

## 1. Identification

<b>Product identifier</b>	<b>NPK Fertilizer 3-18-18</b>
<b>Other means of identification</b>	Not available
<b>SDS Number</b>	MS_3-18-18_US
<b>Recommended use</b>	Fertilizer.
<b>Recommended restrictions</b>	None known.

### **Manufacturer / Importer / Supplier / Distributor Information**

<b>Company name</b>	microSource, LLC	
<b>Address</b>	7632 County Road 101 Shakopee, MN 55379 US	
<b>Telephone</b>	1-952-445-6570	
<b>Website</b>	<a href="http://www.gavilon.com">www.gavilon.com</a>	
<b>Contact person</b>	EH&S/Regulatory Department	
<b>Emergency phone number</b>	CHEMTREC (24 hours):	1-800-424-9300

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Skin corrosion/irritation.	Category 2
	Serious eye damage/eye irritation.	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
<b>OSHA defined hazards</b>	Not classified.	

### **Label elements**



<b>Signal word</b>	Warning.
<b>Hazard statement</b>	Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.

### **Precautionary statement**

<b>Prevention</b>	Avoid breathing mist/vapors/spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear eye/face protection.
<b>Response</b>	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.

<b>Hazard(s) not otherwise classified (HNOC)</b>	Not classified.
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<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute Category 2
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**Supplemental information**  
**Precautionary statement**  
**Prevention**

Avoid release to the environment.

### 3. Composition/information on ingredients

**Mixtures**

Chemical name	CAS number	%
Potassium hydroxide	1310-58-3	35 – 50
Phosphoric acid	7664-38-2	30 – 35
Urea	57-13-6	5 – 10
Ammonium hydroxide	1336-21-6	1 – 5

**Composition comments**

Components will have dissociated into ions resulting in a product with a near neutral pH. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

### 4. First-aid measures

**Eye contact**

Check for and remove contact lenses. Flush immediately with copious amounts of water or normal saline (minimum of 15 minutes), holding eyelids apart to ensure complete irrigation of the eye and eyelid tissue. Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.

**Skin contact**

Remove contaminated clothing, shoes and equipment. Immediately flush skin with plenty of water. Repeat washing. If redness or irritation occurs, seek medical attention. Wash contaminated clothing before reuse.

**Inhalation**

Move person to fresh air and loosen clothing. If the affected person is not breathing, apply artificial respiration. Get medical attention immediately.

**Ingestion**

Rinse mouth thoroughly. Drink 1 or 2 glasses of water. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention.

**Most important symptoms/effects, acute and delayed**

Irritant effects. Discomfort in the chest. Shortness of breath. Coughing. Symptoms include itching, burning, redness, and tearing of eyes. Prolonged or repeated skin contact may cause drying, cracking, or irritation. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of vapor or mists may cause lung edema.

**Indication of immediate medical attention and special treatment needed**

Treat symptomatically.

**General information**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

### 5. Fire-fighting measures

**Suitable extinguishing media**

Water fog. Water spray. Carbon dioxide (CO<sub>2</sub>). Foam.

**Unsuitable extinguishing media**

Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**

Heating may cause the release of ammonia vapors.

**Special protective equipment and precautions for firefighters**

Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting follow the general fire precautions indicated in the workplace.

**Fire-fighting equipment/instructions**

Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from the fire area if you can do so without risk.

**Specific methods**

Use water spray to cool unopened containers.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Avoid inhalation of vapors and spray mist and contact with skin and eyes. Wear suitable protective clothing. For personal protection see Section 8 of the SDS.

**Methods and materials for containment and cleaning up**

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with vermiculite, dry sand or earth and place into containers. After removal flush contaminated area thoroughly with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses.

**7. Handling and storage**

**Precautions for safe handling**

Avoid inhalation of vapors/spray and contact with skin and eyes. Use only with adequate ventilation. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store in a cool, dry well-ventilated place. Keep container tightly closed. Keep this material away from food, drink and animal feed. Avoid using containers, pipes and fittings made of zinc-clad or copper bearing alloys. Use care in handling/storage.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Ammonia (CAS 7664-41-7)	PEL	35 mg/m <sup>3</sup> 50 ppm

**US ACGIH Threshold Limit Values**

Components	Type	Value
Ammonia (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

**US NIOSH Pocket Guide to Chemical Hazards: Recommended exposure limit (REL)**

Components	Type	Value
Ammonia (CAS 7664-41-7)	TWA	18 mg/m <sup>3</sup> 25 ppm

**US NIOSH Pocket Guide to Chemical Hazards: Short Term Exposure Limit (STEL)**

Composition	Type	Value
Ammonia (CAS 7664-41-7)	STEL	27 mg/m <sup>3</sup> 35 ppm

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Exposure guidelines</b>	Follow standard monitoring procedures.
<b>Appropriate engineering controls</b>	Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and mists. Provide eyewash station and safety shower.
<b>Individual protection measures such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear approved safety glasses or goggles.
<b>Skin Protection</b>	
<b>Hand protection</b>	Neoprene gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
<b>Other</b>	Wear appropriate clothing to prevent repeated or prolonged skin contact.
<b>Respiratory protection</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of mist, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene consideration</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Appearance</b>	Clear liquid
<b>Physical State</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Clear.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	7.20 – 7.60
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation Rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability</b>	
<b>Flammability limit- lower (%)</b>	Not available.
<b>Flammability limit- upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor Density (Air=1)</b>	Not available.
<b>Relative density</b>	1.395
<b>Solubility(ies)</b>	Completely soluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non reactive under normal conditions of use storage and transport.
<b>Chemical stability</b>	Stable under normal temperature conditions and recommended use.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Heat. Extreme temperatures.
<b>Incompatible materials</b>	Strong acids. Reactive metals.
<b>Hazardous decomposition products</b>	Nitrogen oxides. Ammonia. Potassium oxides.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	May be harmful if swallowed.
<b>Inhalation</b>	Vapors and spray mist may irritate throat and respiratory system and cause coughing.
<b>Skin contact</b>	Prolonged or repeated skin contact may cause irritation.
<b>Eye contact</b>	Causes serious eye irritation on direct contact.

**Symptoms related to the physical, chemical and toxicological characteristics** Irritant effects. Symptoms include itching, burning, redness and tearing of eyes. Prolonged or repeated skin contact may cause drying, cracking, or irritation. Discomfort in the chest. Shortness of breath. Coughing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of vapor or mist may cause lung edema.

### Information on toxicological effects

**Acute toxicity** May be harmful if swallowed.

<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Ammonia hydroxide (CAS 1336-21-6) <b>Acute</b> <i>Oral</i> LD50	Rat	350 mg/kg
Phosphoric acid (CAS 7664-38-2) <b>Acute</b> <i>Dermal</i> LD50	Rabbit	2740 mg/kg
<i>Oral</i> LD50	Rat	1530 mg/kg
Potassium hydroxide (CAS 1310-58-3) <b>Acute</b> <i>Oral</i> LD50	Rat	273 mg/kg
Urea (CAS 57-13-6) <b>Acute</b> <i>Oral</i> LD50	Rat	14300 mg/kg

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye irritation.

**Respiratory sensitization** No data available.

**Skin sensitization** No data available.

**Germ cell mutagenicity** No data available.

<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Reproductive toxicity</b>	No data available.
<b>Specific target organ toxicity-single exposure</b>	May cause respiratory irritation.
<b>Specific target organ toxicity-repeated exposure</b>	No data available.
<b>Aspiration hazard</b>	No data available.
<b>Chronic effects</b>	Prolonged exposure may cause chronic effects.
<b>Further information</b>	No other specific acute or chronic health impact noted.

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic life.

<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Ammonia hydroxide (CAS 1336-21-6) <b>Aquatic</b> Crustacea LC50	Daphnia magna	0.66 mg/L, 48 hours
Phosphoric acid (CAS 7664-38-2) <b>Aquatic</b> Fish LC50	Mosquitofish (Gambusia)	138 mg/l, 96 hours
Potassium hydroxide (CAS 1310-58-3) <b>Aquatic</b> Fish LC50	Western mosquitofish (Gambusia affinis)	80 mg/l, 96 hours
Urea (CAS 57-13-6) <b>Aquatic</b> Fish LC50	Leuciscus idus	> 6810 mg/l, 96 hours

**Persistence and degradability** No data available.

**Bioaccumulative potential** No data available.

**Partition coefficient n-octanol / water (log Kow)**  
Urea (CAS 57-13-6) -2.11

**Mobility in soil** This product is water soluble and may disperse in soil.

**Other adverse effects** No data available.

## 13. Disposal considerations

**Disposal instructions** Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

**Hazardous waste code** Not regulated.

**Waste from residues / unused products** Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

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**Contaminated packaging**

Since emptied containers may retain product residue, follow label warnings even after container is emptied.

**14. Transport information**

**DOT**

Not regulated as a hazardous material by DOT.

**IATA**

Not regulated as a dangerous good.

**IMDG**

Not regulated as a dangerous good.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not established.

**15. Regulatory information**

**TSCA Inventory Status:**

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Ammonia (CAS 7664-41-7)	LISTED
Phosphoric acid (CAS 7664-38-2)	LISTED
Potassium hydroxide (CAS 1310-58-3)	LISTED

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<b>Hazard categories</b>	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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<b>SARA 302 Extremely hazardous substance</b>	No
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<b>SARA 311/312 Hazardous chemical</b>	Yes
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**SARA 313 (TRI reporting)**

Chemical name	CAS number	%
Ammonia	7664-41-7	1 - 5

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

No regulated.

<b>Safe Drinking Water Act (SDWA)</b>	Not regulated.
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<b>Food and Drug Administration (FDA)</b>	Not regulated.
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**US state regulations**

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US. Massachusetts RTK - Substance List**

Ammonium hydroxide (CAS 1336-21-6)
Phosphoric acid (CAS 7664-38-2)
Potassium hydroxide (CAS 1310-58-3)

**US. New Jersey Worker and Community Right-to-Know Act**

Ammonium hydroxide (CAS 1336-21-6)  
 Phosphoric acid (CAS 7664-38-2)  
 Potassium hydroxide (CAS 1310-58-3)

**US. Pennsylvania Worker and Community Right-to-Know Act**

Ammonium hydroxide (CAS 1336-21-6)  
 Phosphoric acid (CAS 7664-38-2)  
 Potassium hydroxide (CAS 1310-58-3)

**US. Rhode Island RTK**

Ammonium hydroxide (CAS 1336-21-6)  
 Phosphoric acid (CAS 7664-38-2)  
 Potassium hydroxide (CAS 1310-58-3)

**US. California Proposition 65**

**US – California Proposition 65 – Carcinogens & Reproductive Toxicity (CRT): Listed substances**  
 Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A “Yes” indicates this product complies with the inventory requirements administered by the governing country(s).

A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

**Issue date** 07-December-2015

**Revision date** --

**Version #** SDS

**NFPA Ratings**



**List of abbreviations**

EC50: Effective concentration, 50%.  
 LC50: Lethal concentration, 50%.

**References**

EPA: Acquire database  
 HSDB® – Hazardous Substances Data Bank  
 IARC Monographs. Overall Evaluation of Carcinogenicity  
 National Toxicology Program (NTP) Report on Carcinogens  
 ACGIH Documentation of the Threshold Limit Value and Biological Exposure Indices

**Preparation**

The preparation of this MSDS was in accordance with ANSI Z400.1-2010.

**Disclaimer**

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS.