



MATERIAL SAFETY DATA SHEET

*** Section 1 – Chemical Product and Company Identification ***			
Product Name or Identity:	ACID PAK 4-WAY LIQUID HARD WATER FORMULA		
Manufacturer's Name:	Alltech, Inc.	Phone No.:	(859) 885-9613
	3031 Catnip Hill Pike	Fax No.:	(859) 885-6736
	Nicholasville, KY 40356	ChemTrec:	1-800-424-9300
Date Prepared or Revised:	January 19, 2010		

*** Section 2 – Hazards Identification ***
EMERGENCY OVERVIEW: This product is a clear to pale yellow liquid with no discernible odor. While this product is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of this product.
OSHA Regulatory Status: This product is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Potential Health Effects: Inhalation Under normal conditions of use, inhalation of this product is unlikely. If application creates vapors/mists, use appropriate NIOSH approved respiratory protection.
Potential Health Effects: Skin Prolonged exposure may cause skin irritation.
Potential Health Effects: Eyes May cause slight irritation.
Potential Health Effects: Ingestion Small amounts are not likely to cause damage. Seek medical attention if large amount is ingested.
Chronic Health Effects: Not identified.
Signs and Symptoms of Exposure: Not identified.
Medical Conditions Aggravated by Exposure: Not identified.
HMIS Rating: Health: 2 Fire: 0 Reactivity: 2 Hazard scale: 0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe *=Chronic Hazard

Product Name: **ACID PAK 4-WAY LIQUID HARD WATER FORMULA**

*** Section 3 – Composition/Information on Ingredients ***	
CAS #	Component
Not available	Water, Dried <i>Aspergillus niger</i> fermentation extract, and Dried <i>Bacillus subtilis</i> fermentation extract.
77-92-9	Citric acid
64-19-7	Acetic acid
7647-14-5	Sodium chloride
7440-40-7	Potassium chloride
7733-02-0	Zinc sulfate
7720-78-7	Iron sulfate
7487-88-9	Magnesium sulfate
121-32-4	Ethyl vanillin

*** Section 4 – First Aid Measures ***	
First Aid: Inhalation	Under normal conditions of use, inhalation of this product is unlikely. If inhaled, remove to fresh air. If no breathing, give artificial respiration and seek medical attention.
First Aid: Skin	Remove contaminated clothing. Wash affected area with soap and water for at least 5 to 15 minutes. Seek medical attention if irritation develops.
First Aid: Eyes	In case of contact, immediately flush with water for at least 15 minutes. Seek medical attention if irritation develops or persists.
First Aid: Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention.
First Aid: Notes to Physician	Not available

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*** Section 5 – Fire Fighting Measures ***	
Flash Point: Not available	Method Used: Not available
Upper Flammable Limit (UFL): Not available	Lower Flammable Limit (LFL): Not available
Auto Ignition: Not available	Flammability Classification: Not available
Rate of Burning: Not available	
Flammable Properties: Not available	
Extinguishing Media: Use media that is appropriate to treat surrounding fire. Consider water spray or fog, carbon dioxide, dry chemical powder or foam.	
Fire Fighting Equipment/Instructions: Wear protective clothing and equipment suitable for the surrounding fire, including helmet, face mask, and self-contained breathing apparatus.	
Specific Hazards: Evolves carbon dioxide, carbon monoxide or hydrocarbon fumes upon combustion.	
NFPA Ratings: Health: 2 Fire: 0 Reactivity: 2 Hazard scale: 0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe	

*** Section 6 – Accidental Release Measures ***
Personal Precautions: Wear appropriate personal protective equipment as specified in Section 8.
Environmental Precautions: Avoid contact and inhalation. Do not get in eyes, on skin, on clothing. Wash thoroughly with soap and water after handling. The use of respiratory protection is advised when vapor/mist concentrations exceed any established exposure limits (see point 8).
Methods for Containment: No special precautions.
Methods for Clean-Up: Place down an absorbent material, then sweep, shovel, or vacuum up the material. Avoid any excess dust formation. Use caution as product may be slippery when wet. Keep product out of sewage and drainage systems and all bodies of water. Cleanup spills immediately. Ventilate the contaminated area. Thoroughly wash the area with water after a spill.
Other Information: Regulations vary. All waste material should be packaged, labeled and disposed of in accordance with federal and local regulations. Consult local authorities before disposal.

*** Section 7 – Handling and Storage ***
Handling Procedures: Avoid contact and inhalation. Do not get in eyes, on skin, on clothing. Wash thoroughly with soap and water after handling. The use of respiratory protection is advised when dust concentrations exceed any established exposure limits (see point 8).
Storage Procedures: Keep in a tightly closed container, stored in a cooled, dry, ventilated area. Opened containers should be resealed. The product shelf life under these conditions is 18 months.

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***** Section 8 – Exposure Controls/Personal Protection *****

A: Component Exposure Limits

Component (CAS #): Acetic acid (CAS#: 64-19-7)

ACGIH: 15 ppm

OSHA: 25 mg/m³

Component (CAS #): Acetic acid (CAS#: 64-19-7)

ACGIH: 1 mg/m³ TWA

NIOSH: 1 mg/m³ TWA

Engineering Controls:

If user operations generate vapors/mists, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protective Equipment: Eyes/Face

Safety glasses when eye contact is possible due to vapor/mist.

Personal Protective Equipment: Skin

Under normal conditions of use, not usually required. Rubber or latex gloves recommended for prolonged exposure.

Personal Protective Equipment: Respiratory

Under normal conditions of use, inhalation of this product is unlikely. If application creates vapors/mists, use appropriate NIOSH approved respiratory protection.

Personal Protective Equipment: General

There are no known hazards associated with this product when used as recommended. Use good hygiene practices when handling this material including changing and laundering work clothes after use. Wash with soap and water after handling.

***** Section 9 – Physical and Chemical Properties *****

Physical State: Solid	Appearance: Pale yellow liquid
Odor: None	Specific gravity: 1.06g/ml
Boiling Point: 189°F	Melting Point: Not available
Vapor Density: Not applicable	Vapor Pressure: Not applicable
Flashpoint: Not applicable	Solubility (H₂O): Soluble
pH: Not available	

***** Section 10 – Chemical Stability and Reactivity Information *****

Stability: Stable under ordinary conditions of use and storage (70°F [21 °C], 1 atm).

Conditions to Avoid: Heat and/or moisture.

Incompatible Materials: Alkalis and strong acids

Hazardous Decomposition: Evolves carbon dioxide, carbon monoxide or hydrocarbon fumes upon combustion or if heated to decomposition.

*** Section 11 – Toxicological Information ***
<p>Acute and Chronic Toxicity</p> <p>A: General Product Information Not available</p>
<p>B: Component Analysis – LD50/LC50</p> <p>Component (CAS #): Citric acid (CAS#: 77-92-9) Oral [mouse]: Acute 5040 mg/kg Oral [rat]: 3000 mg/kg</p> <p>Component (CAS #): Acetic acid (CAS#: 64-19-7) Oral [mouse]: Acute 4960 mg/kg Oral [rat]: Acute: 3310 mg/kg</p> <p>Component (CAS #): Sodium chloride (CAS#: 7647-14-5) Oral [mouse]: 4000 mg/kg Oral [rat]: 3000 mg/kg</p> <p>Component (CAS #): Potassium chloride (CAS#: 7440-40-7) Oral [mouse]: 1500 mg/kg Oral [rat]: 2600 mg/kg</p> <p>Component (CAS #): Zinc sulfate (CAS#: 7733-02-0) Oral [mouse]: 245 mg/kg</p> <p>Component (CAS #): Iron sulfate (CAS#: 7720-78-7) Oral [mouse]: 680 mg/kg Oral [rat]: 533 mg/kg</p>
<p>Carcinogenicity</p> <p>A: General Product Information Not available</p>
<p>B: Component Carcinogenicity</p> <p>Component (CAS #): Not available</p>
<p>Epidemiology: Not available</p>
<p>Neurotoxicity: Not available</p>
<p>Mutagenicity: Component Sodium chloride is mutagenic for mammalian cells, bacteria, and yeast. Component Iron sulfate has microbial mutation with out S9 E.coli 30mol/L.</p>
<p>Teratogenicity: Not available</p>
<p>Other Toxicological Information: To the best of our knowledge, the chemical, physical, and toxicological properties of this product have not been thoroughly investigated.</p>

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***** Section 12 – Ecological Information *****

Component Analysis – Ecotoxicity – Aquatic Toxicity

Component (CAS #): Citric acid (CAS#: 77-92-9)

Test & Species: [*Leuciscus idus melanotus*]: 4400 mg/l – 48h

Component (CAS #): Acetic acid (CAS#: 64-19-7)

Test & Species: [Goldfish]: 423 mg/l – 24h

Component (CAS #): Sodium chloride (CAS#: 7647-14-5)

Test & Species: [*Lepomis macrochirus*]: 1294 mg/l – 96h

Test & Species: [*Daphnia magna*]: 1661 mg/l – 48h

Component (CAS #): Magnesium sulfate (CAS#: 7487-88-9)

Test & Species: [*Primephales promelas*]: 2820 mg/l – 96h

Test & Species: [*Daphnia magna*]: 343 mg/l – 48h

***** Section 13 – Disposal Considerations *****

US EPA Waste Number & Descriptions

A: General Product Information

Not available

B: Component Waste Numbers

Component (CAS #):

Not available

Disposal Instructions:

Consult local, state and/or provincial environmental regulatory authorities for acceptable disposal procedures and locations.

***** Section 14 – Transportation Information *****

This product is not regulated for shipping by DOT.

***** Section 15 – Regulatory Information *****

US Federal Regulations

A: General Product Information

Not available

B: Component Analysis

Component (CAS #):

Not available

State Regulations

A: General Product Information

Not available

B: Component Analysis – State

The following components appear on one or more of the following state right to know lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Citric acid	77-92-9					X	X
Acetic acid	64-19-7			X	X	X	X
Sodium chloride	7647-14-5					X	X
Potassium chloride	7440-40-7					X	X
Magnesium sulfate	7487-88-9					X	X

Component Analysis – WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Citric acid	77-92-9	Class E: Corrosive Solid
Not available		

Additional Regulatory Information

Component Analysis – Inventory

Component	CAS #	TSCA 8(b) inventory
Citric acid	77-92-9	Yes
Acetic acid	64-19-7	Yes
Sodium Chloride	7647-14-5	Yes
Potassium chloride	7440-40-7	Yes
Magnesium sulfate	7487-88-9	Yes

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***** Section 16 – Other Information *****

Other Information:

Product Use: **ACID PAK 4-WAY LIQUID HARD WATER FORMULA** is an organic acidifier for addition to livestock and poultry drinking water containing citric acid/sodium citrate, enzymes and flavoring agents.

"The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, Alltech Biotechnology Center cannot give any guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use."