MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian NOHSC, Japanese and European Union Standards

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	**SPECTRAFLAIR® PIGMENT (ALL COLORS)**
CHEMICAL NAME/CLASS:	Magnesium Fluoride-Coated Aluminum Pigment
SYNONYMS:	None Allocated
U.N. NUMBER:	None Allocated
U.N. DANGEROUS GOODS CLASS/SUBSIDIARY RISK:	None Allocated
HAZCHEM CODE (AUSTRALIA):	None Allocated
POISONS SCHEDULE NUMBER (AUSTRALIA):	None Allocated
PRODUCT USE:	Pigmentation of a Variety of Products
SUPPLIER/MANUFACTURER'S NAME:	**JDSU**
Address:	1402 Mariner Way Santa Rosa, CA 95407-7307
Business Phone:	1-(707) 525-9200
EMERGENCY PHONE:	1-(800) 424-9300 (CHEMTREC) 24-hours [North America] +1-703-527-3887 (Chemtrec) 24-hours [International]
EMAIL:	
DATE OF PREPARATION:	July 6, 2010
DATE OF REVISION:	July 6, 2010

NOTE: ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian WHMIS [Controlled Products Regulations], European Union [Regulation (EC) 1907/2006 Annex II], and Japanese Industrial Standard (JIS Z 7250: 2005) required information is included in appropriate sections based on the U.S. ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the countries listed above.

2. HAZARD IDENTIFICATION

EU/AUSTRALIAN LABELING AND CLASSIFICATION: This product meets the definition of Irritant as defined by the European Union Council Directive 67/548/EEC and subsequent Directives and by the Australian National Occupational Health and Safety Commission [NOHSC(1008:2004)].

Classification: Irritant Risk Phrases: R: 15; R: 31, R: 36/37/38 Safety Phrases: S: (2-); S: 26; S: 37/39 Annex II Hazard Symbols: Xi

See Section 16 for full text of Risk and Safety Phrases

HEALTH HAZARDS: This product may mildly to moderately irritate skin, eyes, and other contaminated tissue. May be harmful if ingested.

FLAMMABILITY HAZARDS: This product must be substantially preheated for ignition to become a potential hazard. If exposed to extremely high temperatures, the products of thermal decomposition may include irritating fumes and toxic gases (e.g., magnesium, fluorine, hydrogen fluoride and aluminum compounds).

REACTIVITY HAZARDS: Contact with water will lead to the formation of hydrogen gas; under these conditions, closed containers may rupture (see Sections 7, Handling and Storage, and 10, Stability and Reactivity for further information).

ENVIRONMENTAL HAZARDS: This product may cause damage to the environment if released in large quantities.

3. COMPOSITION and INFORMATION ON INGREDIENTS

This product consists of microflakes that are thin layers of Magnesium Fluoride and Aluminum. In this pigment, Magnesium Fluoride is the outer layer. Approximately 80 to 95% of the total weight of the product is Magnesium Fluoride.

Chemical Name	CAS #	EINECS	ENC Inventory #	EU/Australian Classifications	%/Content	EU/Australian Hazard Symbol	EU/Australian Risk Phrases
Aluminum	7429-90-5	231-072-3	Not Listed (mineral)	Highly Flammable	8-22		R 15 R 17
Magnesium Fluoride	7783-40-6	231-995-1	1-328	Xi: Irritant	Balance		R 36/37/38

See Section 16 for full text of Ingredient Risk Phrases

4. FIRST-AID MEASURES

Contaminated individuals must be taken for medical attention, especially if adverse effects continue after initial treatment. Rescuers should be taken for medical attention if necessary. Take a copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: If this product contaminates the skin and irritation develops, immediately begin decontamination with soap and water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The contaminated individual must seek medical attention if adverse effects continue after flushing.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 20 minutes. The contaminated individual must seek medical attention.

INHALATION: Although unlikely, if this product is inhaled, remove victim to fresh air. Seek medical attention if adverse symptoms continue after removal to fresh air.

4. FIRST-AID MEASURES (Continued)

INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing dermatitis, other skin conditions, and respiratory conditions may be aggravated by acute or chronic overexposures to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

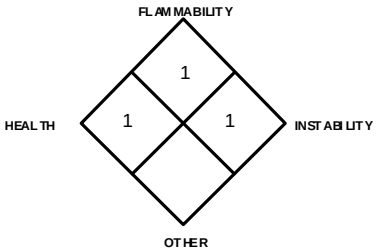
AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %): Not applicable.

FIRE EXTINGUISHING MATERIALS: Water spray, alcohol-resistant foam, or dry chemical. Consideration for surrounding materials must be taken into account.

FIRE EXTINGUISHING MATERIALS NOT TO BE USED: Due to the presence of Aluminum, DO NOT use carbon dioxide, sodium bicarbonate, halogenated extinguishing agents, foam or water.

NFPA RATING



Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate **3** = Serious **4** = Severe

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, the products of thermal decomposition may include irritating fumes and toxic gases (e.g., magnesium, fluorine, and aluminum compounds). It is important to note that under certain conditions, Aluminum dust clouds can explode when ignited by spark or flame. Though this is not anticipated to be a significant hazard with this product (due to the Magnesium Fluoride coating and the flake-shape), firefighters should minimize the generation of airborne particulates of this product. Contact with water will lead to the formation of hydrogen gas; under these conditions, closed containers may rupture (see Sections 7, Handling and Storage, and 10, Stability and Reactivity for further information).

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Proper protective equipment should be used. In the event of a spill, clear the area and protect people. Eliminate all sources of ignition before cleanup begins. Use non-sparking tools. The atmosphere must have levels of components lower than those listed in Section 8, (Exposure Controls and Personal Protective Equipment) if applicable, and have at least 19.5 percent oxygen before personnel can be allowed into the area without Self-Contained Breathing Apparatus (SCBA).

Small Spills: For Most Small Spills (i.e., one container, 5 kg in size): For accidental releases in which there is a minimum of dust, wear gloves, goggles, dust mask, and suitable body protection during clean up. Sweep-up spilled product, avoiding generating of dusts. Wash contaminated area with soap and water, absorb with paper towels or polypads, and rinse with water.

Large Spills: Trained personnel following pre-planned procedures should handle non-incidental releases. Minimum Personal Protective Equipment should be as follows: Dust Levels below 2.5 mg/m^3: Level C: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and an air-purifying respirator with high efficiency particulate filter. For dust Levels Above 2.5 mg/m^3: Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus. Level B must be worn when oxygen levels are lower than 19.5% or unknown. Sweep-up or vacuum (non-sparking, explosion-proof vacuum must be used) spilled product and place in appropriate container for disposal/recovery. Prevent material from entering sewer or confined spaces, waterways, soil or public waters. Monitor area and confirm levels are bellow exposure limits given in Section 8 (Exposure Controls-Personal Protection), if applicable, before non-response personnel are allowed into the spill area.

Sweep up or vacuum spilled powder. During spill clean-up, the powder can be moistened with water to minimize the generation of dust. Triple rinse area with water. Decontaminate the area thoroughly. Place all spill residue in an appropriate container and dispose of properly. CAUTION! If waste spilled material is wet and stored in a closed container, violet rupture of container can occur, due to formation of hydrogen gas. If containers are stored they must be vented. See Sections 7 and 10 for more information. Decontaminate the area thoroughly. If necessary, discard all stained response equipment or rinse with soapy water before returning such equipment to service. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

7. HANDLING and STORAGE

SAFE WORK AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid breathing airborne dusts and vapors generated by this product. Wash thoroughly after using this product. Do not eat or drink while using this product. Remove contaminated clothing immediately. Periodically sweep-up or wipe-down area, to minimize the accumulation of particulates.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Use in a well ventilated location. Keep away from heat, sparks, and other sources of ignition. Open containers slowly on a stable surface. Store at room temperature, 20-25°C (68-77°F). Do not expose containers to extreme temperatures. Never expose product to temperatures above 49°C (120°F). Keep container tightly closed when not in use. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from sources of intense heat. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers, as appropriate. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. The aluminum layer of this product is reactive with water. The aluminum and water reaction will evolve flammable hydrogen gas. If this reaction occurs in a closed container, pressure build-up may cause the container to bulge or rupture. Avoid unnecessary contact with water. If this product is used in water-based applications (paint, ink, etc) it must first be evaluated for gassing and passivated as necessary. A pressure-relief mechanism on the container should be used if there is any question about whether gassing will occur. Containers with pressure-relief mechanisms must be stored in a well-ventilated area to prevent any accumulation of flammable hydrogen gas. Store this product in the original container and keep tightly sealed.

SPECIFIC USE(S): This product is for use as a colorant. Follow all industry standards for use of this product.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION, ENGINEERING, AND OCCUPATIONAL EXPSOURE CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in later in this Section. Use local exhaust ventilation. If necessary, refer to Australian National Code of Practice for the Control of Workplace Hazardous Substances [NOHSC: 2007 (1994)] for further information. As with all products that contain chemicals, ensure proper decontamination equipment (e.g., eyewash/safety shower stations) are available near areas where this product is used as necessary.

EXPOSURE LIMITS:

ACGIH TLVs	**TWA:** **Aluminum:** 1 mg/m^3 (Resp. fraction) **Fluorides:** 2.5 mg/m^3	**STEL:** Not established.
OSHA-PELs	**TWA:** **Aluminum:** 15 mg/m^3 (Total Dust) 5 mg/m^3 (Resp. fraction) **Fluorides** 2.5 mg/m^3	**STEL:** Not established.
NIOSH-RELs/IDLH	**TWA:** **Aluminum:** 10 mg/m^3 (Total Dust) 5 mg/m^3 (Resp. fraction) **Fluorides:** 2.5 mg/m^3 **IDLH:** Not established.	**STEL:** Not established.
DFG MAKs	**TWA:** **Aluminum:** 4 mg/m^3 (Inhalable Fraction) 1.5 mg/m^3 (Resp. fraction) **Fluorides:** 1 mg/m^3 (Inhalable fraction), Skin **PEAK:** **Fluorides:** 4•MAK 15 min., average value, 1 hour interval, 4-per shift	**STEL:** Not established.
AIHA WEELs	**TWA:** Not established.	**STEL:** Not established

INTERNATIONAL OCCUPATIONAL EXPOSURE LIMITS: In addition to the exposure limit values cited in this section, other exposure limits have been established by various countries for the components of this mixture. More current limits may be available; individual countries should be consulted to determine if newer limits are available.

ALUMINUM:
Australia: TWA = 10 mg/m^3, JAN 1993
Australia: TWA = 2 mg/m^3 (salts), JAN 1993
Australia: TWA = 5 mg/m^3 (fumes), JAN 1993
Australia: TWA = 5 mg/m^3 (resp. dust), JAN 1993
Belgium: TWA = 10 mg/m^3, JAN 1993
Belgium: TWA = 2 mg/m^3 (salts), JAN 1993
Belgium: TWA = 5 mg/m^3 (fumes), JAN 1993
Denmark: TWA = 10 mg(Al)/m^3, OCT 2002
Denmark: TWA = 10 mg/m^3 (dust), OCT 2002
Finland: TWA = 2 mg/m^3 (salts), JAN 1993
France: VME = 10 mg/m^3, JAN 1999
France: VME = 5 mg/m^3 (fumes), JAN 1999
France: VME = 5 mg/m^3 (resp. dust), JAN 1993
Germany: MAK = 1.5 mg/m^3 (respirable), 2005
Hungary: STEL = 5 mg/m^3, JAN 1993
Hungary: TWA = 2 mg/m^3, STEL = 4 mg/m^3 (salts), JAN 1993
Japan: OEL = 0.5 mg/m^3 (respirable), 2 mg/m^3 (total), MAY 2006
Korea: TWA = 10 mg/m^3 (metal dust), 2006
Korea: TWA = 5 mg/m^3 (pyro powders), 2006

ALUMINUM (continued):
Korea: TWA = 5 mg/m^3 (welding fumes), 2006
Mexico: TWA = 10 mg/m^3; STEL = 20 mg/m^3, 2004
Mexico: TWA = 5 mg(Al)/m3 (pyro powders), 2004
Mexico: TWA = 5 mg(Al)/m^3, 2004
The Netherlands: MAC-TGG = 10 mg/m^3, 2003
New Zealand: TWA = 10 ppm (metal dust), JAN2002
New Zealand: TWA = 5 ppm (fumes), JAN2002
New Zealand: TWA = 5 ppm (pyro powders), JAN2002
Norway: TWA = 5 mg/m^3, JAN 1999
Russia: STEL = 2 mg/m^3, JUN 2003
Sweden: NGV = 4 mg/m^3 (resp. dust), JAN 1999
Sweden: NGV = 10 mg/m^3 (total dust), JAN 1999
Switzerland: MAK-W = 6 mg/m^3, JAN 1999
United Kingdom: TWA = 10 mg/m^3 (inhalable), 2005
United Kingdom: TWA = 4 mg/m^3 (respirable), 2005
In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

MAGNESIUM FLUORIDE:
Australia: TWA = 2.5 mg(F)/m^3, JAN 1993
Belgium: TWA = 2.5 mg(F)/m^3, JAN 1993

MAGNESIUM FLUORIDE (continued):
Denmark: TWA = 2.5 mg(F)/m^3, OCT 2002
EC: TWA = 2.5 mg(F)/m^3, FEB 2006
Finland: TWA = 2.5 mg(F)/m^3, JAN 1999
France: VME = 2.5 mg(F)/m^3, JAN 1999
Germany: MAK = 1 mg(F)/m^3 (inhalable), 2005
Hungary: TWA = 1 mg(F)/m^3, STEL = 2 mg(F)/m^3, JAN 1993
Mexico: TWA = 2.5 mg(F)/m^3, 2004
New Zealand: TWA = 2.5 mg(F)/m^3, JAN2002
Norway: TWA = 6 mg(F)/m^3, JAN 1999
The Philippines: TWA = 2.5 mg(F)/m^3, JAN 1993
Poland: MAC(TWA) = 1 mg(HF)/m^3, MAC(STEL) = 3 mg(HF)/m^3, JAN 1999
Russia: STEL = 0.5 mg/m^3, STEL = 2.5 mg/m^3, JUN 2003
Sweden: NGV = 2 mg(F)/m3, JAN1999
Switzerland: MAK-W = 1.8 ppm (1.5 mg(F)/m^3), KZG-W = 3/6 ppm (3.0 mg(F)/m^3), JAN 1999
Thailand: TWA = 2.5 mg(F)/m^3, JAN 1993
Turkey: TWA = 2.5 mg(F)/m^3, JAN 1993
United Kingdom: TWA = 2.5 mg(F)/m^3, 2005
In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132), equivalent standards of Canada (including CSA Standard Z94.4-02 and CSA Standard Z94.3-02), standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection), or standards of Australia (including AS/NZS 1715:1994 for respiratory PPE, AS/NZS 4501.2:2006 for protective clothing, AS/NZS 2161.1:2000 for glove selection, and AS/NZS 1336:1997 for eye protection). Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: If dusts from this product are created during use, use appropriate respiratory protection. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-02, the European Standard EN 529:2005, and EU member states, or the Australian Standard 1716-Respiratory Protective Devices and Australian Standard 1715-Selection, Use, and Maintenance of Respiratory Protective Devices. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a Full Facepiece, Supplied Air Respirator with auxiliary Self-Contained Air Supply is required under U.S. Federal OSHA's Respiratory Protection Standard (1910.134-1998) or the regulations of various U.S. States, Canada, Australia, or EU Member States.

EYE PROTECTION: Splash goggles or safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian CSA Standard Z94.3-02, or the European Standard CR 13464:1999, the Australian Standard 1337-Eye Protection for Industrial Applications and Australian Standard 1336-Recommended Practices for Eye Protection in the Industrial Environment.

HAND PROTECTION: Wear latex or rubber gloves for routine industrial use. Use triple gloves for spill response. If necessary, refer to U.S. OSHA 29 CFR 1910.138 appropriate Standards of Canada, the Australian Standard 2161-Industrial Safety Gloves and Mittens and the European Standard CEN/TR 15419:2006.

BODY PROTECTION: Use body protection appropriate for task (e.g., lab coat, coveralls, Tyvek suit). If necessary, refer to the OSHA Technical Manual (Section VII: Personal Protective Equipment) or appropriate Standards of Canada, the European Standard CEN/TR 15419:2006, or Australian Standard 3765-Clothing for Protection Against Hazardous Chemicals. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136 and the Canadian CSA Standard Z195-M1984, *Protective Footwear*.

9. PHYSICAL and CHEMICAL PROPERTIES

The following data are for Magnesium Fluoride, the main component of this product.

RELATIVE VAPOR DENSITY (air = 1): Not applicable. EVAPORATION RATE (n-BuAc = 1): Not applicable.
ODOR THRESHOLD: Not applicable. MELTING/FREEZING POINT: 1263°C (2305°F)
SOLUBILITY IN WATER: Insoluble BOILING POINT: 2260°C (4100°F)

9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

Data are for Magnesium Fluoride (continued):

VAPOR PRESSURE, mm Hg @ 20°C: Not applicable. pH: Not applicable.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.

The following data are for this product.

SPECIFIC GRAVITY (water = 1): 2.70

APPEARANCE, ODOR AND COLOR: This product is an odorless, bright, metallic powder.

HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance of this product could be a distinguishing characteristic.

10. STABILITY and REACTIVITY

DECOMPOSITION CONDITIONS/STABILITY: Stable under normal conditions of handling. This pigment is inorganic in nature and composed of aluminum and magnesium fluoride. The aluminum layer will undergo reaction with many waterborne systems to evolve hydrogen gas. Passivation is usually necessary to prevent gassing due to interaction of the aluminum layer of the pigment with the waterborne system.

DECOMPOSITION PRODUCTS: Combustion: If exposed to extremely high temperatures, the products of thermal decomposition may include irritating fumes and toxic gases (e.g., magnesium, fluorine, and aluminum compounds). Hydrolysis: Hydrogen gas.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is incompatible with strong oxidizers, strong bases, and strong acids. Contact with water will slowly liberate extremely flammable gas. Contact with strong acids, strong bases or alcohols can also release hydrogen.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Exposure to or contact with extreme temperatures, sunlight, and incompatible chemicals.

11. TOXICOLOGICAL INFORMATION

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of occupational overexposure are inhalation of dusts or particulates and contact with skin and eyes. The symptoms of overexposure to this product, via route of entry, are as follows:

INHALATION: Inhalation of this product can irritate the nose, throat, and other tissues of the respiratory system. Symptoms of such overexposure may include coughing, sneezing, sore throat, and nasal congestion. Long term inhalation overexposure to Magnesium Fluoride (a component of this product) may result in perforation of the nasal septum. Chronic inhalation of aluminum dusts may result in pulmonary fibrosis (a disorder of the lungs).

CONTACT WITH SKIN or EYES: If this product enters the eyes, it can cause redness and pain. Depending on the duration and concentration of exposure, skin contact may cause redness and irritation.

SKIN ABSORPTION: Skin absorption is not reported to be a significant route of exposure for any component of this product.

INGESTION: Ingestion is not anticipated to be a significant route of occupational overexposure for this product. If this product is swallowed (i.e., through poor hygiene practices), it may irritate the mouth and throat.

INJECTION: Though not anticipated to be a significant route of overexposure for this product, injection (via punctures or lacerations by contaminated objects) may cause redness at the site of injection.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**. In the event of overexposure, the following symptoms may be observed:

ACUTE: Contact with this product can mildly irritate the nose, throat, eyes, skin and other contaminated tissues.

CHRONIC: Long-term inhalation over-exposure to Aluminum dusts may result in lung damage.

TARGET ORGANS: ACUTE: Skin, eyes, respiratory system. CHRONIC: Chronic inhalation over-exposures: Lung

TOXICITY DATA: The following toxicological data are available for components of this product in 1% or greater concentration: Only human data and LD_{50} Oral-Rat, LD_{50} Oral-Mouse, LD_{50} Skin-Rabbit and irritancy data are provided. Other data are available, but are not provided in this MSDS:

ALUMINUM:

TCLo (Inhalation-Man) 4 mg/m^3/1 year-intermittent: Lungs, Thorax, or Respiration: cough; Lungs, Thorax, or Respiration: dyspnea; Nutritional and Gross Metabolic: weight loss or decreased weight gain

MAGNESIUM FLUORIDE:

LD_{50} (Oral-Rat) 2330 mg/kg

CARCINOGENIC POTENTIAL OF COMPONENTS: Components of this product are listed by agencies tracking the carcinogenic potential of chemical compounds, as follows:

ALUMINUM: ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen)

MAGNESIUM FLUORIDE (as an inorganic fluoride compound): ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen); IARC-3 (Unclassifiable as to Carcinogenicity in Humans)

The other components of this product are not found on the following lists: U.S. EPA, U.S. NTP, U.S. OSHA, U.S. NIOSH, GERMAN MAK, IARC, or ACGIH and therefore are neither considered to be nor suspected to be cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product has been tested and may be mildly irritating to the eyes and slightly irritating to the skin.

SENSITIZATION TO THE PRODUCT: The components of this product are not known to be human skin or respiratory sensitizers.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: The components of this product are not reported to produce mutagenic effects in humans.

Embryotoxicity: The components of this product are not reported to produce embryotoxic effects in humans.

Teratogenicity: The components of this product are not reported to cause teratogenic effects in humans.

Reproductive Toxicity: The components of this product are not reported to cause reproductive effects in humans.

A mutagen is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical that causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance that interferes in any way with the reproductive process.

ACGIH BIOLOGICAL EXPOSURE INDICES: The following ACGIH Biological Exposure Indices (BEIs) determined for the Magnesium Fluoride component of this product:

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
FLUORIDES (Magnesium Fluoride) • Fluorides in urine	• Prior to shift • End of shift	• 3 mg/g creatinine • 10 mg/g creatinine

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

MOBILITY: This product has not been tested for mobility in soil, but is not expected to be mobile.

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability. It is expected that the metal components of this product will persist in the environment indefinitely. It is expected that the other components will slowly degrade in the environment and form a variety of organic and inorganic materials; however, no specific information is known. Data for components of this product are available as follows:

ALUMINUM:

Water solubility: Insoluble. Aluminum as an element is indefinitely persistent in the environment. Formation of chromium compounds will be dependent on a number of environmental factors (e.g., pH, alkalinity)

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential. No information is available for components.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. Because of the form of this product, no significant environmental impact is anticipated; however, all releases to terrestrial, atmospheric and aquatic environments should be avoided.

OTHER ADVERSE EFFECTS: This product does not contain any component with known ozone depletion potential.

ENVIRONMENTAL EXPOSURE CONTROLS: Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS: It is the responsibility of the generator to determine at the time of disposal whether the product meets the criteria of a hazardous waste per regulations of the area in which the waste is generated and/or disposed of. Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Shipment of wastes must be done with appropriately permitted and registered transporters.

DISPOSAL CONTAINERS: Waste materials must be placed in and shipped in appropriate 5-gallon or 55-gallon poly or metal waste pails or drums. Permeable cardboard containers are not appropriate and should not be used. Ensure that any required marking or labeling of the containers be done to all applicable regulations.

PRECAUTIONS TO BE FOLLOWED DURING WASTE HANDLING: Wear proper protective equipment when handling waste materials.

U.S. EPA WASTE NUMBER: Not applicable to wastes consisting only of this product.

EWC WASTE CODE: Wastes from MFSU of Printing Inks: waste ink containing dangerous substances 08-03-12

14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION REGULATIONS: This product is NOT classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is not classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): This product is not classified as Dangerous Goods, per rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO): This product is not classified as Dangerous Goods, per rules of IMO.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

AUSTRALIAN FEDERAL OFFICE OF ROAD SAFETY CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD OR RAIL: This product is not classified as Dangerous Goods, per regulations of the Federal Office of Road Safety.

15. REGULATORY INFORMATION

ADDITIONAL UNITED STATES REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

COMPONENT	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Aluminum (fume or dust)	No	No	Yes

U.S. SARA THRESHOLD PLANNING QUANTITY: There is no specific Threshold Planning Quantity for this product. The default Federal submission and inventory requirement filing-threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Aluminum (dust or fume) = 10 lb (4.54 kg)

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Aluminum is listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Aluminum is included on this list. Aluminum is designated as a toxic pollutant, pursuant to section 307(a)(1) of the Clean Water Act and is subject to effluent limitations. Aluminum is designated as hazardous substances under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of Aluminum.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the California Proposition 65 Lists.

U.S. ANSI STANDARD LABELING (Precautionary Statements): **CAUTION**! MAY CAUSE SKIN AND EYE IRRITATION. MAY CAUSE IRRITATION IF INHALED OR SWALLOWED. WILL REACT WITH WATER TO FORM HYDROGEN GAS AND CREATE A CONTAINER RUPTURE HAZARD. Avoid contact with water. Closed containers should have venting capability. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing dusts or vapors. Wash thoroughly after use. Wear gloves, eye protection, dust mask, and appropriate body protection. FIRST-AID: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops or persists. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water fog, foam, dry chemical, or CO_2. IN CASE OF SPILL: Sweep up or vacuum solid. Consult Material Safety Data Sheet for additional information.

15. REGULATORY INFORMATION (Continued)

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDSL STATUS: The components of this product are listed on the DSL inventory.

CANADIAN ENVIRONMENTAL PROTECTION AGENCY (CEPA) PRIORITIES SUBSTANCES LIST: Magnesium Fluoride (as an Inorganic Fluoride) is on the Priority Substances List 1 (Substance Considered as Toxic under CEPA Section 11 [25]). Aluminum is listed as Schedule 1 NPRI Substances.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: **Class B6:** Reactive Flammable Material; **Class D2B:** Other Toxic Effects (Irritating).

ADDITIONAL EUROPEAN REGULATIONS:

LABELING AND CLASSIFICATION: This product meets the definition of Irritant, as defined by the European Union Council Directive 67/548/EEC and subsequent Directives. This is a self-classification.

Classification: Irritant

Risk Phrases: [R: 15]: Contact with water liberates extremely flammable gases. [R: 31]: Contact with acids liberates toxic gas. [R: 36/37/38]; Irritating to eyes, respiratory system and skin.

Safety Phrases: [S 2]: Keep out of reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only.*) [S 26]: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. [S 37/39]: Wear suitable gloves and eye/face protection.

Annex II Hazard Symbol: Xi

EUROPEAN UNION INFORMATION FOR COMPONENTS:

Aluminum (powdered):

EU Classification: Flammable.

EU Risk Phrases: [R: 10]: Flammable. [R: 15]: Contact with water liberates extremely flammable gases.

EU Safety Phrases: [S: (2-)]: Keep out of reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only.*) [S: 7/8]: Keep container tightly closed and dry. [S: 43]: In case of fire, use agent suitable for metal fires. Never use water.

Magnesium Fluoride: This is a self-classification.

EU Classification: [Xi]: Irritant.

EU Risk Phrases: [R: 36/37/38]: Irritating to eyes, respiratory system and skin.

EU Safety Phrases: [S: (-2)]: Keep out of reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only.*) [S: 24]: Avoid contact with skin. [S: 26]: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. [S: 37/39]: Wear suitable gloves and eye/face protection. [S: 60]: This material and its container must be disposed of as hazardous waste.

ADDITIONAL AUSTRALIAN REGULATIONS:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: The components of this product are listed on the AICS. Hydrates of listed compounds and biological materials are exempt from listing. Any chemical not included in AICS is regarded as a new industrial chemical unless it is outside the scope of the Industrial Chemicals (Notification and Assessment) Act 1989 OR is otherwise exempt from notification. New industrial chemicals must be notified and assessed before being manufactured or imported into Australia.

HAZARDOUS SUBSTANCES INFORMATION SYSTEM (HSIS): Aluminum (only in dust form-so is not applicable to this product unless use creates dust), is listed in the HSIS.

CLASSIFICATION: This product meets the definition of hazardous, as defined by the Australian National Occupational Health and Safety Commission [NOHSC (1008:2004)]

Classification: Irritant

Risk Phrases: [R: 15]: Contact with water liberates extremely flammable gases. [R: 31]: Contact with acids liberates toxic gas. [R: 36/37/38]; Irritating to eyes, respiratory system and skin.

Safety Phrases: [S: 2]: Keep out of reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only.*) [S: 24]: Avoid contact with skin. [S: 26]: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. [S: 37/39]: Wear suitable gloves and eye/face protection.

POISONS SCHEDULE NUMBER: Not applicable.

ADDITIONAL JAPANESE REGULATIONS:

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

16. OTHER INFORMATION

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