



SAFETY DATA SHEET

1. Product and Company Identification

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|--------------------------------------|--|
| Product identifier | 58/28 Asphalt with Evotherm |
| Other means of identification | Not available |
| Recommended use | Component of hot asphalt mix |
| Recommended restrictions | None known. |
| Manufacturer information | Irving Oil Refining G.P. Box 1260 Saint John, NB E2L 4H6 CA Phone: (506) 202-2000 Refinery: (506) 202-3000 |
| Supplier | See above. |

2. Hazards Identification

| | | |
|-----------------------------------|-----------------------------------|------------|
| Physical hazards | Flammable solids | Category 1 |
| Health hazards | Skin corrosion/irritation | Category 2 |
| | Serious eye damage/eye irritation | Category 2 |
| | Sensitization, skin | Category 1 |
| | Carcinogenicity | Category 2 |
| Environmental hazards | Not classified. | |
| WHMIS 2015 defined hazards | Not classified | |
| Label elements | | |



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|--|---|
| Signal word | Danger |
| Hazard statement | Flammable solid. Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. Suspected of causing cancer. |
| Precautionary statement | |
| Prevention | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing vapors. Contaminated work clothing should not be allowed out of the workplace. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. |
| Response | In case of fire: Use appropriate media to extinguish. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see information on this label). Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. |
| Storage | Store locked up. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC) | None known |
| WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC) | None known |

| | |
|--|-------------|
| Hazard(s) not otherwise classified (HNOC) | None known. |
| Supplemental information | None. |

3. Composition/Information on Ingredients

Mixture

| Chemical name | Common name and synonyms | CAS number | % |
|---------------|--------------------------|------------|--------|
| Asphalt | | 8052-42-4 | 80-100 |
| Sulfur | | 7704-34-9 | 2.5-10 |

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments *Asphalt is a complex mixture of high molecular weight hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. This product may contain small amounts of Hydrogen sulphide which may accumulate in confined spaces.

4. First Aid Measures

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| Inhalation | If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention. |
| Skin contact | IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Specific treatment (see information on this label). |
| Eye contact | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| Ingestion | Rinse mouth. Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention. |
| Most important symptoms/effects, acute and delayed | Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. |
| Indication of immediate medical attention and special treatment needed | Symptoms may be delayed. |
| General information | IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Wear rubber gloves and chemical splash goggles. Keep out of reach of children. |

5. Fire Fighting Measures

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| Suitable extinguishing media | Carbon dioxide. Dry chemical. Water spray. Foam. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. |
| Special protective equipment and precautions for firefighters | Firefighters should wear full protective clothing including self-contained breathing apparatus. |
| Fire-fighting equipment/instructions | Move containers from fire area if you can do so without risk. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. |
| General fire hazards | Flammable solid. |
| Hazardous combustion products | May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Polycyclic aromatic hydrocarbons (PAHs). Formaldehyde. Acrolein. Hydrogen sulfide. Oxides of sulfur. |

6. Accidental Release Measures

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|--|---|
| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. |
| Methods and materials for containment and cleaning up | Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop the flow of material, if this is without risk. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewers, basements or confined areas. |
| Environmental precautions | Do not discharge into lakes, streams, ponds or public waters. |

7. Handling and Storage

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| Precautions for safe handling | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment. Use only with adequate ventilation. Avoid prolonged exposure. Observe good industrial hygiene practices. Wash thoroughly after handling. When handling, do not eat, drink or smoke. |
| Conditions for safe storage, including any incompatibilities | Store locked up. Keep away from heat, sparks and open flame. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children. |

8. Exposure Controls/Personal Protection

Occupational exposure limits

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

| Components | Type | Value | Form |
|-------------------------|------|----------|-------|
| Asphalt (CAS 8052-42-4) | TWA | 5 mg/m3 | Fume. |
| Sulfur (CAS 7704-34-9) | TWA | 10 mg/m3 | |

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

| Components | Type | Value | Form |
|-------------------------|------|-----------|---------------------|
| Asphalt (CAS 8052-42-4) | TWA | 0.5 mg/m3 | Aerosol, inhalable. |

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

| Components | Type | Value | Form |
|-------------------------|------|-----------|---------------------|
| Asphalt (CAS 8052-42-4) | TWA | 0.5 mg/m3 | Inhalable fraction. |

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

| Components | Type | Value | Form |
|-------------------------|------|-----------|---------------------|
| Asphalt (CAS 8052-42-4) | TWA | 0.5 mg/m3 | Inhalable fraction. |

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

| Components | Type | Value | Form |
|-------------------------|------|---------|-------|
| Asphalt (CAS 8052-42-4) | TWA | 5 mg/m3 | Fume. |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|-------------------------|------|-----------|---------------------|
| Asphalt (CAS 8052-42-4) | TWA | 0.5 mg/m3 | Inhalable fraction. |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|-------------------------|---------|---------|-------|
| Asphalt (CAS 8052-42-4) | Ceiling | 5 mg/m3 | Fume. |

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Chemicals listed in section 3 that are not listed here do not have established limit values for ACGIH or OSHA PEL.

Appropriate engineering controls Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield or chemical goggles.

Skin protection

Hand protection Heat-protective gloves.

Other

Wear appropriate chemical resistant clothing. Coveralls to prevent skin contact. Neck closed and sleeves rolled down. Natural fibres are preferred. If clothing or footwear becomes contaminated with the product, remove it immediately and completely decontaminate it before re-use, or discard it.

Respiratory protection Do not attempt rescue of an hydrogen sulfide knockdown victim without the use of proper respiratory protective equipment. Emergency responders should wear self-contained breathing apparatus (SCBA) to avoid inhalation of vapours generated by this product during a spill or other clean-up operations. A NIOSH- approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Thermal hazards Not applicable.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. Physical and Chemical Properties

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|---|--|
| Appearance | Solid at room temperature. Viscous liquid above 194°F (90°C). |
| Physical state | Solid. |
| Form | Solid at room temperature. Viscous liquid above 194°F (90°C). |
| Color | Black |
| Odor | Rotten egg. Note: H ₂ S deadens the sense of smell. Absence of rotten eggs smell does not mean absence of H ₂ S. |
| Odor threshold | Not available. |
| pH | Not applicable |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | >204°C (>400°F) (Typically) |
| Pour point | Not available. |
| Specific gravity | ~ 1 @ 20°C (Typically) |
| Partition coefficient (n-octanol/water) | Not available. |
| Flash point | > 356.0 °F (> 180.0 °C) Cleveland Open Cup |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Flammable solid. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | Not available. |
| Auto-ignition temperature | 550 - 585 °F (287.78 - 307.22 °C) (Typically) |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |

10. Stability and Reactivity

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|---|--|
| Reactivity | May react with incompatible materials. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Chemical stability | Stable under recommended storage conditions. |
| Conditions to avoid | Do not mix with other chemicals. Heat, open flames, static discharge, sparks and other ignition sources. |
| Incompatible materials | Oxidizers. Bromine trifluoride. Lithium Chlorinated products. |
| Hazardous decomposition products | May include and are not limited to: Oxides of nitrogen. Oxides of carbon. Polycyclic aromatic hydrocarbons (PAHs). Aromatic hydrocarbons. Formaldehyde. Acrolein. Hydrogen sulphide. Oxides of sulfur. |

11. Toxicological Information

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|---|---|
| Routes of exposure | Eye, Skin contact, Inhalation, Ingestion. |
| Information on likely routes of exposure | |
| Ingestion | Harmful if swallowed. High exposure to vanadium can cause nausea, vomiting, abdominal pain and greenish discoloration of the tongue. |
| Inhalation | Prolonged inhalation may be harmful. Sense of smell may be impaired at concentrations of hydrogen sulphide at approximately 20 ppm, with headache and respiratory tract lung irritation. At 250 to 500ppm, potentially fatal pulmonary edema may occur. Dizziness, sudden (often fatal) collapse, unconsciousness and death occur at higher concentrations. Pulmonary edema may be delayed as long as 48 hours after exposure. |

Skin contact Causes skin irritation. Second and third degree burns from contact with hot asphalt. May cause an allergic skin reaction.

Eye contact Causes serious eye irritation. Hydrogen sulfide is very toxic. At concentrations as low as 1 to 5 ppm, nausea and severe eye irritation may occur.

Symptoms related to the physical, chemical and toxicological characteristics Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction.

Information on toxicological effects

Acute toxicity

| Components | Species | Test Results |
|-------------------------|---------------|--|
| Asphalt (CAS 8052-42-4) | | |
| Acute | | |
| <i>Dermal</i> | | |
| LD50 | Rabbit | > 2000 mg/kg, 24 Hours ≥ 2000 mg/kg |
| <i>Inhalation</i> | | |
| LC50 | Not available | |
| | Rat | > 94.4 mg/m ³ , 4.5 Hours |
| <i>Oral</i> | | |
| LD50 | Rat | 5000 mg/kg |
| Sulfur (CAS 7704-34-9) | | |
| Acute | | |
| <i>Dermal</i> | | |
| LD50 | Rabbit | ≥ 2000 mg/kg |
| <i>Inhalation</i> | | |
| LC50 | Rat | ≥ 6.2 mg/l/4h |
| <i>Oral</i> | | |
| LD50 | Human | > 5000 mg/kg |
| | Rat | ≥ 3000 mg/kg |

Skin corrosion/irritation Causes skin irritation.

Exposure minutes Not available.

Erythema value Not available.

Oedema value Not available.

Serious eye damage/eye irritation Causes serious eye irritation.

Corneal opacity value Not available.

Iris lesion value Not available.

Conjunctival reddening value Not available.

Conjunctival oedema value Not available.

Recover days Not available.

Respiratory or skin sensitization

Canada - Alberta OELs: Irritant

Asphalt (CAS 8052-42-4) Irritant

Respiratory sensitization Not available.

Skin sensitization May cause an allergic skin reaction.

Mutagenicity Contains a potential mutagen.

Carcinogenicity Suspected of causing cancer.

Canada - Manitoba OELs: carcinogenicity

ASPHALT (BITUMEN) FUME, AS BENZENE-SOLUBLE Not classifiable as a human carcinogen.

AEROSOL, INHALABLE FRACTION (CAS 8052-42-4) Not suspected as a human carcinogen.
NICKEL, ELEMENTAL, INHALABLE FRACTION (CAS 7440-02-0)

IARC Monographs. Overall Evaluation of Carcinogenicity

Asphalt (CAS 8052-42-4) Volume 103 - 2B Possibly carcinogenic to humans.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Asphalt (CAS 8052-42-4)

Nickel (CAS 7440-02-0)

US NTP Report on Carcinogens: Anticipated carcinogen

Nickel (CAS 7440-02-0)

Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

| | |
|---|---|
| Reproductive toxicity | Not classified. |
| Teratogenicity | Not classified. |
| Specific target organ toxicity - single exposure | Not classified. |
| Specific target organ toxicity - repeated exposure | Not classified. |
| Aspiration hazard | Not available. |
| Chronic effects | Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Acne-like lesions. Pigmentation of skin. Chronic exposure to vanadium may damage the kidneys. Repeated high exposure to vanadium may cause anemia. |

12. Ecological Information

Ecotoxicity See below

Ecotoxicological data Components

Sulfur (CAS 7704-34-9)

Aquatic

Fish

LC50

Western mosquitofish (*Gambusia affinis*) > 10000 mg/L, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Mobility in general Not available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions Allow product to cool and solidify. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

Transport of Dangerous Goods (TDG) Proof of Classification In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue.

U.S. Department of Transportation (DOT)**Basic shipping requirements:**

| | |
|-----------------------------|-------------------------------------|
| UN number | UN3257 |
| Proper shipping name | Elevated temperature liquid, n.o.s. |
| Hazard class | 9 |
| Packing group | III |
| Special provisions | IB1, T3, TP3, TP29 |
| Packaging non bulk | None |
| Packaging bulk | 247 |

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

| | |
|----------------------|-------------------------------------|
| UN number | UN3257 |
| Proper shipping name | ELEVATED TEMPERATURE LIQUID, N.O.S. |
| Hazard class | 9 |
| Packing group | III |
| Special provisions | 16 |

DOT; TDG



15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (SOR/2015-17) and the SDS contains all the information required by the HPR.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS 2015 Exemptions Controlled

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

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Asphalt (CAS 8052-42-4) Listed.

Nickel (CAS 7440-02-0) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting) Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Nickel (CAS 7440-02-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

US state regulations See below

US - California Hazardous Substances (Director's): Listed substance

Asphalt (CAS 8052-42-4) Listed.

Nickel (CAS 7440-02-0) Listed.

Sulfur (CAS 7704-34-9) Listed.

Vanadium (CAS 7440-62-2) Listed.

US - Illinois Chemical Safety Act: Listed substance

Asphalt (CAS 8052-42-4)

Nickel (CAS 7440-02-0)

US - Louisiana Spill Reporting: Listed substance

Asphalt (CAS 8052-42-4)

Listed.

Nickel (CAS 7440-02-0)

Listed.

US - Michigan Critical Materials Register: Parameter number

Nickel (CAS 7440-02-0)

NICKEL

US - Minnesota Haz Subs: Listed substance

Asphalt (CAS 8052-42-4)

Listed.

Nickel (CAS 7440-02-0)

Listed.

US - New Jersey RTK - Substances: Listed substance

Asphalt (CAS 8052-42-4)

Nickel (CAS 7440-02-0)

Sulfur (CAS 7704-34-9)

Vanadium (CAS 7440-62-2)

US - North Carolina Toxic Air Pollutants: Listed substance

Nickel (CAS 7440-02-0)

US - Pennsylvania RTK - Hazardous Substances: Special hazard

Asphalt (CAS 8052-42-4)

Nickel (CAS 7440-02-0)

US - Texas Effects Screening Levels: Listed substance

Asphalt (CAS 8052-42-4)

Listed.

Nickel (CAS 7440-02-0)

Listed.

Sulfur (CAS 7704-34-9)

Listed.

Vanadium (CAS 7440-62-2)

Listed.

US. Massachusetts RTK - Substance List

Asphalt (CAS 8052-42-4)

Nickel (CAS 7440-02-0)

Sulfur (CAS 7704-34-9)

Vanadium (CAS 7440-62-2)

US. New Jersey Worker and Community Right-to-Know Act

Nickel (CAS 7440-02-0)

Vanadium (CAS 7440-62-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Asphalt (CAS 8052-42-4)

Nickel (CAS 7440-02-0)

Sulfur (CAS 7704-34-9)

Vanadium (CAS 7440-62-2)

US. Rhode Island RTK

Nickel (CAS 7440-02-0)

Vanadium (CAS 7440-62-2)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Asphalt (CAS 8052-42-4)

Listed: January 1, 1990

Nickel (CAS 7440-02-0)

Listed: October 1, 1989

Inventory status

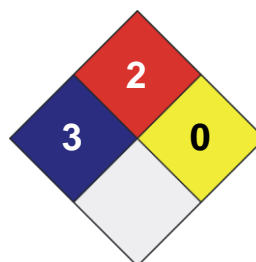
| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|---|------------------------|
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

| LEGEND | |
|----------|---|
| Severe | 4 |
| Serious | 3 |
| Moderate | 2 |
| Slight | 1 |
| Minimal | 0 |

| | |
|---------------------|-----|
| HEALTH | * 3 |
| FLAMMABILITY | 2 |
| PHYSICAL HAZARD | 0 |
| PERSONAL PROTECTION | X |



Disclaimer

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04-May-2017

Version #

01

Effective date

04-May-2017

Prepared by

Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (SOR/2015-17) and the SDS contains all the information required by the HPR. For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.