



# SAFETY DATA SHEET

FLI4W-FC-Grey, A-Side  
Jan 25, 2016

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## SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

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**Product ID:** FLI4W-FC-Grey, A-Side  
**Product Name:** FLI4W-FC-Grey, A-Side  
**Revision Date:** January 25, 2016 **Date Printed:** January 25, 2016  
**Version:** 1.0 **Supersedes Date:** N/A  
**Manufacturer's Name:** Nanotech Industries International, Inc. d/b/a Hybrid Coating Technologies, Inc.  
**Distribution:** Distributed in the USA by Industrial Finishes & Systems, Inc.  
**Address:** 950 John Daly Blvd. Suite 260, Daly City, CA 94015  
**Emergency Phone:** Chemtrec: +1 800-424-9300 or International: +1 703-527-3887  
**Information Phone:** +1 (650) 491-3449  
**Fax:** +1 (650) 753-3362  
**Production/  
Recommended Uses:** For Further Information, Refer to Product Technical Data Sheet

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## SECTION 2) HAZARDS IDENTIFICATION

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### Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Acute Toxicity - Category 4 (oral)

Acute Toxicity - Category 4 (dermal)

Acute Toxicity - Category 4 (inhal.)

Skin Irritation - Category 2

Skin Sensitizer - Category 1

Eye Irritation - Category 2

Chronic aquatic toxicity - Category 2

Acute aquatic toxicity - Category 2

### Pictograms:



### Signal Word:

Warning

### Hazardous Statements - Health:

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eye irritation

H302 - Harmful if swallowed

H312: Harmful in contact with skin

H332 - Harmful if inhaled

### Hazardous Statements - Environmental:

H401 - Toxic to aquatic life

H411 - Toxic to aquatic life with long lasting effects

### Precautionary Statements - General:

P101 - If medical advice is needed, have product container or label at hand.

P102 - Keep out of reach of children.

P103 - Read label before use.

### Precautionary Statements - Prevention:

P260 - Do not breathe dust/fume/gas/mist/vapors/spray.

P264 - Wash thoroughly after handling.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.

P272 - Contaminated work clothing should not be allowed out of the workplace.

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P273 - Avoid release to the environment.

P270 - Do not eat, drink or smoke when using this product.

P271 - Use only outdoors or in a well-ventilated area.

**Precautionary Statements - Response:**

P314 - Get Medical advice/attention if you feel unwell.

P302 + P352 - IF ON SKIN: Wash with plenty of water.

P321 - Specific treatment (see section 4 on this SDS).

P362 + P364 - Take off contaminated clothing. And wash it before reuse.

P333 + P313 - If skin irritation or a rash occurs: Get medical advice/attention.

P308 + P313 - IF exposed or concerned: Get medical advice/attention.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 - If eye irritation persists: Get medical advice/attention.

P391 - Collect spillage.

P301 + P312 - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

P330 - Rinse mouth.

P312 - Call a POISON CENTER/doctor if you feel unwell.

**Precautionary Statements - Storage:**

P405 - Store locked up.

**Precautionary Statements - Disposal:**

P501 - Dispose of contents/ container to an approved waste disposal plant.

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**SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS**

CAS	Chemical Name	By Weight, %
0025085-99-8	Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers	60% - 82%
0000100-51-6	Benzyl alcohol	8% - 15%
0013463-67-7	Titanium dioxide	3% - 7%
0001333-86-4	Carbon black	≤ 0.1%
Trade secret		Residuum

*Note*

Liquid Epoxy Resins (LERs) are made by reacting bisphenol A and epichlorohydrin. Dow uses both CAS No. 25085-99-8 and 25068-38-6 for its LERs. Other manufacturers use CAS No. 25068-38-6 for their LERs. Accordingly, LER manufacturers consider that derivatives of LERs may be described using either CAS number as a starting material.

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**SECTION 4) FIRST-AID MEASURES**

**Inhalation:**

Remove source of exposure or move person to fresh air and keep comfortable for breathing.

If exposed/feel unwell/concerned: Call a POISON CENTER/doctor.

**Skin Contact:**

Rinse/wash with lukewarm, gently flowing water and mild soap for 15-20 minutes or until product is removed. If skin irritation occurs or you feel unwell: Get medical advice/attention.

IF exposed or concerned: Get medical advice/attention.

**Eye Contact:**

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a duration of 15-20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists: Get medical advice/attention.

**Ingestion:**

Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. If vomiting occurs naturally, lie on your side, in the recovery position.

Give 1 or 2 glasses of milk or water to drink and refer person to medical personnel. Do not give anything by mouth to an unconscious person.

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**SECTION 5) FIRE-FIGHTING MEASURES**

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**Suitable Extinguishing Media:**

Dry chemical, foam, carbon dioxide water spray or fog is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.

**Specific Hazards in Case of Fire:**

Excessive pressure or temperature may cause explosive rupture of containers.

**Fire-fighting Procedures:**

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid.

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

**Special Protective Actions:**

Wear protective pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Care should always be exercised in dust/mist areas.

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**SECTION 6) ACCIDENTAL RELEASE MEASURES**

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**Emergency Procedure:**

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Do not touch or walk through spilled material.

Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

**Recommended Equipment:**

Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter. Personal Precautions: Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

**Personal Precautions:**

Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

**Environmental Precautions:**

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

**Methods and Materials for Containment and Cleaning up:**

Soak up material with absorbent and shovel into a chemical waste container. Cover container, but do not seal, and remove from work area. Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.

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## SECTION 7) HANDLING AND STORAGE

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### General:

- Wash hands after use.
- Do not get in eyes, on skin or on clothing.
- Do not breathe vapors or mists.
- Use good personal hygiene practices.
- Eating, drinking and smoking in work areas is prohibited.
- Remove contaminated clothing and protective equipment before entering eating areas.
- Eyewash stations and showers should be available in areas where this material is used and stored.
- Individuals with existing respiratory disease such as chronic bronchitis, emphysema, or asthma should not be exposed.

### Ventilation Requirements:

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

### Storage Room Requirements:

- Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous.
- Store in tightly sealed containers to protect from atmospheric moisture. Store in a cool dry area. Store liquid in containers above ground and surround by dikes to contain spills or leaks.
- Do not cut, drill, grind, weld, or perform similar operations on or near containers.

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## SECTION 8) EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Eye Protection:

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

### Skin Protection:

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

### Respiratory Protection:

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

In poorly ventilated areas, a cartridge mask NIOSH approved for organic vapors is recommended under the following conditions: emergency situations, when product vapor concentration is greater than 20 ppm for a period longer than 15 min., during repair and cleaning of equipment, during transfer or discharge of the product.

### Appropriate Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

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## SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

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### Physical and Chemical Properties

Density	9.85 lb/gal	
Specific Gravity	1.18	
VOC Regulatory	0.00 lb/gal	
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VOC Part A & B Combined	N.A.	
Appearance	Pigmented Liquid	
Odor Threshold	N.A.	
Odor Description	Slightly Aromatic	
pH	N.A.	
Water Solubility	N.A.	
Flammability	N/A	
Flash Point Symbol	N.A.	
Flash Point (closed cup)	≥ 205 °F / 96 °C	Literature data.
Viscosity	N.A.	
Lower Explosion Level	N.A.	
Upper Explosion Level	N.A.	
Vapor Pressure	N.A.	
Vapor Density	Heavier than air	
Freezing Point	N.A.	
Melting Point	N.A.	
Low Boiling Point	401 °F / 205 °C	
High Boiling Point	N.A.	
Auto Ignition Temp	N.A.	
Decomposition Pt	N.A.	
Evaporation Rate	Slower than ether	
Coefficient Water/Oil	N.A.	

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## SECTION 10) STABILITY AND REACTIVITY

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### Stability:

Material is stable at standard temperature and pressure.

### Conditions to Avoid:

Heat, high temperature, open flame, and sparks. Contact with incompatible materials in a closed system will cause buildup of pressure.

### Hazardous Reactions/Polymerization:

Will not occur but aliphatic amine will cause irreversible polymerization with considerable heat build up.

### Incompatible Materials:

This product will react with materials such as amines, alkalis and acids. Avoid strong oxidizing agents. Some reactions can be violent.

### Hazardous Decomposition Products:

Combustion products: organic vapors and thermal decomposition fragments.

## SECTION 11) TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):

LD50, Rat, > 5,000 mg/kg

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

For the major component(s):

LD50, Rabbit, > 20,000 mg/kg

#### **Acute inhalation toxicity**

At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material, mist or aerosols may cause respiratory irritation.

The LC50 has not been determined.

#### **Skin corrosion/irritation**

Brief contact may cause moderate skin irritation with local redness.

#### **Serious eye damage/eye irritation**

May cause moderate eye irritation.

#### **Sensitization**

A component in this mixture has caused allergic skin reactions in humans.

For respiratory sensitization:

No relevant data found.

#### **Specific Target Organ Systemic Toxicity (Single Exposure)**

Available data are inadequate to determine single exposure specific target organ toxicity.

#### **Specific Target Organ Systemic Toxicity (Repeated Exposure)**

For the major component(s):

Except for skin sensitization, repeated exposures to low molecular weight epoxy resins of this type are not anticipated to cause any significant adverse effects.

#### **Carcinogenicity**

Many studies have been conducted to assess the potential carcinogenicity of diglycidyl ether of bisphenol A (DGEbPA).

Indeed, the most recent review of the available data by the International Agency for Research on Cancer (IARC) has concluded that DGEbPA is not classified as a carcinogen.

Although some weak evidence of carcinogenicity has been reported in animals, when all of the data are considered, the weight of evidence does not show that DGEbPA is carcinogenic.

#### **Teratogenicity**

Resins based on the diglycidyl ether of bisphenol A (DGEbPA) did not cause birth defects or other

adverse effects on the fetus when pregnant rabbits were exposed by skin contact, the most likely route of exposure, or when pregnant rats or rabbits were exposed orally.

#### **Reproductive toxicity**

In animal studies, did not interfere with reproduction.

#### **Mutagenicity**

Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Contains

component(s) which were negative in animal genetic toxicity studies.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

**COMPONENTS INFLUENCING TOXICOLOGY:**

**Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers**

**Acute inhalation toxicity**

The LC50 has not been determined.

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**SECTION 12) ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 2 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, 1.8 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, *Scenedesmus capricornutum* (fresh water algae), static test, 72 Hour, Growth rate inhibition, 11 mg/l

**Toxicity to bacteria**

IC50, Bacteria, 18 Hour, Respiration rates., > 42.6 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, *Daphnia magna* (Water flea), semi-static test, 21 d, number of offspring, 0.3 mg/l

MATC (Maximum Acceptable Toxicant Level), *Daphnia magna* (Water flea), semi-static test, 21 d, number of offspring, 0.55 mg/l

**Persistence and degradability**

**Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Not applicable

**Biodegradation:** 12 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 302B or Equivalent

**Theoretical Oxygen Demand:** 2.35 mg/mg Estimated.

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitizer:** OH radicals

**Atmospheric half-life:** 1.92 Hour

**Method:** Estimated.

**Bioaccumulative potential**

**Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 3.242 at 25 °C Estimated.

**Mobility in soil**

**Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers**

Potential for mobility in soil is low (Koc between 500 and 2000).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is



not expected to be an important fate process.

**Partition coefficient(Koc):** 1800 - 4400 Estimated.

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## SECTION 13) DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

### **Waste Disposal:**

Under RCRA, it is the responsibility of the user of the product, to determine the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state, and local laws.

Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

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## SECTION 14) TRANSPORT INFORMATION

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### **U.S. DOT Information:**

Commodity Name: Environmentally Hazardous Substance, Liquid, n.o.s. (Epoxy Resin)  
UN/NA #: 3082  
Hazard Class: 9  
Packing Group: III  
Placard: Class 9

### **IMDG Information:**

Commodity Name: Environmentally Hazardous Substance, Liquid, n.o.s. (Epoxy Resin)  
UN/NA #: 3082  
Hazard Class: 9 Packing Group: III  
Marine Pollutant: Yes

### **IATA Information:**

Commodity Name: Environmentally Hazardous Substance, Liquid, n.o.s. (Epoxy Resin)  
UN/NA #: 3082  
Hazard Class: 9 Packing Group: III

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## SECTION 15) REGULATORY INFORMATION

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### **OSHA Hazard Communication Standard**

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

### **Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

Acute Chronic Health Hazard

### **Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### **Pennsylvania Worker and Community Right-To-Know Act:**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

## California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

This product contains a chemical known to the State of California to cause cancer: Titanium Dioxide (airborne, unbound particles of respirable size). The listing does not cover Titanium Dioxide when it remains bound within a product matrix.

This product contains a chemical known to the State of California to cause cancer: Carbon black (airborne, unbound particles of respirable size). The listing does not cover Carbon black when it remains bound within a product matrix.

## United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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## SECTION 16) OTHER INFORMATION

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### OTHER INFORMATION:

Note: As per GHS, category 1 is the greatest level of hazard within each class.

### GLOSSARY:

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG- Canadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center (US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL- Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self-Contained Breathing Apparatus; STEL- Short Term Exposure Limit; TCEQ

- Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA - Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

### Version 1.0:

Revision Date: Jan 25, 2016

First Edition.

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