



# MATERIAL SAFETY DATA SHEET

**MSDS NUMBER 72**

Revision Date: 06/27/2002

**24 HOUR EMERGENCY ASSISTANCE:**

**800-633-8253**

**GENERAL MSDS ASSISTANCE:**

**Dion & Sons, Inc.**

**562-432-3946**

## SECTION 1

### PRODUCT AND COMPANY IDENTIFICATION

## F & L SP-3 RACING FUEL

**Synonyms:** RACING FUEL; MOTOR FUEL

**Company Identification:**

Dion & Sons, Inc.

F & L Racing Fuel

1543 W 16<sup>th</sup> Street

Long Beach, CA 90813

**Product Information:**

Technical Information & MSDS Requests: (562) 432-3946

## SECTION 2

### COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	AMOUNT
NAPHTHA, PETROLEUM, LIGHT ALKYLATE	64741-66-8	35.00 - 45.00 % weight
ISOALKANES, C7-C8	70024-92-9	26.00 - 32.00 % weight
TOLUENE	108-88-3	18.00 - 21.00 % weight
ISOPENTANE	78-78-4	9.50 - 11.50 % weight
Methyl-tert-butyl ether	1634-04-4	1.50 - 3.50 % weight
n-BUTANE	106-97-8	1.50 - 3.50 % weight
TETRAETHYL LEAD	78-00-2	0.15 - 0.35 % weight

**Occupational Exposure Limits:**

Component	Limit	TWA	STEL	Ceiling	Notation
NAPHTHA, PETROLEUM, LIGHT ALKYLATE	CPCHEM	Not Established	NA	NA	NA
ISOALKANES, C7-C8	CPCHEM	Not Established	NA	NA	NA
TOLUENE	ACGIH_TLV	50 ppm	NA	NA	Skin
TOLUENE	OSHA_PEL	200 ppm	500 ppm	NA	NA
Methyl-tert-butyl ether	OSHA_PEL	Not Established	NA	NA	NA
Methyl-tert-butyl ether	ACGIH_TLV	40 ppm	NA	NA	NA
n-BUTANE	ACGIH_TLV	800 ppm	NA	NA	NA
n-BUTANE	OSHA_PEL	800 ppm	NA	NA	NA
TETRAETHYL LEAD	ACGIH_TLV	0.1 mg/m3	NA	NA	NA
TETRAETHYL LEAD	OSHA_PEL	0.075 mg/m3	NA	NA	NA

## SECTION 3

## HAZARDS IDENTIFICATION

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### EMERGENCY OVERVIEW

Green liquid with a mild odor.

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- MAY CAUSE CNS DEPRESSION
- HARMFUL OR FATAL IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE
- CONTAINS LEAD
- VAPOR HARMFUL
- CAUSES EYE IRRITATION
- CAUSES SKIN IRRITATION
- BIRTH DEFECT HAZARD - MAY CAUSE BIRTH DEFECTS
- TOXIC TO AQUATIC ORGANISMS

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#### IMMEDIATE HEALTH EFFECTS:

**Eye:** Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.

**Skin:** Prolonged or repeated skin contact may cause drying or defatting of the skin. Contact with the skin causes irritation. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** Not expected to be harmful if swallowed. Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

**Inhalation:** The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

#### DELAYED OR OTHER HEALTH EFFECTS:

**Reproduction and Birth Defects:** Concentrations of this material above the recommended exposure limit may cause birth defects.

See Section 11 for additional information. Risk depends on duration and level of exposure.

## SECTION 4

## FIRST AID MEASURES

**Eye:** Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get immediate medical attention. Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get medical attention. Never give anything by mouth to an unconscious person.

**Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

## SECTION 5

## FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

#### FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Extremely flammable liquid.

**NFPA RATINGS:** Health: 1 Flammability: 3 Reactivity: 0

#### FLAMMABLE PROPERTIES:

**Flashpoint:** -37°C (-34.6°F)

**Autoignition:** NDA

**Flammability (Explosive) Limits (% by volume in air):** Lower: NDA Upper: NDA

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

#### PROTECTION OF FIRE FIGHTERS:

**Fire Fighting Instructions:** For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

**SECTION 6****ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible sorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** U.S.A. regulations require reporting spills of this material that could reach any surface waters. Report spills to local authorities and/or the U.S. Coast Guard National Response Center at (800) 424-8802 as appropriate or required.

**SECTION 7****HANDLING AND STORAGE**

READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL . REFER TO PRODUCT LABEL OR MANUFACTURERS TECHNICAL BULLETINS FOR THE PROPER USE AND HANDLING OF THIS MATERIAL .

**Precautionary Measures:** This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Do not breathe vapor or fumes.

**Unusual Handling Hazards:** Due to the presence of naphthalenes in this material, heat tracing (to 180 F) of tank or vessel relief devices is recommended. Naphthalenes can vaporize and condense to solids (desublimates) and possibly block relief devices.

**General Handling Information:** Avoid work practices that may release volatile components in the atmosphere. Local air pollution regulations should be consulted to determine if the release of volatile components is regulated or restricted in the area in which this material is used. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations, which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering,

mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77), 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

**General Storage Information:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner, or disposed of properly. DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

**SECTION 8****EXPOSURE CONTROLS/PERSONAL PROTECTION****GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**ENGINEERING CONTROLS:**

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Eye/Face Protection:** Wear eye protection such as safety glasses, chemical goggles, or faceshields if engineering controls or work practices are not adequate to prevent eye contact.

**Skin Protection:** Wear impervious protective clothing to prevent skin contact. Selection of protective clothing may include gloves,

apron, boots, and complete facial protection depending on operations conducted. Users should determine acceptable performance characteristics of protective clothing. Consider physical requirements and other substances present when selecting protective clothing. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), or Nitrile Rubber, or Polyurethane, or Viton

**Respiratory Protection:** Determine if airborne concentrations are below the recommended exposure limits. If not, wear a NIOSH approved respirator that provides adequate protection from measured concentrations of this material, such as: Supplied-Air Respirator, or Air-Purifying Respirator for Organic Vapors, or Self-contained breathing apparatus (SCBA) for use in environments with unknown concentrations or emergency situations. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

**Occupational Exposure Limits:**

Component	Limit	TWA	STEL	Ceiling	Notation
NAPHTHA, PETROLEUM, LIGHT ALKYLATE	CPCHEM	Not Established	NA	NA	NA
ISOALKANES, C7-C8	CPCHEM	Not Established	NA	NA	NA
TOLUENE	ACGIH_TLV	50 ppm	NA	NA	Skin
TOLUENE	OSHA_PEL	200 ppm	500 ppm	NA	NA
Methyl-tert-butyl ether	OSHA_PEL	Not Established	NA	NA	NA
Methyl-tert-butyl ether	ACGIH_TLV	40 ppm	NA	NA	NA
n-BUTANE	ACGIH_TLV	800 ppm	NA	NA	NA
n-BUTANE	OSHA_PEL	800 ppm	NA	NA	NA
TETRAETHYL LEAD	ACGIH_TLV	0.1 mg/m3	NA	NA	NA
TETRAETHYL LEAD	OSHA_PEL	0.075 mg/m3	NA	NA	NA

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE AND ODOR:** Green liquid with a mild odor.

**pH:** NA

**VAPOR PRESSURE:** 5.3 - 6.7 psia @ 38 °C

**VAPOR DENSITY (AIR=1):** 3 - 4

**BOILING POINT:** 29 - 149°C (300.2°F)

**SOLUBILITY:** Negligible

**SPECIFIC GRAVITY:** 0.74 @ 16 °C

**SECTION 10 STABILITY AND REACTIVITY**

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Conditions to Avoid:** See section 7.

**Incompatibility With Other Materials:** May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Hazardous Decomposition Products:** Carbon oxides and various hydrocarbons when burned.

**Hazardous Polymerization:** Hazardous polymerization will not occur.

**SECTION 11 TOXICOLOGICAL INFORMATION**

**IMMEDIATE HEALTH EFFECTS:**

**Acute Dermal Toxicity:** The dermal LD50 in the rabbit is 14.1 g/kg. The acute dermal toxicity is based on test results for TOLUENE.

**Acute Inhalation Toxicity:** The inhalation LC50 in the rat is 8000-8800 ppm after 4 hour(s) exposure. The acute inhalation toxicity is based on test results for TOLUENE.

**Eye Irritation:** This material is irritating to the eyes. The eye irritation hazard is based on test results for TOLUENE.

**Skin Irritation:** This material is irritating to the skin. The dermal irritation hazard is based on test results for TOLUENE.

**ADDITIONAL TOXICOLOGY INFORMATION:**

This product contains TOLUENE.

**GENERAL TOXICITY:** The primary effects of exposure to toluene in animals and humans are on the central nervous system. Solvent abusers, who periods of time, in addition to experiencing respiratory tract irritation, often suffer permanent central nervous system typically inhale high concentrations (thousands of ppm) for brief effects that include tremors, staggered gait, impaired speech, hearing and vision loss, and changes in brain tissue. Death in some solvent abusers has been attributed to cardiac arrhythmias, which appear to be have been triggered by epinephrine

acting on solvent sensitized cardiac tissue. Although liver and kidney effects have been seen in some solvent abusers, results of animal testing with toluene do not support these as primary target organs. HEARING: Humans who were occupationally exposed to concentrations of toluene as low as 100 ppm for long periods of time have experienced hearing deficits. Hearing loss, as demonstrated using behavioral and electrophysiological testing as well as by observation of structural damage to cochlear hair cells, occurred in experimental animals exposed to toluene.

It also appears that toluene exposure and noise may interact to produce hearing deficits. COLOR VISION: In a single study of workers exposed to toluene at levels under 50 ppm, small decreases in the ability to discriminate colors in the blue-yellow range have been reported for female workers. This effect, which should be investigated further, is very subtle and would not likely have been noticed by the people tested. REPRODUCTIVE / DEVELOPMENTAL TOXICITY: Toluene

may also cause mental and/or growth retardation in the children of female solvent abusers who directly inhale toluene (usually at thousands of ppm) when they are pregnant. Toluene caused growth retardation in rats and rabbits when administered at doses that were toxic to the mothers. In rats, concentrations of up to 5000 ppm did not cause birth defects. No effects were observed in the offspring at doses that did not intoxicate the pregnant animals. The exposure level at which no effects were seen (No Observed Effect Level, NOEL) is 750 ppm in the rat and 500 ppm in the rabbit.

This product contains ISOPENTANE.

Isopentane did not produce kidney damage in a subchronic oral laboratory study or in a subchronic inhalation exposure to 4500 ppm and 1000 ppm of a 50/50 mixture of isobutane and isopentane.

This product contains n-BUTANE.

An atmospheric concentration of 100,000 ppm (10%) butane is not noticeably irritating to the eyes, nose or respiratory tract, but will produce slight dizziness in a few minutes of exposure. No chronic systemic effect has been reported from occupational exposure. Laboratory animals have exhibited a higher degree of narcosis when exposed to both butane and butylene (additive effect), than the degree of narcosis exhibited following exposure to butane or butylene alone.

This product contains LEAD.

Fuels containing lead anti-knock compounds should be handled in such a way to minimize contact with the body. Lead can accumulate in the body with overexposure and cause illness due to effects on the blood, nerves, kidneys and the reproductive system.

## SECTION 12

## ECOLOGICAL INFORMATION

### ECOTOXICITY:

This material is expected to be toxic to aquatic organisms. Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity, are also highly volatile and can be readily biodegraded by microorganisms.

The 96 hour(s) LC50 for pink salmon (*Oncorhynchus gorbuscha*) is 6.4 - 8.1 mg/l. This information is based on test data from the component:TOLUENE.

The 96 hour(s) LC50 for rainbow trout (*Oncorhynchus mykiss*) is 5.8 mg/kg. This information is based on test data from the component:TOLUENE.

The 96 hour(s) LC50 for fathead minnow (*Pimephales promelas*) is 18-36 mg/l. This information is based on test data from the component:TOLUENE.

### ENVIRONMENTAL FATE:

Toluene is volatile and when released into water will be volatilized to the atmosphere where it is degraded with a half-life of 10 to 104 hours. Toluene is readily biodegradable in tests using sewage or sludge inocula. The biodegradation half-life for toluene in surface waters and soils is expected to range from 4 to 22 days. Toluene that does not evaporate following release to soil is expected to be highly mobile and may leach to groundwater. In groundwater, toluene has been reported to be degraded in 7 to 28 days.

Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene+xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

**SECTION 13****DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

**SECTION 14****TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Name:** GASOLINE  
**DOT Hazard Class:** 3 (Flammable Liquid)  
**DOT Identification Number:** UN1203  
**DOT Packing Group:** II  
**DOT Additional Information:** MARINE POLLUTANT (GASOLINE, LEADED)

**SECTION 15****REGULATORY INFORMATION**

**SARA 311/312 CATEGORIES:**

1. Immediate (Acute) Health Effects:	YES
2. Delayed (Chronic) Health Effects:	YES
3. Fire Hazard:	YES
4. Sudden Release of Pressure Hazard:	NO
5. Reactivity Hazard:	NO

**REGULATORY LISTS SEARCHED:**

04A = IARC Group 1	12 = TSCA Section 8(a) PAIR	21 = TSCA Section 5(a)
04B = IARC Group 2A	13 = TSCA Section 8(d)	25 = CAA Section 112 HAPs
04C = IARC Group 2B	15 = SARA Section 313	26 = CWA Section 311
05 = NTP Carcinogen	16 = CA Proposition 65	28 = CWA Section 307
06 = OSHA Carcinogen	17 = MA RTK	30 = RCRA Waste P-List
09 = TSCA 12(b)	18 = NJ RTK	31 = RCRA Waste U-List
10 = TSCA Section 4	19 = DOT Marine Pollutant	32 = RCRA Appendix VIII
11 = TSCA Section 8(a) CAIR	20 = PA RTK	33 = MN Hazardous Substance

The following components of this material are found on the regulatory lists indicated.

TETRAETHYL LEAD	16, 18, 25, 26, 32
TOLUENE	15, 16, 17, 18, 20, 25, 31
n-BUTANE	17, 18, 20, 25
ISOPENTANE	18, 20, 25

**CERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):**

Component	Component RQ	Component TPQ	Product RQ
TOLUENE	1000 lbs	None	4761.904762 lbs
TETRAETHYL LEAD	10 lbs	None	2857.142857 lbs

**WHMIS CLASSIFICATION:**

Class B, Division 2: Flammable Liquids  
 Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity  
 Teratogenicity and Embryotoxicity  
 Class D, Division 2, Subdivision B: Toxic Material -  
 Skin or Eye Irritation

**CHEMICAL INVENTORY LISTINGS:**

AUSTRALIA: All the components of this material are listed on the Australian Inventory of Chemical Substances (AICS).

PEOPLE'S REPUBLIC OF CHINA: All the components of this product are listed on the draft Inventory of Existing Chemical Substances in China.

EUROPEAN UNION: All the components of this material are in compliance with the EU Seventh Amendment Directive 92/32/EEC.

KOREA: All the components of this product are on the Existing Chemicals List (ECL) in Korea.

PHILIPPINES: All the components of this product are listed on the Philippine Inventory of Chemicals and Chemical Substances (PICCS).

UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

## SECTION 16

## OTHER INFORMATION

**NFPA RATINGS:** Health: 1 Flammability: 3 Reactivity: 0

**HMIS RATINGS:** Health: 1 Flammability: 3 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** This is an original Dion & Sons, Inc. MSDS. It has been created out of a new authoring system under direction of Dion & Sons, Inc.

### ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value

TWA - Time Weighted Average

STEL - Short-term Exposure Limit

PEL - Permissible Exposure Limit

ACGIH - American Conference of Government Industrial Hygienists

OSHA - Occupational Safety & Health

NIOSH - National Institute of Safety & Health

NFPA - National Fire Protection Agency

WHMIS - Workplace Hazardous Materials Information System

IRAC - Intl. Agency for Research on Cancer

EINECS - European Inventory of existing Commercial Chemical Sales

RCRA - Resource Conservation Recovery Act

SARA - Superfund Amendments and Reauthorization Act.

TSCA - Toxic Substance Control Act

EC50 - Effective Dose

LC50 - Lethal Concentration

LD50 - Lethal Dose

CAS - Chemical Abstract Service Number

NDA - No Data Available

NA - Not Applicable

<= - Less Than or Equal To

>= - Greater Than or Equal To

CNS - Central Nervous System

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by: Dion & Sons, Inc., 1543 w 16<sup>th</sup> Street, Long Beach, CA 90813

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**