



HOT MIX ASPHALT SAFETY DATA SHEET

(THIS PRODUCT NOT SUBJECT TO THE CONTROLLED PRODUCTS REGULATIONS)

Asphalt.

ONTARIO RIDES ON US

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SECTION I: MATERIAL IDENTIFICATION

PRODUCT NAME	Hot Mix Asphalt (HMA)
SYNONYM	Driveway, HL 2, HL 3, HL 3A, HL 3 Fine, HL 4, HL 6, HL 8, MDBC, HDBC, DFC, OFC, HL 1, HL 1 Modified, Superpave Mixes, Stone Mastic Asphalt (SMA), Warm Mix Asphalt (WMA) etc.
PRODUCT USE	HMA is used for paving roads, driveways, parking lots and other surface, base, or sub-base applications.
EMERGENCY TELEPHONE #	In the event of an emergency involving dangerous goods, call CANUTEC at 1-888-CAN-UTEC (226-8832), 613-996-6666 or *666 on a cellular phone.

SECTION II: HARZARD(S) IDENTIFICATION

HMA is not classified as dangerous for supply or use (not a known health hazard). However, contact with heated material can cause thermal burns. Fumes may be irritating to the eyes, nose, and throat. Skin contact may increase susceptibility to sunburn. Poisonous Hydrogen Sulfide gas can accumulate in the head-space of containers of certain asphalt products. Mechanical disruption (e.g., milling, cutting, chipping) of cured asphalt pavement may release crystalline silica dust from the aggregate.

ADVISORY:

- Avoid breathing dust/fume/gas/mist/vapors/spray.
- As necessary, Wear protective gloves/protective clothing/eye protection/face protection.
- Wash hands and exposed skin after use.

SECTION III: COMPOSITION/INFORMATION ON INGREDIENTS

COMPOSITION/INFORMATION ON INGREDIENTS	NOTES
Aggregate (crushed stone, sand, gravel): 90 – 95%	
Petroleum asphalt / bitumen: 3 – 7%	Contains: <0.05% of 3 - 7 ring Polycyclic Aromatic Hydrocarbons (PAHs).
Recycled Materials: Such as RAP, RAS, CRM etc.	Composition varies per provincial/municipal specifications.
Polymers and Natural Rubbers	Varies with Specification.
Process oils (inherent in refined petroleum asphalt)	
Anti-strip or other amine-based additives	Varies with Specification.
Warm-mix additives	Varies with Specification.

SECTION IV: EMERGENCY AND FIRST AID MEASURES

INHALATION: Evacuate to fresh air. Apply cardio-pulmonary resuscitation if required. Seek immediate medical attention.

SKIN: For hot asphalt splash, cool part by ice-water immersion or cold shower. Do not attempt removal of asphalt. For serious burns, treat for shock by laying victim down, preferably with feet elevated, and keeping him or her warm. IMMEDIATE MEDICAL ATTENTION IS ESSENTIAL. For skin soiling without underlying burn, clean with medical grade mineral oil, baby oil, or edible oil.

NOTES TO PHYSICIAN: No attempt should be made to remove firmly adhering bitumen from the skin. Once the bitumen has cooled, it will do no further harm and in fact provides a sterile covering over a burnt area. As healing takes place, the bitumen plaque will detach itself, usually after a few days. If solvent treatment is used, follow by washing with soap and water, then apply a proprietary re-fatting agent or skin cleansing cream. Only medically approved solvents may be used to remove bitumen from burns, as other solvents could cause further skin damage.

EYES: Flush with water for at least 15 minutes, keeping eyelids open. Seek medical aid. Rub gently with medical grade mineral oil.

INGESTION: DO NOT INDUCE VOMITING. Seek medical attention.

SECTION V: FIRE FIGHTING MEASURES & EXPLOSION DATA

Flammability	Yes, when heated excessively (to flash point).
Means of extinction	Preferred – Dry Chemical, Other – CO ₂ , Chemical Foam.
Sensitivity to mechanical impact/static discharge	n/a
Flash point (method)	Open Cup:>175C (350F), ASTM D92, Cleveland.
Upper flammable limits %	n/a
Lower flammable limits %	n/a
Auto-ignition temperature	n/a
Hazardous Combustion Products	Carbon monoxide, carbon dioxide, oxides of sulphur.
Fire Hazards in Presence of Various Substances	Flash point is dependent on grade of asphalt. Keep asphalt from ignition sources and oxidizing materials such as fluorine. Refer to Asphalt Supplier's MSDS sheet for additional information.
Special Fire Fighting Instructions	Use dry chemicals, CO ₂ or chemical foam on small fires. Large fires require the use of water spray, fog or foam. Self-contained breathing apparatus is required to avoid prolonged inhalation of fumes emanating from fire.
Unusual Fire and Explosion Hazards	n/a

SECTION VI: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin and eyes.
Environmental precautions	Not normally required.
Methods and material for containment and cleaning up	This material is a solid or a semi-solid, and is not likely to spill or flow. Allow product to cool/solidify and pick up as a solid.
Reference to other sections	None.
Additional Information	None.

SECTION VII: HANDLING AND STORAGE

Handling Procedures and Equipment	Emergency shower and eyewash fountains should be available within vicinity of any potential exposure to hot material.
Storage Requirements	Do not store with strong oxidizers or light hydrocarbons in immediate vicinity. Store at temperatures not exceeding the product's flash point.
Special shipping information	Not regulated by the Transportation of Dangerous Goods Regulations.

SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection	In emergency situations, use air-supplied respirator.
Ventilation	Sufficient ventilation to maintain airborne concentrations of asphalt and sulphide fumes below 5mg/m ³ and 14mg/m ³ , respectively.
Protective gloves	Insulated oil-impervious type recommended.
Eye protection	Safety glasses/splash goggles recommended.
Other protective equipment	Long sleeves, loose clothing recommended.
Clothing	Long-sleeved shirt, cuff-less pants or overalls.
In the event of a spill	Dike and contain, transfer to containers for recovery or disposal. Keep out of sewers.
Waste disposal method	Follow federal, provincial and local regulations regarding disposal.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Semi-Solid.
Odour and appearance	Black, viscous semi-solid with characteristic asphaltic odour.
Odour threshold	n/a
pH	n/a
Melting point / Freezing point	n/a
Boiling point / range	> 371 °C (>700 °F) Varies with particular composition.
Flash point	> 232 °C (>450 °F) Varies with particular composition.
Evaporation rate (nBuAcetate = 1)	n/a
Flammability (solid, gas)	Not flammable However, combustibility varies with type and amounts of solvents.
Explosive Limit Ranges	n/a
Vapour pressure (mm Hg)	Negligible.
Vapour density (air = 1)	n/a
Relative Density (water=1)	2.2 – 2.7 (@ 25 °C).
Solubility (water)	Insoluble.
Specific gravity	2.0 – 2.5 (Water =1).
Coefficient of water/oil distribution	n/a
Volatiles %	0
Partition Coefficient: N-Octanol/Water	n/a
Viscosity	n/a

SECTION X: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal handling and storage conditions.
Possibility of hazardous reactions	May react violently with strong oxidizing agents.
Conditions to avoid	Avoid excessive heat approaching flash point.
Incompatible materials	Fluorine, magnesium, acids, alum, ammonium salts, strong acids, formaldehyde, when molten: water.
Corrosivity	Non-corrosive to metals.
Hazardous decomposition products	Hot asphalt can release toxic hydrogen sulfide gas. Hydrogen sulfide can decompose to form: Chromic anhydride, Nitrogen iodide.
Hazardous polymerization	Not known to polymerize. Quartz (silica) will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

SECTION XI: TOXICOLOGICAL INFORMATION

Route of entry	skin contact, eye contact, and inhalation.
Effects of acute exposure to product	Hot material can severely burn skin and eyes on contact. Acute exposure to cool material not expected to produce adverse effects.
Effects of chronic exposure to product	Fumes from hot material may cause nausea, headache, dizziness and irritation to eyes and upper respiratory tract.
Exposure limits	Asphalt fumes, Time Weighted Average Limit: Particles soluble in Benzene (0.5 ppm), Hydrogen sulfide (10 ppm).
Irritancy of product	Skin, prolonged exposure to cool material may cause dermatitis.
Carcinogenicity	Not listed by IRAC or ACGIH as carcinogen (Not to be expected at typical road paving temperatures).
Sensitization to Product	n/a
Teratogenicity	n/a
Reproductive Toxicity	n/a
Mutagenicity	n/a
Synergistic Products	n/a
Other information	<p>*International Agency for Research on Cancer - IARC (2013, volume 103) identifies that "occupational exposures to straight-run bitumens and their emissions during road paving are possibly carcinogenic to humans (Group 2B)." However, classification as a carcinogen under OSHA 29 CFR 1910.1200 is not warranted given the absence of positive cancer findings in human epidemiological studies and in cancer studies with laboratory animals when exposed dermally or by inhalation to asphalt products or fume condensates that are typical of road paving applications. IARC (2013, volume 103) also identifies that "occupational exposures to oxidized bitumens and their emissions during roofing are probably carcinogenic to humans (Group 2A)." Roofing shingle are sometimes recycled into road paving asphalt mix. Emissions from oxidized bitumen, e.g., from shingles, at road paving temperatures are not expected to be qualitatively different than emissions from straight-run bitumens, and therefore would not warrant a carcinogen classification under OSHA 29 CFR 1910.1200.</p> <p>Hot asphalt may contain hydrogen sulfide gas. Breathing hydrogen sulfide gas may cause nervousness, excitement, dizziness, drowsiness, headache, difficulty walking, and fluid buildup in the lung tissue. At concentrations above 1000 ppm, it may cause rapid collapse and death due to suffocation. While hydrogen sulfide gas has a rotten egg smell at low concentrations, the gas deadens the sense of smell at concentrations above 150 ppm. Therefore odor may not be a good warning of hydrogen sulfide exposure. This product may contain small amounts (totaling less than 1% of the product) of modifiers such as chemical and mineral additives which have no effect on the hazards associated with use of the product.</p>

SECTION XII: ECOLOGICAL INFORMATION

Ecotoxicity Short term	LL50 (48 hour): >1000 mg/l (Fish) LL50 (48 hour): >1000 mg/L (Aquatic Invertebrates) EL50 (48 hour): >1000 mg/L (Aquatic Plants).
Long term	No data.
Persistence and degradability	The product is poorly biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product has low mobility in soil.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	None known.

SECTION XIII: DISPOSAL CONSIDERATIONS

Waste Treatment Methods	Disposal should be in accordance with applicable provincial or municipal legislation. Consult an accredited waste disposal contractor or the local authority for advice.
Additional Information	None known.

SECTION XIV: TRANSPORT INFORMATION

Ground or Water Domestic Voyage	Not regulated when transported below 240°C (464°F).
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SECTION XV: REGULATORY INFORMATION

T.D.G. CLASSIFICATION	NON-REGULATED.
WHIMIS CLASSIFICATION	NON-REGULATED.
Asphalt	Listed on the Canadian Domestic Substances List (DSL).
Limestone	Listed on the Canadian Non-Domestic Substances List (NDSL).
Carbonic Acid, Magnesium Salt	Listed on the Canadian Domestic Substances List (DSL).
Quartz	Listed on the Canadian Domestic Substances List (DSL).

SECTION XVI: OTHER INFORMATION

This document has been prepared in accordance with the SDS requirements of the Occupational Safety & Health Administration (OSHA) Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

It should be noted that, ingredients in asphalt pavement mix can range from aggregate and petroleum asphalt binder to RAP, RAS, anti-stripping agents, polymers, rubber, and other materials. Some of these raw materials carry various classification labels, e.g., identifying the hazard of crystalline silica exposure from aggregate dust. However, because of the unique characteristics of asphalt pavement mix, many of the potentially classifiable hazards from individual raw material ingredients may be minimized once the material is combined into its final product, asphalt pavement mix.¹

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INITIAL PREPARATION DATE: July-08-1998.
REVISION DATE(S): January-12-2004; October-02-2020.

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¹ Environment, Health & Safety Alert - Complying with GHS HazCom Requirements for Safety Data Sheets (NAPA Resource).