



SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

Hot Mix Asphalt

Other means of identification:

- Driveway HL2, HL3, HL 3F, HL3 fine, HL 4, HL 8, HL 3HS, HL4F, HM 3, HM 3 HD
- MDBC, HDDB, DFC, OFC,
- HL 1, HL 1 Modified,
- Super Pave Mixes
- SMA Mixes, OGD

1.2 Recommended use and restrictions on use:

Identified uses: Paving material for road surfaces, parking lots, driveways etc.

Restrictions on use: Industrial uses only.

1.3 Supplier identifier:

Dufferin Construction Company
A Division of CRH Canada Group Inc.
585 Michigan Drive,
Suite 1 Oakville,
Ontario L6L 0G1
905-842-2741
Toll Free 1-866-322-2003

CRH Canada Group Inc.
2300 Steeles Ave. W., 4th Floor
Concord, ON, L4K 5X6
Canada
Information Telephone Number: 905-761-7100

1.4 Emergency telephone number:

In Canada: 1-613-996-6666 CANUTEC (Call Collect or *666 Cellular) 24-hours

In USA: 800-451-8346 3E COMPANY 24-hours

Section 2: Hazards Identification

2.1 Classification:

Eye irritation Cat. 2B; H320

Specific Target Organ Toxicity, Single Exposure (inhalation), Cat. 3; H335

2.2 Label elements:



Warning.

Causes eye irritation.

May cause respiratory irritation.

Prevention

Avoid breathing fume

Wash hands and exposed skin thoroughly after handling.

Use only outdoors or a well-ventilated area.

Response

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 attention.

IF INHALED: Remove person to fresh air and keep comfort able for breathing.

Call a POISON CENTER or doctor if you feel unwell.

2.3 Other hazards:

Product supplied as a hot semi-solid, causes thermal burns to exposed skin.

May ignite flammable and /or combustible materials.

Hot asphalt releases fumes; in confined spaces asphalt fumes accumulate. Asphalt fumes cause irritation to the eyes and respiratory tract. Fumes may contain trace amounts of very toxic hydrogen sulphide.

Natural aggregate (stone) contains crystalline silica. Hot mix product contains aggregate mixed with the asphalt and /or polymer binder material. Under these conditions the product will not release crystalline silica.



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Section 3: Composition/Information on Ingredients

<u>Chemical Name</u>	<u>Common name / Other identifiers</u>	<u>CAS No.</u>	<u>Wt.%</u>	<u>GHS Classification</u>
Calcium carbonate	Limestone	1317-65-3	<15	Not classified
Asphalt	Bitumen	8052-42-4	5	Not classified
Hydrogen sulphide	H ₂ S	7783-06-4	<0.1	Flam. Gas 1; H220 Acute tox 2; H330 Eye irrit. 2; H319 STOT SE 3; H335+H336
Polycyclic aromatic hydrocarbons	PAH	130498-29-2	<0.1	
Crystalline silica, Quartz	Silicon dioxide	14808-60-7	>1	Carc. 1; H350 STOT RE1; H372

Other composition information :

Asphalt road material is a mixture of natural aggregates and asphalt binder. Aggregate from recycled granular, from crushed asphalt, limestone, granite, sand and gravel contain varying quantities of quartz (crystalline silica). Asphalt is a complex combination of high molecular weight organic compounds and small amounts of various metals such as iron, nickel, and vanadium.

Section 4: First-Aid Measures

4.1 Description of first-aid measures:

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if you feel unwell or are concerned.

Eye Contact: Rinse eyes cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists: Get medical attention.

Skin Contact: Wash with plenty of water and mild soap. If skin irritation occurs or if you feel unwell: Get medical attention.

Ingestion: Rinse mouth. Get medical attention if you feel unwell or are concerned.

4.2 Most important symptoms and effects, both acute and delayed:

Inhalation: Asphalt fumes can cause irritation to the nose, throat and upper respiratory tract. Symptoms may include nausea, coughing, sore throat, headache. In confined spaces or poorly ventilated areas, irritating and potentially toxic fumes may accumulate.

Eye Contact: Fumes can be irritating to eyes. Symptoms include irritation and redness of the eyes.

Skin Contact: Hot asphalt causes thermal burns to skin. Fumes may cause skin irritation. Asphalt fumes may increase worker susceptibility to sunburn.

Ingestion: Hot asphalt will cause thermal burns on contact with tissues. Swallowing cooled asphalt may cause nausea, indigestion, abdominal pain and obstruction.

4.3 Immediate medical attention and special treatment needed:

Thermal burns must be treated promptly, get immediate medical attention.



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Section 5: Fire-fighting Measures

5.1 Extinguishing media:

For burning asphalt, extinguish with water spray, dry chemical or appropriate fire-fighting foam. Consult foam manufacturers for specifications.

Unsuitable extinguishing media: none known

5.2 Specific hazards arising from the product:

Flashpoint >230°C. Hot asphalt may ignite flammable and/or combustible materials.

5.3 Special protective equipment and precautions for firefighters:

As for any fire, evacuate the area and fight the fire from a safe distance.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Wear adequate personal protective equipment, including an appropriate respirator as indicated in Section 8. Isolate spill area, preventing entry by unauthorized persons. Avoid breathing fume.

6.2 Environmental precautions:

Avoid releases to the environment and prevent material from entering sewers, natural waterways or storm water management systems.

6.3 Methods and material for containment and cleaning up:

Allow the material to cool and collect using a shovel. Place into suitable containment for recycling or disposal.

6.4 Additional Information:

See Section 8 for information on selection of personal protective equipment.

See Section 13 for information on disposal.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Avoid breathing fume.

Use only outdoors or in a well-ventilated area.

Wear protective clothing to prevent thermal burns to skin.

Do not eat, drink or smoke when handling this product.

Wash hands and exposed skin thoroughly after handling.

Storage tanks may accumulate hydrogen sulphide (H₂S) gas. Take precautions when opening closed tanks or working in an enclosed space to safely remove flammable H₂S gas and prevent worker exposure to toxic fumes containing H₂S.

7.2 Conditions for safe storage:

Store hot mix away from flammable and combustible materials.



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Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Occupational Exposure Limits: Consult local authorities for acceptable exposure limits.

Ingredient	ACGIH® TLV®	U.S. OSHA PEL	Ontario (Canada) TWA
Limestone	Not available	15 mg/m ³ (total dust) 5 mg/m ³ (respirable)	Not available
Asphalt (fume)	0.5 mg/m ³	Not available	Refer to ACGIH® TLV®
Hydrogen sulphide	1 ppm TWA 5 ppm STEL	20 ppm Ceiling	10 ppm TWA 15 ppm STEL
Crystalline silica (Quartz)	0.025 mg/m ³ (respirable)	quartz (total dust): 30 mg/m ³ / (%SiO ₂ + 2) quartz (respirable): 10 mg/m ³ / (%SiO ₂ + 2)	0.1 mg/m ³ (respirable) Designated Substance

8.2 Exposure controls:

Engineering Controls: Handle product in a well-ventilated area. If airborne particulates are generated, monitor dust concentrations in air and provide local exhaust ventilation when any exposure guideline is exceeded. Ensure regular cleaning of equipment, work area and clothing.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have equipment available for use in emergencies such as spills.

8.3 Individual Protection Measures:

Eye/Face Protection: Wear approved safety glasses with side-shields or chemical safety goggles. Wear a face-shield or full-face respirator when needed to prevent exposure to irritating fume.

Skin Protection: Wear thermal protective gloves and clothing as needed to prevent burns to skin. Evaluate resistance under conditions of use and maintain protective clothing carefully. Contact safety supplier for specifications.

Respiratory Protection: When fume concentrations in air exceed the occupational exposure guidelines, wear an approved air purifying or supplied-air respirator. Consult with respirator manufacturer to determine respirator selection, use and limitations.

For operations involving cutting, crushing or grinding of the cooled, hardened asphalt, wear respiratory protection appropriate for protection from dusts containing crystalline silica. Consult with respirator manufacturer to determine respirator selection, use and limitations.

A respiratory protection program that meets the regulatory requirement, such as OSHA's 29 CFR 1910.134, ANSI Z88.2 or Canadian Standards Association (CSA) Standard Z94.4, must be followed whenever workplace conditions warrant a respirator's use.

Other Protection: Have adequate washing facilities and eyewash fountain available in the work area.

Do not eat, drink or smoke where this material is handled, stored and processed. Wash hands thoroughly before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.



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Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance:	Semi-solid containing rock. Black
Odour:	Petroleum odour
Odour threshold:	Not applicable
pH:	Not applicable
Melting point/freezing point:	Not applicable
Initial boiling point and boiling range:	Not applicable
Flash point:	>230°C
Evaporation rate:	Not applicable
Flammability:	Not available
Upper/lower flammability or explosive limits:	Not applicable
Vapour pressure:	Not applicable
Vapour density:	Not applicable
Relative density:	Not available
Solubility (ies):	Insoluble
Partition coefficient (n-octanol/water):	Not applicable
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not applicable

Section 10: Stability and Reactivity

10.1 Reactivity:

Not reactive under normal conditions of use.

10.2 Chemical Stability:

Stable at normal ambient and anticipated storage and handling conditions.

10.3 Possibility of Hazardous Reactions:

None known

10.4 Conditions to Avoid:

Avoid unintentional contact with strong acids.

Avoid extreme high temperatures, greater than 230°C; may release asphalt fumes.

10.5 Incompatible Materials:

Keep away from flammable and combustible materials.

10.6 Hazardous Decomposition Products:

Hydrogen sulphide



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Section 11: Toxicological Information

11.1 Likely routes of exposure:

Eye contact, Inhalation of fume.

11.2 Acute toxicity data:

Oral LD₅₀ Asphalt > 5000 mg/kg (rat).

Inhalation LC₅₀ Asphalt > 94.4 mg/m³ (rat, 4.5-hour exposure) Exposure to vapourized fume from a bitumen condensate. Study was according to OECD 403 guideline and followed GLP. No lethality or adverse effects were noted.

Dermal LD₅₀ Asphalt > 2000 mg/kg (rabbit). Test substance was warmed overnight and applied at 2000 mg/kg-bw to abraded or non-abraded skin of New Zealand White rabbits (2 per sex per condition) with occlusion for 24 hours. Animals were monitored for 14 days. No clinical signs of adversity were noted, and there were no visible lesions at the application site.

Skin corrosion / irritation:

Contact with Hot Mix asphalt causes thermal burns to skin.

Some workers have reported skin irritation from fumes when working with hot asphalt. Not irritating in animal tests. Asphalt fumes may increase worker susceptibility to sunburn.

Serious eye damage / irritation:

Fumes from Hot Mix asphalt can cause eye irritation.

STOT (Specific Target Organ Toxicity) Single Exposure:

Fumes from Hot Mix asphalt can cause irritation of the respiratory tract.

Aspiration hazard:

Does not meet criteria for classification for aspiration toxicity.

11.3 Chronic toxicity:

STOT (Specific Target Organ Toxicity) Repeated Exposure:

Data for Asphalt fume concentrate:

A LOAEC of 100 mg/m³ was identified in rats after nose-only exposure for 28 days, based on changes in lung histology.

A LOAEC of 149 mg/m³ was identified in rats based on degenerative lesions in nasal cavities after 14 weeks exposure.

Hot Mix product contains aggregate mixed with the asphalt and /or polymer binder material. Under these conditions the product will not release crystalline silica. Hardened paving materials such as asphalt may be subjected to mechanical forces (e.g. cutting or crushing) that produce small particles (dust) which may contain crystalline silica. Long-term exposure to fine airborne crystalline silica dust may cause silicosis a form of pulmonary fibrosis that can cause shortness of breath, cough and reduced lung function.

Respiratory and / or skin sensitization:

Data not available.

Germ cell mutagenicity:

Asphalt fumes collected at approximately 146 to 157°C from the headspace of an asphalt storage tank at a hot-mix asphalt production plant were not mutagenic in the modified Ames assay.

Whole asphalts were generally non-mutagenic or weakly mutagenic in *in vitro* mouse lymphoma and Ames assays.

Reproductive and Developmental effects:

Data for Asphalt fume concentrate: A NOAEC for reproductive and developmental toxicity with exposures of 300 mg/m³ in rats.

Effects on or via lactation:

Data not available.

Carcinogenicity:

The International Agency for Research on Cancer (IARC) concluded there is *inadequate evidence* that asphalts are carcinogenic to humans (IARC 1998).

Contains trace (<0.1%) amounts of polycyclic aromatic hydrocarbons (PAH's). PAH species have a wide carcinogenic potency range IARC Monograph (2010).

Hot Mix product contains aggregate mixed with the asphalt and /or polymer binder material. Under these conditions the product will not release crystalline silica. Hardened paving materials such as asphalt may be subjected to mechanical forces (e.g. cutting or crushing) that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Crystalline silica is considered a hazard by inhalation. IARC has classified crystalline silica as a Group 1 substance, carcinogenic to humans.



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Interactions with other chemicals:

Data not available.

Section 12: Ecological Information

12.1 Toxicity:

Hot Mix Asphalt not expected to cause acute or chronic toxicity to aquatic organisms due to the extremely low water solubility. As the molecular weight of components of asphalts range from 500 to greater than 5000, and due to their low water solubility, the likelihood of components of asphalts migrating into the water column is small.

12.2 Persistence and degradability:

Not readily biodegradable

12.3 Bioaccumulative potential:

Not available

12.4 Mobility in soil:

Not available

Section 13: Disposal Considerations

13.1 Disposal methods:

Dispose as an inert, non-metallic mineral in accordance with applicable federal, state/provincial and local regulations. Avoid generating dust during disposal. Avoid contact with skin and eyes. See Section 8 for personal protection measures. Prevent material from entering sewers, drains, ditches or waterways.

Section 14: Transport Information

14.1 UN Number

Not regulated

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not available

14.6 Special precautions for user

Not available

14.7 U.S. Hazardous Materials Regulation (DOT 49CFR):

Not regulated

14.8 Canada Transportation of Dangerous Goods (TDG) Regulations:

Not regulated



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Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

USA

TSCA Status: Substances are listed on the TSCA inventory or are exempt.

Canada

NSNR Status: Substances are listed on the on the DSL or are exempt.

Section 16: Other Information

Revision date:

September 12, 2016

References and sources for data:

HSDB®, Hazardous Substances Data Bank, US National Library of Medicine
Environment Canada Draft Screening Assessment, Asphalt and Oxidized Asphalt, June 2016
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
RTECS, Registry of Toxic Effects of Chemical Substances
NIOSH, Pocket Guide to Chemical Hazards.

Methods for classification of mixtures:

USA: Haz Com Standard 29 CFR 1910.1200 (2012)
Canada: Controlled Products Regulations.
UNECE, Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Legend to abbreviations:

ACGIH® – American Conference of Governmental Industrial Hygienists
GHS- Globally Harmonized System for Classification and Labeling.
IARC – International Agency for Research on Cancer
LOAEC-Lowest Observed Adverse Effect Concentration
NOAEC-No Observed Adverse Effect Concentration
OEL– Occupational exposure limit
OSHA - Occupational Safety and Health Administration
TWA – Time weighted average
TLV - Threshold Limit Value
WHMIS – Canada Workplace Hazardous Materials Information System.

Additional information:

While the information provided in this document is believed to provide a useful summary of the hazards of the product, the information in this document cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. The data furnished in this document do not address hazards that may be posed by other materials when mixed with the product. Users should review other relevant safety data sheets before working with this product. The information presented in the Safety Data Sheet is based on current knowledge and publications and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be interpreted as guaranteeing any specific property of the product.

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