

Section 1: IDENTIFICATION**1.1 PRODUCT IDENTIFIER**

Product Name: ZL-60D Aerosol
Product Code: Not available.

1.2 RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Use: Non-Destructive Testing.

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Name/Address: Magnaflux
155 Harlem Avenue
Glenview, Illinois
60025

Telephone Number: 847-657-5300

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Telephone Number: CHEMTREC 800-424-9300
Date of Preparation: May 11, 2015 **Version #:** 1.3

Section 2: HAZARD(S) IDENTIFICATION**2.1 CLASSIFICATION OF THE CHEMICAL ACCORDING TO OSHA HAZCOM 2012****Hazard class**

Flammable Aerosol 2
Gases Under Pressure - Compressed Gas
Skin irritation 2
Serious eye damage 1
Skin sensitization 1
Aspiration hazard 1

2.2 LABEL ELEMENTS ACCORDING TO OSHA HAZCOM 2012**Hazard Pictogram:**

Signal Word: Danger

Hazard Statement: Flammable aerosol. Contains gas under pressure; may explode if heated. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May be fatal if swallowed and enters airways.

Prevention: Keep away from heat/sparks/open flames/hot surfaces. -No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Wash hands thoroughly after handling. Wear protective gloves/eye protection/face protection. Avoid breathing dust/fume/gas/mist/

vapors/spray. Contaminated work clothing must not be allowed out of the workplace.

Response: If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting.

Storage: Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place. Store locked up.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

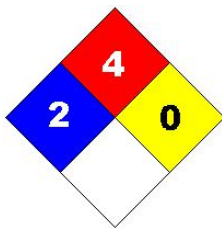
2.3 ADDITIONAL INFORMATION

Hazards not otherwise classified: Not applicable.

34 % of the mixture consists of ingredient(s) of unknown acute toxicity.

This product is a hazardous chemical as defined by NOM-018-STPS-2000.

Mexico Classification:



Blue = Health Red = Flammability Yellow = Reactivity White = Special

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

WHMIS Classification(s):

- Class A - Compressed Gas
- Class B5 - Flammable Aerosol
- Class D2B - Skin Sensitization
- Class D2B - Skin/Eye Irritant

WHMIS Hazard Symbols:



WHMIS Signal Word:

DANGER

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 MIXTURES

| Ingredient | UN # | H / F / R / * | CAS No | Wt. % |
|---------------------------------------|--------|---------------|------------|---------|
| Petroleum gases, liquefied, sweetened | UN1075 | Not available | 68476-86-8 | 15 - 40 |

| | | | | |
|--|---------------|---------------|-------------|---------|
| White mineral oil, petroleum | Not available | Not available | 8042-47-5 | 10 - 30 |
| Distillates (petroleum), hydrotreated light | UN1268 | Not available | 64742-47-8 | 10 - 30 |
| Alcohols, C6-10, ethoxylated propoxylated | Not available | Not available | 68987-81-5 | 10 - 30 |
| Alcohols, C12-15-branched and linear, ethoxylated propoxylated | Not available | Not available | 120313-48-6 | 7 - 13 |
| Alcohols, C12-14-secondary, ethoxylated | Not available | Not available | 84133-50-6 | 3 - 7 |
| 9-Octadecenamide, N-(2-hydroxypropyl)-, (Z)- | Not available | Not available | 111-05-7 | 1 - 5 |
| 7-(Diethylamino)-4-methyl-2-benzopyrone | Not available | Not available | 91-44-1 | 1 - 5 |
| Propylene oxide | UN1280 | 3/4/2 | 75-56-9 | < 0.1 |
| 1,4-Dioxane | UN1165 | 2/3/1 | 123-91-1 | < 0.1 |
| Ethylene oxide | UN1040 | 3/4/3 | 75-21-8 | < 0.1 |

The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

* Per NOM-018-STPS-2000

Section 4: FIRST-AID MEASURES

4.1 DESCRIPTION OF THE FIRST AID MEASURE

| | |
|--------------------|--|
| Eye: | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, including under lids. If easy to do, remove contact lenses, if worn. Get medical attention immediately. |
| Skin: | In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists. |
| Inhalation: | If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell. |
| Ingestion: | If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention. |

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

| | |
|--------------------|--|
| Eye: | Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns. |
| Skin: | Causes skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin. May cause an allergic skin reaction. |
| Inhalation: | May cause respiratory tract irritation. May cause drowsiness or dizziness. |
| Ingestion: | May be fatal if swallowed and enters airways. May cause stomach distress, nausea or vomiting. This product may be aspirated into the lungs and cause chemical pneumonitis. |

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENTS NEEDED

| | |
|-----------------------------|--|
| Note to Physicians: | Symptoms may not appear immediately. |
| Specific Treatments: | In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible). |

Section 5: FIRE-FIGHTING MEASURES

5.1 FLAMMABILITY

Flammability: Flammable by WHMIS/OSHA/NOM-018-STPS-2000 criteria.

5.2 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Foam, carbon dioxide.

Unsuitable Extinguishing Media: Water.

5.3 SPECIAL HAZARDS ARISING FROM THE CHEMICAL

Products of Combustion: May include, and are not limited to: oxides of carbon, oxides of nitrogen.

Explosion Data:

Sensitivity to Mechanical Impact: Not available.

Sensitivity to Static Discharge: Not available.

5.4 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS

Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to keep fire-exposed containers cool. Avoid water in straight hose stream; will scatter and spread fire. Containers may explode when heated.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Eliminate sources of ignition.

6.2 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING - UP

Methods for Containment: Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for Cleaning-Up: Scoop up material and place in a disposal container. Provide ventilation.

Section 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Handling: Keep away from sources of ignition. - No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Container may explode if heated. Do not get in eyes, on skin, or on clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not swallow. Use only outdoors or in a well-ventilated place. When using do not eat, drink or smoke. Use non-sparking tools. (See section 8)

General Hygiene Advice: Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage: Keep out of the reach of children. Protect from sunlight. Do not store

at temperatures above 50 °C / 122 °F. Store in a well-ventilated place. Store locked up. (See section 10)

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Exposure Guidelines

| Occupational Exposure Limits | | |
|--|----------------|-----------------------|
| Ingredient | OSHA-PEL | ACGIH-TLV |
| Petroleum gases, liquefied, sweetened | 1000 ppm | 1000 ppm |
| White mineral oil, petroleum | Not available. | Not available. |
| Distillates (petroleum), hydrotreated light | 100 ppm | 200 mg/m ³ |
| Alcohols, C6-10, ethoxylated propoxylated | Not available. | Not available. |
| Alcohols, C12-15-branched and linear, ethoxylated propoxylated | Not available. | Not available. |
| Alcohols, C12-14-secondary, ethoxylated | Not available. | Not available. |
| 9-Octadecenamamide, N-(2-hydroxypropyl)-, (Z)- | Not available. | Not available. |
| 7-(Diethylamino)-4-methyl-2-benzopyrone | Not available. | Not available. |
| Propylene oxide | 100 ppm | 2 ppm |
| 1,4-Dioxane | 100 ppm | 20 ppm |
| Ethylene oxide | 1 ppm | 1 ppm |

8.2 EXPOSURE CONTROLS

Engineering Controls: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

8.3 INDIVIDUAL PROTECTIVE MEASURES

Personal Protective Equipment:

Eye/Face Protection: Wear approved eye protection (properly fitted dust- or splash-proof chemical safety goggles) and face protection (face shield).

Skin Protection:

Hand Protection: Chemical-resistant gloves.

Body Protection: Wear suitable protective clothing.

Respiratory Protection: In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

General Health and Safety Measures: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Oily.

Color: Green.

| | |
|---|-------------------------|
| Odor: | Mild odor. |
| Odor Threshold: | Not available. |
| Physical State: | Gas/Pressurized liquid. |
| pH: | 9.66 |
| Melting Point/Freezing Point: | Not available. |
| Initial Boiling Point and Boiling Range: | ~ 235 °C (~ 455 °F) |
| Flash Point: | Not Applicable. |
| Evaporation Rate: | Negligible. |
| Flammability: | Flammable. |
| Lower Flammability/Explosive Limit: | Not available. |
| Upper Flammability/Explosive Limit: | Not available. |
| Vapor Pressure: | 60 psi @ 24°C (75 °F) |
| Vapor Density: | >1 (Air = 1) |
| Relative Density/Specific Gravity: | 0.92 |
| Solubility: | Emulsifiable. |
| Partition coefficient: n-octanol/water: | Not available. |
| Auto-ignition Temperature: | Not available. |
| Decomposition Temperature: | Not available. |
| Viscosity: | 9.32-11.4 cSt |
| Oxidizing Properties: | Not available. |
| Explosive Properties: | Not available. |

Section 10: STABILITY AND REACTIVITY

10.1 REACTIVITY

No dangerous reaction known under conditions of normal use.

10.2 CHEMICAL STABILITY

Stable under normal storage conditions. Contents under pressure. Container may explode if heated. Do not puncture. Do not burn.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reaction known under conditions of normal use.

10.4 CONDITIONS TO AVOID

Heat. Incompatible materials. Sources of ignition.

10.5 INCOMPATIBLE MATERIALS

Strong oxidizing agents.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

May include, and are not limited to: oxides of carbon, oxides of nitrogen.

Section 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Likely Routes of Exposure: Skin contact, skin absorption, eye contact, inhalation, and ingestion.

Symptoms related to physical/chemical/toxicological characteristics:

Eye: Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.

Skin: Causes skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin. May cause an allergic skin reaction.

Ingestion: May be fatal if swallowed and enters airways. May cause stomach distress, nausea or vomiting. This product may be aspirated into the lungs and cause chemical pneumonitis.

Inhalation: May cause respiratory tract irritation. May cause drowsiness or dizziness.

Acute Toxicity:

| Ingredient | IDLH | LC50 | LD50 |
|--|----------------|----------------------------------|---|
| Petroleum gases, liquefied, sweetened | Not available. | Inhalation 658 mg/L 4h, rat | Not available. |
| White mineral oil, petroleum | Not available. | Inhalation >5 mg/L 4h, rat | Oral >5000 mg/kg, rat Dermal >2000 mg/kg, rabbit |
| Distillates (petroleum), hydrotreated light | Not available. | Inhalation >5.2 mg/L 4h, rat | Oral >5000 mg/kg, rat Dermal >2000 mg/kg, rabbit |
| Alcohols, C6-10, ethoxylated propoxylated | Not available. | Not available. | Not available. |
| Alcohols, C12-15-branched and linear, ethoxylated propoxylated | Not available. | Not available. | Not available. |
| Alcohols, C12-14-secondary, ethoxylated | Not available. | Not available. | Not available. |
| 9-Octadecenamamide, N-(2-hydroxypropyl)-, (Z)- | Not available. | Not available. | Not available. |
| 7-(Diethylamino)-4-methyl-2-benzopyrone | Not available. | Not available. | Oral 5 g/kg, rat |
| Propylene oxide | 500 ppm | Inhalation 4000 ppm 4 h, rat | Oral 380 mg/kg, rat Dermal 1500uL/kg, rabbit |
| 1,4-Dioxane | 400 ppm | Inhalation 48.5 mg/L 4 h, rat | Oral 4200 mg/kg, rat Dermal 7600 mg/kg, rabbit |
| Ethylene oxide | 800 ppm | Inhalation 800 ppm 4 h, rat | Oral 72 mg/kg, rat |

Calculated overall Chemical Acute Toxicity Values

| LC50 (inhalation) | LD50 (oral) | LD50 (dermal) |
|-------------------|-------------------|----------------------|
| > 5 mg/L 4h, rat | > 2000 mg/kg, rat | > 2000 mg/kg, rabbit |

| Ingredient | Chemical Listed as Carcinogen or Potential Carcinogen |
|------------|---|
| | |

| | (NTP, IARC, OSHA, ACGIH, CP65)* |
|--|---------------------------------|
| Petroleum gases, liquefied, sweetened | Not listed. |
| White mineral oil, petroleum | Not listed. |
| Distillates (petroleum), hydrotreated light | Not listed. |
| Alcohols, C6-10, ethoxylated propoxylated | Not listed. |
| Alcohols, C12-15-branched and linear, ethoxylated propoxylated | Not listed. |
| Alcohols, C12-14-secondary, ethoxylated | Not listed. |
| 9-Octadecenamide, N-(2-hydroxypropyl)-, (Z)- | Not listed |
| 7-(Diethylamino)-4-methyl-2-benzopyrone | Not listed. |
| Propylene oxide | G-A3, I-2B, N-2, CP65 |
| 1,4-Dioxane | G-A3, I-2B, N-2, CP65 |
| Ethylene oxide | O, G-A2, I-1, N-1, CP65 |

* See Section 15 for more information.

11.2 DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

| | |
|---|---|
| Skin Corrosion/Irritation: | Causes skin irritation. |
| Serious Eye Damage/Irritation: | Causes serious eye damage. |
| Respiratory Sensitization: | Based on available data, the classification criteria are not met. |
| Skin Sensitization: | May cause an allergic skin reaction. |
| STOT-Single Exposure: | Based on available data, the classification criteria are not met. |
| Chronic Health Effects: | |
| Carcinogenicity: | Based on available data, the classification criteria are not met. |
| Germ Cell Mutagenicity: | Based on available data, the classification criteria are not met. |
| Reproductive Toxicity: | |
| Developmental: | Based on available data, the classification criteria are not met. |
| Teratogenicity: | Based on available data, the classification criteria are not met. |
| Embryotoxicity: | Based on available data, the classification criteria are not met. |
| Fertility: | Based on available data, the classification criteria are not met. |
| STOT-Repeated Exposure: | Based on available data, the classification criteria are not met. |
| Aspiration Hazard: | May be fatal if swallowed and enters airways. |
| Toxicologically Synergistic Materials: | Not available. |
| Other Information: | Not available. |

Section 12: ECOLOGICAL INFORMATION

12.1 ECOTOXICITY

Acute/Chronic Toxicity: May cause long-term adverse effects in the aquatic environment.

12.2 PERSISTENCE AND DEGRADABILITY

Biodegradable.

12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: Not available.

12.4 MOBILITY IN SOIL

Not available.

12.5 OTHER ADVERSE EFFECTS

Not available.

Section 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Disposal Method: This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

Other disposal recommendations: Not available.

Section 14: TRANSPORT INFORMATION

| | |
|--------------------------|---|
| DOT Ground | Consumables, Limited Quantity |
| IATA | UN 1950, Aerosols, Flammable, 2.1 |
| IMDG | UN 1950, Aerosols, 2.1 (Limited Quantity) |
| TDG | UN 1950, Aerosols, Flammable, 2.1 |
| NOM-004-SCT2-1994 | UN 1950, Aerosols, Flammable, 2.1 |

Section 15: REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/ LEGISLATIONS SPECIFIC FOR THE CHEMICAL

Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

US: MSDS prepared pursuant to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Mexico: MSDS prepared pursuant to NOM-018-STPS-2000.

| SARA Title III | | | | |
|---|------------------------------|---------------------------|------------------|-------------|
| Ingredient | Section 302 (EHS) TPQ (lbs.) | Section 304 EHS RQ (lbs.) | CERCLA RQ (lbs.) | Section 313 |
| Petroleum gases, liquefied, sweetened | Not listed. | Not listed. | Not listed. | Not listed. |
| White mineral oil, petroleum | Not listed. | Not listed. | Not listed. | Not listed. |
| Distillates (petroleum), hydrotreated light | Not listed. | Not listed. | Not listed. | Not listed. |
| Alcohols, C6-10, ethoxylated | Not listed. | Not listed. | Not listed. | Not listed. |

| | | | | |
|--|-------------|-------------|-------------|-------------|
| propoxylated | | | | |
| Alcohols, C12-15-branched and linear, ethoxylated propoxylated | Not listed. | Not listed. | Not listed. | Not listed. |
| Alcohols, C12-14-secondary, ethoxylated | Not listed. | Not listed. | Not listed. | Not listed. |
| 9-Octadecenamamide, N-(2-hydroxypropyl)-, (Z)- | Not listed. | Not listed. | Not listed. | Not listed. |
| 7-(Diethylamino)-4-methyl-2-benzopyrone | Not listed. | Not listed. | Not listed. | Not listed. |
| Propylene oxide | 10,000 | 100 | 100 | 313 |
| 1,4-Dioxane | Not listed. | Not listed. | 100 | 313 |
| Ethylene oxide | 1,000 | 10 | 10 | 313 |

State Regulations

California Proposition 65:

This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Global Inventories:

| Ingredient | Canada DSL/NDSL | USA TSCA |
|--|-----------------|----------|
| Petroleum gases, liquefied, sweetened | DSL | Yes. |
| White mineral oil, petroleum | DSL | Yes. |
| Distillates (petroleum), hydrotreated light | DSL | Yes. |
| Alcohols, C6-10, ethoxylated propoxylated | NDSL | Yes. |
| Alcohols, C12-15-branched and linear, ethoxylated propoxylated | NDSL | Yes. |
| Alcohols, C12-14-secondary, ethoxylated | DSL | Yes. |
| 9-Octadecenamamide, N-(2-hydroxypropyl)-, (Z)- | DSL | Yes. |
| 7-(Diethylamino)-4-methyl-2-benzopyrone | DSL | Yes. |
| Propylene oxide | DSL | Yes. |
| 1,4-Dioxane | DSL | Yes. |
| Ethylene oxide | DSL | Yes. |

NFPA-National Fire Protection Association:

| | |
|--------------------|---|
| Health: | 2 |
| Fire: | 4 |
| Reactivity: | 0 |

HMIS-Hazardous Materials Identification System:

| | |
|-------------------------|----|
| Health: | 2* |
| Fire: | 4 |
| Physical Hazard: | 0 |

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

CP65 California Proposition 65

OSHA (O) Occupational Safety and Health Administration.

ACGIH (G) American Conference of Governmental Industrial Hygienists.

- A1 - Confirmed human carcinogen.
- A2 - Suspected human carcinogen.
- A3 - Animal carcinogen.
- A4 - Not classifiable as a human carcinogen.
- A5 - Not suspected as a human carcinogen.

IARC (I) International Agency for Research on Cancer.

- 1 - The agent (mixture) is carcinogenic to humans.
- 2A - The agent (mixture) is probably carcinogenic to humans; there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.
- 2B - The agent (mixture) is possibly carcinogenic to humans; there is limited evidence of carcinogenicity in humans in the absence of sufficient evidence of carcinogenicity in experimental animals.
- 3 - The agent (mixture, exposure circumstance) is not classifiable as to its carcinogenicity to humans.
- 4 - The agent (mixture, exposure circumstance) is probably not carcinogenic to humans.

NTP (N) National Toxicology Program.

- 1 - Known to be carcinogens.
- 2 - Reasonably anticipated to be carcinogens.

Section 16: OTHER INFORMATION

Date of Preparation: December 16, 2013

Expiry Date: December 16, 2016

Version: 1.3

Revision Date: November 11, 2015

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

Prepared by: Nexreg Compliance Inc.
Phone: (519) 488-5126
www.nexreg.com

Prepared for: Magnaflux

End of Safety Data Sheet