

### SAFETY DATA SHEET

Dyna Flo K-Sil


Date Prepared: 6/24/2015

Replaces: All Previous

#### SECTION 1. IDENTIFICATION

Product Name: Dyna Flo K-Sil  
 Synonyms: Potassium Silicate Solution, FLO0212  
 Use: Agricultural, Liquid 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>	Corrosive to Metals	Cat 1	May be corrosive to metals
		Skin Corrosion Eye Damage	Cat 1A Cat 1	Causes severe skin burns and serious eye damage
<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.</p> <p><b>Response:</b> Immediately call doctor.</p> <p><u>If swallowed:</u> rinse mouth, Do NOT induce vomiting. Immediately call doctor or poison center.</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 a corrosive resistant container (polypropylene, polyethylene, See Section 7 of SDS)</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
Potassium Humate	68514-28-3	271-030-1	Proprietary, not classified as hazardous
Tripotassium Phosphate	7778-53-2	231-907-1	8%
Potassium Hydroxide	1310-58-3	215-181-3	3%

Potassium Silicate	1312-76-1	215-199-1	21%
Water	7732-18-5	231-791-2	balance

See product label for guaranteed analysis.

<b>SECTION 4. FIRST AID MEASURES</b>	
<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 rinse skin with flooding amounts of water/shower while removing all contaminated clothing. Wash contaminated clothing before reuse. Seek medical attention immediately.
<b>Inhalation:</b>	Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Seek medical attention immediately.
<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. Potassium hydroxide solution is highly corrosive to all tissues with which it comes in contact. It can cause severe skin burns and ulcerations. Vapors or mists cause severe burns to the eyes, nose, throat, and respiratory tract. Inhalation of dust may be fatal due to spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and severe pulmonary edema. Eye exposure can cause severe damage and blindness. When ingested, it may result in severe burns to the mouth, throat and stomach, pain, nausea and vomiting, swelling of the larynx and subsequent suffocation, perforation of the gastrointestinal tract.
<b>Chronic Exposure Symptoms:</b>	Not available

<b>SECTION 5. FIRE FIGHTING MEASURES</b>	
<b>Extinguishing Media:</b>	This product is non-flammable. Use appropriate media for surrounding fire. Cool containers with water spray from a distance to avoid rupture due to thermal expansion.
<b>Specific Hazards:</b>	This product is an aqueous solution and is not flammable. However the following hazards can occur when exposure to extreme heat: release of potassium, phosphorous and carbon oxides and/or hydrogen gas. The material is corrosive to aluminum, zinc and tin and can produce highly flammable hydrogen gas. For safety, avoid water spray with full jet to prevent spread of product.
<b>Protective Equipment and Precautions for Fire-Fighters:</b>	Wear self-contained breathing apparatus (SCBA) and full protective gear. Avoid inhaling combustion products. Equipment should be thoroughly decontaminated after use. If safe to do so, remove containers from path of fire. Do not approach containers suspected to be hot. Fire run-off should be contained to prevent possible environmental damage.
<b>NFPA Rating:</b>	Health: 2, Fire: 0, Reactivity: 1

<b>SECTION 6. ACCIDENTAL RELEASE MEASURES</b>	
<b>Precautions:</b>	Corrosive liquid. Isolate area. Keep unnecessary personnel away. Evacuate upwind if necessary. Avoid splashing or spraying. Spills may be slippery.
<b>Protective Equipment:</b>	Impervious gloves (rubber, neoprene or nitrile) and boots, full body chemical resistant suit with NIOSH approved respirator or SCBA. Chemical splash-proof goggles and face shield. After clean-up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.
<b>Containment:</b>	Stop flow of material if safe to do so. Dike area with diatomaceous earth or sand and maximize recovery. Residue can be neutralized with dilute acetic acid or citric acid. Prevent spillage from entering drains or waterways. 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. 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>	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. Spillage can be slippery. Promptly clean residue from closures with cloth dampened with water. Dried residue may be glass-like with sharp edges.
<b>Conditions for safe storage:</b>	Store locked up. Store in corrosion resistant containers. Store in plastic containers (polyethylene or polypropylene). Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers. Store in a well-ventilated, cool, dry place, away from sources of intense heat, or where freezing is possible. Wear personal protective equipment when risk of exposure occurs. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.
<b>Incompatibilities:</b>	The material is corrosive to aluminum, zinc, copper and tin (or their alloys) producing highly flammable hydrogen gas. Also incompatible with acids, halogens, halocarbons, alcohols, acid chlorides, acid anhydrides and ammonia salts. This material reacts with acids, forming gels and heat. Store separately from acids. Keep away from intense heat or fire.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION			
<b>Component Exposure Limits:</b>	Potassium Hydroxide KOH	Not Established	PEL, OSHA
		Not Established	STEL, OSHA
		2 mg/m3	TLV, ACGIH
		Not Established	IDLH, NIOSH
		2 mg/m3	REL-C, NIOSH
		Not Established	STEL, NIOSH
	Tripotassium Phosphate K <sub>3</sub> PO <sub>4</sub> and Potassium Silicate K <sub>4</sub> SiO <sub>4</sub> and	Not Established	PEL, OSHA
		Not Established	STEL, OSHA
		Not Established	TLV, ACGIH
		Not Established	IDLH, NIOSH
		Not Established	REL-C, NIOSH
		Not Established	STEL, NIOSH
<b>Engineering Controls:</b>	Provide local exhaust ventilation and wash facilities. Facilities storing or utilizing this material must be equipped with an eyewash facility and a safety shower.		
<b>Personal Protective Equipment:</b>	<p><u>Eyes:</u> Chemical splash-proof goggles (where splashing is possible) and face shield.</p> <p><u>Skin:</u> Impervious gloves (rubber, neoprene or nitrile) and impervious boots, long sleeved clothing and chemically resistant apron under non-misting conditions.</p> <p><u>Respiratory:</u> None required for ambient air concentrations (i.e. in the open under normal, non-misting agronomic conditions). Respiratory protection required in the event of a spill in an enclosed area or when misting/heavy vapor formation can occur. Use NIOSH approved respiratory protective as well as a full body chemical suit.</p>		

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES			
<b>Appearance:</b>	Clear, dark liquid		
<b>Odor:</b>	Odorless or slight musty odor	<b>UEL / LEL:</b>	Not Applicable
<b>Odor Threshold:</b>	Not Available	<b>Vapor Pressure:</b>	Not Available
<b>pH:</b>	11 to 12	<b>Density:</b>	1.27-1.30 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

<b>SECTION 10. STABILITY AND REACTIVITY</b>	
<b>Reactivity:</b>	Product is highly alkaline and caustic.
<b>Chemical Stability:</b>	Stable under normal conditions. Lowering pH can result in hardening of this product to a glass-like solid and heat.
<b>Possibility of Hazardous Reactions:</b>	Hazardous polymerization will not occur.
<b>Conditions to avoid:</b>	High temperatures
<b>Incompatible Materials:</b>	Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc. This material reacts violently with acids. Store separately from acids. Keep away from intense heat or fire.
<b>Hazardous Decomposition Products:</b>	Hydrogen gas, oxides of potassium, phosphorous and carbon.
<b>SECTION 11. TOXICOLOGICAL INFORMATION</b>	
<b>Acute Toxicity:</b>	Potassium Hydroxide LD50 oral (rat): 273 mg/kg Tripotassium Phosphate: LD50 oral (rat): 4640 mg/kg Potassium Silicate: Not available; for chemically similar Sodium Silicate, LD50 oral (rat): 1500-3200 mg/kg
<b>Likely Routes of Exposure:</b>	Inhalation of mist, ingestion, eye and skin contact.
<b>Symptoms and Signs of Exposure:</b>	<u>Eyes:</u> Can cause severe burns and tissue damage, possible vision loss and blindness. Moderate eye irritation leading to inflammation is possible. Repeated or prolonged exposure to irritants may produce conjunctivitis. <u>Skin:</u> Causes severe skin burns and ulceration; Burning, itching, redness, inflammation, swelling of exposed tissue; Severe skin irritation after prolonged or repeated exposure. Contact dermatitis can develop which is characterized by skin redness and ulceration. Onset of pain may be delayed by several minutes or hours. <u>Ingestion:</u> Severe burns to the mouth, throat and stomach, pain, nausea and vomiting, swelling of the larynx and subsequent suffocation, perforation of the gastrointestinal tract. <u>Inhalation:</u> Vapors or mists are highly corrosive to the upper respiratory tract. Inhalation may be fatal due to spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and severe pulmonary edema. Symptoms of inhalation exposure include burning, choking, coughing, wheezing, laryngitis, shortness of breath, headache, nausea or vomiting.
<b>Chronic Effects:</b>	Not Available
<b>Carcinogenic:</b>	None of this product's components are listed by ACGIH, OSHA, IARC, NIOSH, NTP or California Prop 65 as carcinogenic.
<b>Mutagenicity:</b>	Not Available; but for chemically similar Sodium Silicate was not mutagenic to the bacterium E. Coli when tested in a mutagenicity bioassay.
<b>Reproductive Toxicity:</b>	Not Available

<b>SECTION 12. ECOLOGICAL INFORMATION</b>	
<b>Environmental Fate:</b>	In high concentrations, this product may be harmful to both terrestrial and aquatic plant and animal life due to high pH.
<b>Other Adverse Effects:</b>	Not harmful to ozone layer
<b>Ecotoxicity:</b>	Potassium Hydroxide LC50 (48hrs): Gambusia affinis (Western Mosquitofish): 80 mg/L. Freshwater; static Tripotassium Phosphate LC50 (96hrs): Gambusia affinis (Western Mosquitofish): 750 mg/L. Freshwater; static Potassium Silicate Not Available, but for chemically similar Sodium Silicate: LC50 (96hrs): Gambusia affinis (Western Mosquitofish): 2317 mg/L. Freshwater; static LC50 (96hrs): Daphnia magna (Water Flea): 247 mg/L. Freshwater; static

<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. 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, Basic, Inorganic, n.o.s. (Potassium Silicate Solution)
<b>Hazard Class:</b>	8
<b>UN Identification #:</b>	3266
<b>Packing Group:</b>	III
<b>Required Label(s):</b>	Corrosive
<b>Emergency Response Guide Number:</b>	154
<b>Marine Pollutant:</b>	No

<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 – Yes

<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:
Potassium Hydroxide CAS No. 1310-58-3	CERCLA RQ (pounds): 1000 lbs (100% basis) SARA Reporting, 302: No SARA Reporting, 304: No SARA Reporting, 313: No
Tripotassium Phosphate CAS No. 7778-53-2, Potassium Humate CAS No. 68514-28-3 and Potassium Silicate CAS No. 1312-76-1	CERCLA RQ (pounds): No 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>FDA</b>	Potassium silicate is regarded as GRAS (Generally Recognized As Safe) as a corrosion preventative in potable water.
<b>State Regulations:</b>	Other state regulations may apply. Check individual state requirements.
Potassium Hydroxide CAS No. 1310-58-3	Appears on one or more of the following state hazardous substance lists: CA, FL, NJ, MA, MN, PA, TX

#### SECTION 16. OTHER INFORMATION

Date of Revision:	6/24/2015, 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.