Hazards Arising from the Substance or Mixture:** Containers may rupture from exposure to high temperatures, releasing contents that may be slippery.

**5.3 Advice for Firefighters:** Suitable protective clothing should be worn in fire conditions including respiratory protection. Extinguish preferably with dry chemical, foam, or water spray. Exercise caution when fighting any chemical fire. Prevent fire-fighting water run-off from entering the environment.

**5.4 Hazardous Combustion Products:** Compounds of Sulfur.

**5.5 National Fire Protection Association (NFPA):**



<b>Health Hazard</b>	<b>3</b>	<b>Serious or permanent injury.</b>
<b>Flammability Hazard</b>	<b>0</b>	<b>Will not burn under normal fire conditions.</b>
<b>Instability Hazard</b>	<b>0</b>	<b>Normally stable</b>
<b>Specific Hazard</b>		

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**6.1 Personal Precautions, Protective Equipment and Emergency Procedures:** Eye protection, face protection, gloves, and synthetic apron recommended. Evacuate unnecessary personnel

**6.2 Environmental Precautions:** Avoid release to the environment. Prevent entry to the sewers and public waters. Notify appropriate authorities if any liquid enters the sewers or public waters.

**6.3 Methods and Material for Containment and Cleaning Up:** Absorb spillage to avoid material damage. Soak up any spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Dispose of material in accordance with local regulations.

**6.4 Reference to Other Sections:** See Also Section 7, 8, 13.

**6.5 Additional Information:** None

**SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for Safe Handling:** Avoid contact with eyes. Wear chemical resistant personal protective gear. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, and when leaving work. Do not breath mist, vapors, spray.

**7.2 Conditions for Safe Storage:** Store in closed containers between 35°F and 120°F.

Storage conditions: Keep containers closed and away from incompatible materials.

Incompatible products: Metals, cyanides, strong bases.

Incompatible materials: Metals such as zinc and/or low carbon steel substrates.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**
**8.1 Control Parameters**
**8.1.1 Occupational Exposure Limits**

Substance	Hydrogen Sulfate	Hydronium
CAS No.	14996-02-2	13968-08-6
ACGIH TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> ( thoracic fraction)	Not available for non-listed component.
OSHA PEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>	Not available for non-listed component.
U.S. IDLH (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>	Not available for non-listed component.
NIOSH Rel TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>	Not available for non-listed component.

The Threshold–Limit Values (TLVs) for Hydronium have not been established by the American Conference of Governmental Industrial Hygienists (ACGIH).  
The Permissible Exposure Limits (PELs) for Hydronium have not been established by the Occupational Safety and Health Administration (OSHA).

**8.2 Appropriate Engineering Controls:** No special controls required.

**8.3 Personal Protection Measures:**

**Respiratory Protection:** Usually not needed.

**Eye Protection:** Safety glasses including face protection mandatory.

**Hand Protection:** Acid resistant gloves recommended.

**Skin and Body Protection:** Wearing of chemical resistant personal protective gear recommended.

**8.4 General Hygiene Considerations:** Handle according to established industrial hygiene and safety practices.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**
**9.1 Information on Basic Physical and Chemical Properties**

	Concentrate		Concentrate
<b>Appearance:</b>	Clear Liquid	<b>Vapor Pressure:</b>	Not available
<b>Color:</b>	Water White Liquid	<b>Vapor Density:</b>	Not available
<b>Odor:</b>	None to Mild	<b>Relative Density:</b>	Not available
<b>Odor Threshold:</b>	Not available	<b>Solubilities:</b>	Infinitely soluble in water
<b>pH:</b>	0.1 – 1.5	<b>Partition Coefficient: N-octanol/Water:</b>	Not available
<b>Melting Point</b>	Not available	<b>Decomposition Temperature:</b>	Not available
<b>Initial Boiling Point:</b>	Not available	<b>Percent Volatile, wt. %:</b>	0%
<b>Boiling Point:</b>	> 112 °C (233.6° F)	<b>Density Range:</b>	1.025 – 1.045 g/ml
<b>Flash Point:</b>	> 220 °C (428° F)	<b>VOC Content, wt. %:</b>	0%
<b>Evaporation Rate:</b>	1 (Water = 1)		
<b>Flammability (solid, gas):</b>	Non-Flammable		
<b>Upper/Lower Flammability Limit:</b>	Non-Flammable		
<b>Auto-ignition Temperature:</b>	Non-Flammable		

**SECTION 10: STABILITY AND REACTIVITY**

- 10.1 Reactivity:** No additional information available.
- 10.2 Chemical Stability:** Stable under normal conditions. Avoid temperature extremes.
- 10.3 Possibility of Hazardous Reactions:** No hazardous reactions observed.
- 10.4 Conditions to Avoid:** Do not freeze. Do not use above ambient temperature.
- 10.5 Incompatible Materials:** Avoid prolonged contact with metals.
- 10.6 Hazardous Decomposition Product(s):** Sulfur Oxides.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**Substance: Hydrogen Sulfate - CAS 14996-02-2: Hydronium – CAS 13968-08-6**

**11.1 Information on Toxicological Effects****Effects of Acute Exposure**

**Inhalation:** Product may be irritating to nasal tissue.

**Ingestion:** Product may be irritating to gastrointestinal tract.

**Skin Contact:** Prolonged contact may result in slight irritation.

**Eye Contact:** Contact causes serious eye irritation.

**Repeated Dose Toxicity:** Expected to be similar to single exposures.

**Carcinogenicity:** This product does not contain any carcinogens or potential carcinogens as listed by the American Conference of Governmental Industrial Hygienists (ACGIH), the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA), or the National Toxicology Program (NTP).

**Mutagenicity:** Not available.

**Toxicity for Reproduction:** Not available.

**11.2 Other Information:** None

**SECTION 12: ECOLOGICAL INFORMATION**

- 12.1 Toxicity:** Not expected to be harmful to soil environments. Not expected to cause long lasting harmful effects to aquatic life.
- 12.2 Persistence and Degradability:** Readily biodegradable liquid.
- 12.3 Bio-accumulative Potential:** Not available.
- 12.4 Mobility in Soil:** Not available.
- 12.5 Results of PBT and vPvB Assessment:** Not available.
- 12.6 Additional Information on Eco-toxicity:** The product does not add to the AOX-value of effluent water (DIN 38409).

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste Treatment Methods:** Disposal should be in accordance with local, state, or national legislation. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used. Containers must not be punctured or destroyed by burning, even when empty.

**13.2 Additional Information:** Neutralization recommended before disposal.

**SECTION 14: TRANSPORT INFORMATION**

**U.S. Department of Transportation (DOT) (c)(d):** Classified as hazardous for transport.

Hydrogen sulfate is a key ingredient in Growthful – Pre-Emerge. In accordance with the DOT shipping regulations located in 49 CFR 172.101 Hazardous Materials Table, Hydrogen sulfate is not considered a proper shipping name for transportation. The Hazardous Materials Table states that Sulfuric acid will be used as the proper shipping name for Hydrogen sulfate during transportation.

Therefore, the proper shipping name for Hydrogen sulfate is "UN2796, Sulfuric acid *with not more than 51% acid*, 8, II."

**UN Number:** 2796

**UN Shipping Name:** Sulfuric acid *with not more than 51% acid*

**Hazard Class:** 8

**Packing Group:** II



**DOT Special Provisions (49 CFR 172.102):** 386, A3, A7, B2, B15, IB2, N6, N34, T8, TP2

**DOT Packaging Exceptions (49 CFR 173.xxx):** 154

**DOT Packaging Non-Bulk (49 CFR 173.xxx):** 202

**DOT Packaging Bulk (49 CFR 173.xxx):** 242

**DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27):** 1 Liter

**DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75):** 30 Liters

**DOT Vessel Stowage Location (49 CFR 172.101 Table Column 10A):** Stowage Category B

**DOT Vessel Stowage Location (49 CFR 172.101 Table Column 10B):** Code 53, Code 58

**Land Transport ADR (Road) and RID (Rail) (c)(d):** Classified as hazardous for transport.

**Canada Transportation of Dangerous Goods (TDG) (c)(d):** Classified as hazardous for transport.

**Sea Transport – International Maritime Dangerous Goods (IMDG) Code (c)(d):** Classified as hazardous for transport.

**Air Transport – International Civil Aviation Organization (ICAO) and the International Atomic Energy Agency (IATA) (c)(d):** Classified as hazardous for transport.

*(c)– Consult with transport provider. (d) – Check relevant regulations for Special Provisions.*

**SECTION 15: REGULATORY INFORMATION**

**15.1 U.S. FEDERAL REGULATIONS**

**40 CFR 370.66 – Emergency Planning, Community Right to Know Act (EPCRA) Section 311/312 Reporting:**

Health Hazards:

Skin Corrosion or Irritation

Serious Eye Damage or Eye Irritation

Physical Hazard:

Corrosive to Metal

**40 CFR Chapter I, Subchapter R – Toxic Substance Control Act (TSCA):**

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

**15.2 INTERNATIONAL REGULATIONS**

**CANADA –** No additional information available

**EU REGULATIONS –** No additional information available

**SECTION 16: OTHER INFORMATION**

**Training Advice:** None

**Additional Information:** Replaces all previous editions.

**References:** RTECS, CAS Registry, EINECS/ESIS, Manufacturer Information.

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**Print Date**

**Revision Summary:** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer:** The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**