

SAFETY DATA SHEET

Phury


Date Prepared: 4/9/2014

Replaces: All Previous

SECTION 1. IDENTIFICATION

Product Name: Phury
 Synonyms: Urea Sulfate Solution, FLO150016S
 Use: Agricultural, Liquid Micronutrient Fertilizer
 Manufacturer: Chemical Dynamics, Inc.
 4206 Business Lane
 Plant City FL 33566
 Phone: 813-752-4950
 Chemtrec (Emergency) Phone: 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

| Pictogram | Signal Word | Hazard Class | Hazard Category | Hazard Statement |
|--|---|---|-----------------|--|
|  | DANGER | Skin Corrosion Eye Damage Corrosive to Metals | Cat 1 | Causes severe skin burns and serious eye damage. May be Corrosive to Metals |
| Precautionary Statements: | <p>Prevention: Do not breathe vapors, mists or sprays. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection, and face protection. Keep in original container.</p> <p>Response: If swallowed: rinse mouth, Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call doctor. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call doctor. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call doctor.</p> <p>Absorb spillage to prevent material damage.</p> <p>Storage: Store locked up. Store in corrosive resistant container (See Section 7 of SDS).</p> <p>Disposal: Dispose of contents/containers in accordance with local/regional/national regulations (See Section 13 of SDS).</p> | | | |

SECTION 3. COMPOSITION

| Material | CAS # | EINECS # | %WT |
|---|------------|-----------|---------|
| Urea Sulfate (Monocarbamide dihydrogensulfate) | 21351-39-3 | 244-343-6 | 79% |
| Water | 7732-18-5 | 231-791-2 | balance |

See product label for guaranteed analysis.

| SECTION 4. FIRST AID MEASURES | |
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| Ingestion: | Rinse mouth. Do NOT induce vomiting. Drink large amounts of water. Never give anything by mouth to an unconscious person. Get medical attention immediately. |
| Skin Contact: | Immediately Take of immediately all contaminated clothing and rinse skin with water/shower. Wash contaminated clothing before reuse. Get medical attention immediately. |
| Inhalation: | Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Seek prompt medical attention. |
| Eye Contact: | Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing eyes during transport to hospital. |
| Acute Exposure Symptoms: | Harmful if swallowed or inhaled. Immediately seek medical attention. This product is corrosive to all tissues with which it comes in contact. Contact with skin does not normally cause immediate irritation but prolonged contact may result in redness, swelling, skin burns and severe damage. Inhalation of the vapor or mist can cause eye, nose, throat, and respiratory irritation or coughing. When ingested, it can produce nausea, vomiting, abdominal pain, diarrhea, and irritation or burns of the oropharyngeal mucosa, esophagus, and stomach. |
| Chronic Exposure Symptoms: | Not available |

| SECTION 5. FIRE FIGHTING MEASURES | |
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| Extinguishing Media: | This product is non-flammable. Use appropriate media for surrounding fire. Cool containers with water spray to avoid rupture due to thermal expansion. |
| Specific Hazards: | This product is an aqueous mixture and is not flammable. However, above 110°C (230°F), this product can vigorously decompose and release carbon dioxide. The resulting increase in pressure can rupture containers. If material is exposed to prolonged heat in a fire, material may release oxides of carbon, sulfur and nitrogen. For safety, avoid water spray with full jet to prevent spread of product. |
| Protective Equipment and Precautions for Fire-Fighters: | Wear self-contained breathing apparatus (SCBA) and full protective gear. Avoid inhaling combustion products. Fire run-off should be contained to prevent possible environmental damage. |
| NFPA Rating: | Health: 3, Fire: 0, Reactivity: 0 |

| SECTION 6. ACCIDENTAL RELEASE MEASURES | |
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| Precautions: | Corrosive liquid. Isolate area. Keep unnecessary personnel away. Avoid splashing or spraying. Do no touch or walk through spilled material. |
| Protective Equipment: | Impervious gloves (rubber, neoprene or nitrile), chemical resistant suit, chemical splash-proof goggles, face shield. Chemical resistant apron and/or rubber boots may be needed. Use NIOSH approved respirator if vapors or mists exceed applicable concentration limits. |
| Containment: | Stop flow of material if safe to do so. Dike area with diatomaceous earth or sand and maximize recovery. Prevent spillage from entering drains or open bodies of water. Any release to the environment may be subject to reporting requirements. |

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| Clean Up: | Pump into a suitable tank or absorb with diatomaceous earth or sand. Make sure pumping equipment is 316L stainless steel construction. Residue can be neutralized slowly with lime. Recover and dispose of residue. Sweep up and place into suitable containers for agronomical land application at recommended rates or dispose of in accordance with local/regional/national regulations (See Section 13 of SDS). |
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SECTION 7. HANDLING AND STORAGE

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| Precautions for safe handling: | Open containers carefully. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Do not eat, drink or use tobacco products when handling this material. Apply product in open areas. Keep away from children and pets. Do not contaminate feed, seed or any water sources. Launder work clothes frequently and separate from other laundry. When diluting always pour product into water and not vice versa |
| Conditions for safe storage: | Store locked up. Store in a well-ventilated, cool, dry place, away from sources of intense heat, or where freezing is possible. Keep away from combustible materials, strong bases and metals. Large storage tanks should have secondary containment and electrically grounded. Polyethylene, polypropylene and 316L stainless steel are acceptable materials for storage containers. Will corrode incompatible metals. Tanks should be vented and painted white or in light heat-reflecting colors. Piping should be all welded schedule 80. Ensure that all pumps, valves, meters, gaskets, etc., are of compatible materials. Periodic inspection of metallic components for corrosion should be conducted. Keep containers tightly closed when not in use. Do not let product go below 35°F. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. |
| Incompatibilities: | Avoid storage, piping or handling systems made of copper, zinc and their alloys. |

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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| Component Exposure Limits: | Urea Sulfate CH ₆ N ₂ O ₅ S | Not Established | PEL, OSHA |
| | | Not Established | STEL, OSHA |
| | | Not Established | TLV, ACGIH |
| | | Not Established | IDLH, NIOSH |
| | | Not Established | REL, NIOSH |
| | | Not Established | STEL, NIOSH |
| Engineering Controls: | Provide local exhaust ventilation and wash facilities. Eye wash stations and safety showers required. | | |
| Personal Protective Equipment: | <u>Eyes:</u> Chemical splash-proof goggles and face shield <u>Skin:</u> Impervious gloves (rubber, neoprene or nitrile), long sleeved clothing. Chemically resistant apron is recommended. <u>Respiratory:</u> None required for ambient air concentrations (i.e. in the open under normal agronomic conditions) not exceeding occupational exposure limits. Respiratory protection may be required in the event of a spill in an enclosed area. Wear NIOSH approved respiratory protective equipment when vapor or mists may exist as well as a chemical suit. | | |

| SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES | | | |
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| Appearance: | Clear, pink liquid | | |
| Odor: | Odorless | UEL / LEL: | Not Applicable |
| Odor Threshold: | Not Available | Vapor Pressure: | Not Available |
| pH: | < 0 | Density: | 1.51 to 1.53 g/cm ³ |
| Melting/Freezing Point: | 5.6°C (42°F) – Salt Out | Solubility: | Water |
| Boiling Point: | Decomposes 110°C (230°F) | Log_{ow}: | Not Available |
| Flash Point: | Not Applicable | Auto Ignition Temp: | Not Applicable |
| Evaporation Rate: | Similar to water | Decomposition Temp: | 110°C (230°F) |
| Flammability (Solid/Gas): | Not Applicable | Viscosity | Not Available |

| SECTION 10. STABILITY AND REACTIVITY | |
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| Reactivity: | Product is acidic. |
| Chemical Stability: | Stable under normal conditions. |
| Possibility of Hazardous Reactions: | Hazardous polymerization will not occur. |
| Conditions to avoid: | High temperatures. May vigorously decompose under high temperature conditions, >110°C (230°F) releasing carbon dioxide gas and rupture containers. |
| Incompatible Materials: | Reactive or incompatible with nitrates, hypochlorites, sulfides, alkaline materials and many metals. Toxic or flammable gases may be formed. Do not mix with UAN solutions. Extremely corrosive to copper, aluminum, zinc. Corrosive to mild steel. Slightly corrosive to 316 stainless steel. Incompatible with nylon or nylon blends. Acceptable container materials are fiberglass, CPVC, polyethylene, polypropylene or 316L stainless steel. Consult a metallurgist for compatibility with handling equipment and periodic inspection of metal components. |
| Hazardous Decomposition Products: | Carbon dioxide. |

| SECTION 11. TOXICOLOGICAL INFORMATION | |
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| Acute Toxicity: | LD50 oral (rat): 350 mg/kg LD50 dermal (rabbit): >2000 mg/kg |
| Likely Routes of Exposure: | Inhalation of mist, eye, and skin contact. |
| Symptoms and Signs of Exposure: | <u>Eyes:</u> Contact causes severe irritation and tissue damage; Eye burns, watering eyes. <u>Skin:</u> Contact with skin does not normally cause immediate irritation. But prolonged contact may result in redness, swelling, skin burns and severe damage. <u>Ingestion:</u> Corrosive if swallowed. Burning, choking, nausea, vomiting, severe pain; Danger of perforation of esophagus and stomach <u>Inhalation:</u> Severe irritation and burning of the nose, throat and respiratory tract. |

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| Chronic Effects: | Prolonged or repeated overexposures by inhalation or skin or eye contact may result in severe irritation or corrosive effects. The mucus membranes, the respiratory tract and the digestive system are subject to irritation and corrosive effects from chronic exposure. Changes in pulmonary function may occur, along with chronic bronchitis and emphysema. |
| Carcinogenic: | None of this product's components are listed by ACGIH, OSHA, IARC, NIOSH, NTP or California Prop 65 as carcinogenic. |
| Mutagenicity: | Not Available |
| Reproductive Toxicity: | Not Available |

| SECTION 12. ECOLOGICAL INFORMATION | |
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| Ecotoxicity: | May be harmful to fish, livestock and wildlife. Non-persistent and non-cumulative when properly applied agronomically. A toxic hazard to fish. Avoid spills or releases to watercourses. The products of degradation are less toxic than the product itself. |
| Other Adverse Effects: | Not harmful to ozone layer |
| Ecotoxicity: | LC50 Pseudokirchneriella subcapitata (Green Algae): 11500 ug/L/126 hrs; static LC50 Gasterosteus aculeatus (Threespine Stickleback): 80000 ug/L/96 hrs; static |

| SECTION 13. DISPOSAL CONSIDERATIONS | |
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| General Information: | As packaged, this product is a D002 corrosive waste per 40 CFR 261; applicable to wastes containing this product. |
| Disposal Instructions: | Agronomical land application at recommended rates or dispose of in accordance with local/regional/national regulations. Container contents should be completely used and the containers rinsed prior to discard. Rinsate should be treated as a corrosive material. Dispose of in accordance with product characteristics at time of disposal. |

| SECTION 14. TRANSPORT INFORMATION | |
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| This material is hazardous as defined by 49 CFR 172.101 by the US Department of Transportation | |
| Proper Shipping Name: | Corrosive Liquid N.O.S. (Monocarbamide dihydrogensulfate) |
| Hazard Class: | 8 |
| UN Identification #: | 1760 |
| Packing Group: | III |
| Required Label(s): | Corrosive |
| Emergency Response Guide Number: | 154 |
| Special Provisions for Transport | <u>Note:</u> DOT corrosive to aluminum. Not regulated if transported by motor carrier or railcar in packaging that will not react or be degraded by this material – 49 CFR 173.154(d). |
| Marine Pollutant: | No |

| SECTION 15. REGULATORY INFORMATION | |
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| TSCA Inventory Status | All intentional ingredients listed on the TSCA inventory. |
| DSCL (EEC) Status | All intentional ingredients listed on the DSCL inventory. |
| United States – SARA Hazard Category: | This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (SARA) and is considered, under applicable definitions, to meet the following categories: Fire – No, Pressure – No, Acute – Yes, Chronic – No, Reactive – No |
| SARA Title III Information: | This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: |
| Urea Sulfate CAS No. 21351-39-3 | CERCLA RQ (pounds): This product contains no Reportable Quantity (RQ) Substances. However, since spilled material may react with water to release sulfuric acid, an effective RQ of 2040 lbs (161 gallons) should be applied in the event of a spill. SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No |
| Federal Insecticide, Fungicide, and Rodenticide Act | This product is not a pesticide. |
| State Regulations: | Other state regulations may apply. Check individual state requirements. |

| SECTION 16. OTHER INFORMATION | |
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| Date of Revision: | 4/9/2014, revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards. |
| Disclaimer: | The information contained in this SDS refers only to the specific material designated and does not relate to any process or use with any other materials. This information is based on data believed to be accurate and reliable as of the date hereof. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Because safety standards and regulations are subject to change and because Chemical Dynamics, Inc. has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. No warranty, expressed or implied, and no liability is assumed by Chemical Dynamics, Inc. in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents. |