

**SAFETY DATA SHEET**

Dyna Flo 12-3-6 Plus



Date Prepared: 6/12/2014

Replaces: All Previous

**SECTION 1. IDENTIFICATION**

Product Name: Dyna Flo 12-3-6 Plus  
 Synonyms: FLO1236+  
 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
	<b>DANGER</b>	Skin Corrosion Eye Damage Corrosive to Metals	Cat 1	Causes severe skin burns and serious eye damage. May be Corrosive to Metals
		Oxidizing Liquid	Cat 3	May intensify fire; oxidizer
<b>Precautionary Statements:</b>	<p><b>Prevention:</b> Do not breathe vapors, mists or sprays. Wash thoroughly after handling. Wear protective gloves, protective clothing, chemical splash proof goggles, and face protection. Keep in original container. Keep away from heat. Keep/Store away from clothing and combustible materials.</p> <p><b>Response:</b> <u>If swallowed:</u> rinse mouth, Do NOT induce vomiting. Drink 2 glasses of water. Immediately call doctor.</p> <p><u>If on skin (or hair):</u> Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call doctor.</p> <p><u>If inhaled:</u> Remove person to fresh air and keep comfortable for breathing. Immediately call doctor.</p> <p><u>If in eyes:</u> 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><b>Storage:</b> Store locked up. Store in corrosive resistant container (polyethylene, polypropylene, fiberglass - See Section 7 of SDS). Do not allow product to dry out.</p> <p><b>Disposal:</b> Dispose of contents/containers in accordance with local/regional/national regulations (See Section 13 of SDS). Containers may be triple rinsed and offered for recycling.</p>			

**SECTION 3. COMPOSITION**

Material	CAS #	EINECS #	%WT
Phosphoric Acid	7664-38-2	231-633-2	4.2 %
Citric Acid	77-92-9	201-069-1	1.6 %
Potassium Nitrate	7757-79-1	231-818-8	13 %
Urea	57-13-6	200-315-5	Proprietary blend of materials not classified as hazardous or are below de minimus cut off values
Potassium Humate	68514-28-3	271-030-1	
Water	7732-18-5	231-791-2	

See product label for guaranteed analysis.

**SECTION 4. FIRST AID MEASURES**

<b>Ingestion:</b>	Rinse mouth. Do NOT induce vomiting. Drink large amounts of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Skin Contact:</b>	Immediately Take of all contaminated clothing and rinse skin with water/shower. Wash contaminated clothing before reuse. Get medical attention immediately.
<b>Inhalation:</b>	Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Seek prompt medical attention.
<b>Eye Contact:</b>	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing eyes during transport to hospital.
<b>Acute Exposure Symptoms:</b>	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.
<b>Chronic Exposure Symptoms:</b>	Chronic ingestion may lead to erosion of tooth enamel. Chronic, high concentration overexposure to Citric Acid can result in a reduction of plasma calcium concentration

**SECTION 5. FIRE FIGHTING MEASURES**

<b>Extinguishing Media:</b>	Water spray is recommended. Halon, foam, dry chemical, CO2 or any ABC class extinguisher are acceptable. Use extinguishing agent most appropriate to surrounding materials. Cool containers with water spray to avoid rupture due to thermal expansion.
<b>Specific Hazards:</b>	This product is an aqueous mixture which will not burn. Under fire conditions, this product behaves as an oxidizer. Contact with oxidizable substances may result in ignition. Violent combustion or explosion when involved in fire can occur. This material may decompose and produce acrid vapors and oxides of nitrogen, sulfur, carbon and phosphorous, phosphines and hydrogen gas from reaction with metals. For safety, avoid water spray with full jet to prevent spread of product. Exposure to metals can produce highly flammable hydrogen gas.
<b>Protective Equipment and Precautions for Fire-Fighters:</b>	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.
<b>NFPA Rating:</b>	Health: 3, Fire: 0, Reactivity: 1

<b>SECTION 6. ACCIDENTAL RELEASE MEASURES</b>	
<b>Precautions:</b>	Corrosive liquid. Isolate area. Keep unnecessary personnel away. Avoid splashing or spraying. Do not touch or walk through spilled material.
<b>Protective Equipment:</b>	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.
<b>Containment:</b>	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.
<b>Clean Up:</b>	Pump into a suitable tank or absorb with diatomaceous earth or sand. 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).

<b>SECTION 7. HANDLING AND STORAGE</b>	
<b>Precautions for safe handling:</b>	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
<b>Conditions for safe storage:</b>	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. Do not store in metal containers. Shipping and storing in polypropylene or fiberglass containers is acceptable. Large storage tanks should have secondary containment and electrically grounded. Keep containers tightly closed when not in use. Do not let product go below 32°F. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Do not allow product to dry out.
<b>Incompatibilities:</b>	Avoid storage, piping or handling systems made of copper, zinc, aluminum and their alloys (e.g. brass) and finely powdered metals. Keep away from strong reducing agents and bases (such as ammonium hydroxide) and amines. Keep away from flammable and combustible materials, intense heat or fire.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION			
<b>Component Exposure Limits:</b>	Urea	Not Established	PEL, OSHA
		10 mg/m <sup>3</sup>	TWA, ACGIH
		Not Established	IDLH, NIOSH
		Not Established	REL, NIOSH
		Not Established	STEL, NIOSH
		Not Established	PEL, OSHA
	Phosphoric Acid H <sub>3</sub> PO <sub>4</sub>	1 mg/m <sup>3</sup>	PEL, OSHA
		3 mg/m <sup>3</sup>	STEL, OSHA
		1 mg/m <sup>3</sup>	TLV, ACGIH
		1,000 mg/m <sup>3</sup>	IDLH, NIOSH
		1 mg/m <sup>3</sup>	REL, NIOSH
		3 mg/m <sup>3</sup>	STEL, NIOSH
	Citric Acid C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> Potassium Nitrate KNO <sub>3</sub> , Potassium Humate	Not Established	PEL, OSHA
		Not Established	STEL, OSHA
		Not Established	TLV, ACGIH
		Not Established	IDLH, NIOSH
		Not Established	REL, NIOSH
		Not Established	STEL, NIOSH
<b>Engineering Controls:</b>	Provide local exhaust ventilation and wash facilities. Eye wash stations and safety showers required.		
<b>Personal Protective Equipment:</b>	<p><u>Eyes:</u> Chemical splash-proof goggles and face shield</p> <p><u>Skin:</u> Impervious gloves (rubber, neoprene or nitrile), long sleeved clothing. Chemically resistant apron is recommended.</p> <p><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.</p>		

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES			
<b>Appearance:</b>	Clear, dark brown liquid		
<b>Odor:</b>	Odorless	<b>UEL / LEL:</b>	Not Applicable
<b>Odor Threshold:</b>	Not Available	<b>Vapor Pressure:</b>	Not Available
<b>pH:</b>	1.5 to 2.3	<b>Density:</b>	1.20 to 1.23 g/cm <sup>3</sup>
<b>Melting/Freezing Point:</b>	< 0°C (32°F)	<b>Solubility:</b>	Water
<b>Boiling Point:</b>	>100°C (212°F)	<b>Log<sub>ow</sub>:</b>	Not Available
<b>Flash Point:</b>	Not Applicable	<b>Auto Ignition Temp:</b>	Not Applicable
<b>Evaporation Rate:</b>	Similar to water	<b>Decomposition Temp:</b>	Not Available
<b>Flammability (Solid/Gas):</b>	Not Applicable	<b>Viscosity</b>	Not Available

SECTION 10. STABILITY AND REACTIVITY	
<b>Reactivity:</b>	Product is acidic.
<b>Chemical Stability:</b>	Stable under normal conditions.
<b>Possibility of Hazardous Reactions:</b>	Hazardous polymerization will not occur.
<b>Conditions to avoid:</b>	High temperatures. Heating can evolve irritating and toxic sulfur oxides.
<b>Incompatible Materials:</b>	Strong oxidants, strong bases, combustibles and reducing substances, most metals.
<b>Hazardous Decomposition Products:</b>	Phosphorus oxides and/or phosphine from thermal decomposition and hydrogen gas from reaction with metals. Carbon dioxide, oxides of nitrogen, phosphorous, and sulfur

SECTION 11. TOXICOLOGICAL INFORMATION	
<b>Acute Toxicity:</b>	Urea, Potassium Nitrate, Potassium Humate, Citric Acid: LD50 oral (rat): > 2000 mg/kg Phosphoric Acid: LD50 oral (rat): 1530 mg/kg (100% basis), >36000 mg/kg (this product)
<b>Likely Routes of Exposure:</b>	Inhalation of mist, eyes, and skin contact.
<b>Symptoms and Signs of Exposure:</b>	<u>Eyes:</u> Contact causes severe irritation and tissue damage; Eye burns, watering eyes. <u>Skin:</u> Causes severe skin burns; Burning, itching, redness, inflammation, swelling of exposed tissue. Effects may be delayed. <u>Ingestion:</u> Corrosive if swallowed. Burning, choking, nausea, vomiting, bloody diarrhea severe pain; Danger of perforation of esophagus and stomach. The nitrate component may reduce the blood's ability to transport oxygen causing headache, fatigue, dizziness and blue lips and skin (methemoglobinemia). Symptoms may be delayed. <u>Inhalation:</u> Severe irritation and burning of the nose, throat and respiratory tract.
<b>Chronic Effects:</b>	Chronic ingestion may lead to erosion of tooth enamel. Chronic, high concentration overexposure to Citric Acid can result in a reduction of plasma calcium concentration
<b>Carcinogenic:</b>	None of this product's components are listed by ACGIH, OSHA, NIOSH or NTP as carcinogenic. IARC: 2A Probably carcinogenic to humans (Nitrates (ingested) under conditions that result in endogenous nitrosation)
<b>Mutagenicity:</b>	Not Classified
<b>Reproductive Toxicity:</b>	Not Classified

<b>SECTION 12. ECOLOGICAL INFORMATION</b>	
<b>Ecotoxicity:</b>	May be harmful to fish, livestock and wildlife. Non-persistent and non-cumulative when properly applied agronomically. Avoid spills or releases to watercourses.
<b>Other Adverse Effects:</b>	Inorganic phosphates have the potential to increase the growth of freshwater algae, whose eventual death will reduce the available oxygen for aquatic life. Not harmful to ozone layer
<b>Ecotoxicity:</b>	Urea: LC50 – <i>Poecilia reticulata</i> (guppy): 17,500 mg/L for 96 hrs Potassium Nitrate: LC50 (48 hr) <i>Daphnia magna</i> (Water flea): 490 mg/L. Freshwater; static LC50 (48 hr) <i>Lepomis macrochirus</i> (bluegill): 3757 mg/L. Static Citric Acid: LC50 (48hr) <i>Carcinus maenas</i> (Green or European shore crab): 160 mg/L renewal Phosphoric Acid: LC50 (48 hr) <i>Lepomis macrochirus</i> (bluegill): 10.5 mg/L. Freshwater; static Potassium Humate: Not Available
<b>SECTION 13. DISPOSAL CONSIDERATIONS</b>	
<b>General Information:</b>	As packaged, this product is a D002 corrosive waste per 40 CFR 261; applicable to wastes containing this product.
<b>Disposal Instructions:</b>	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.

<b>SECTION 14. TRANSPORT INFORMATION</b>	
<b>This material is hazardous as defined by 49 CFR 172.101 by the US Department of Transportation</b>	
<b>Proper Shipping Name:</b>	Corrosive Liquid, acidic, inorganic, N.O.S. (Phosphoric Acid Mixture)
<b>Hazard Class:</b>	8
<b>UN Identification #:</b>	3264
<b>Packing Group:</b>	III
<b>Required Label(s):</b>	Corrosive
<b>Emergency Response Guide Number:</b>	154
<b>Marine Pollutant:</b>	No
<b>Special Provisions for Transport</b>	<b>NOTE 1:</b> Not regulated by the Hazardous Materials Regulations and not subject to placarding when transported by motor vehicle or railcar in packaging constructed of materials that will not react dangerously with or be degraded by the corrosive material. – 49 CFR 173.154(d). <b>NOTE 2:</b> Not classified as a Division 5.1 Oxidizer – 49 CFR 172.102 Special Provisions 58.

<b>SECTION 15. REGULATORY INFORMATION</b>	
<b>TSCA Inventory Status</b>	All intentional ingredients listed on the TSCA inventory.
<b>DSCL (EEC) Status</b>	All intentional ingredients listed on the DSCL inventory.
<b>United States – SARA Hazard Category:</b>	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
<b>SARA Title III Information:</b>	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 CAS No. 57-13-6 Citric Acid CAS No. 77-92-9	CERCLA RQ (pounds): No SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
Potassium Nitrate CAS No. 7757-79-1	CERCLA RQ (pounds): No SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: Yes 1.0% de minimus concentration (N511, Water Dissociable Nitrate)
Phosphoric Acid CAS No. 7664-38-2	CERCLA RQ (pounds): 5000 lbs (100% basis) SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
<b>Federal Insecticide, Fungicide, and Rodenticide Act</b>	This product is not a pesticide.
<b>State Regulations:</b>	Other state regulations may apply. Check individual state requirements.
<b>SECTION 16. OTHER INFORMATION</b>	
Date of Revision:	6/12/2014, 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.