



SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	Asphalt PG 64-22
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
	Carcinogenicity	Category 2
Environmental hazards	Not classified.	
WHMIS 2015 defined hazards	Not classified	
Label elements		



Signal word Danger

Hazard statement Flammable solid.
Causes skin irritation.
Causes serious eye irritation.
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.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

In case of fire: Use appropriate media to extinguish.
If exposed or concerned: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse. Specific treatment (see information on this label).
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.

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
2-Propenoic acid, ethyl ester, polymer with ethene		9010-86-0	3-7
Nickel		7440-02-0	< 0.1
Vanadium		7440-62-2	< 0.1

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

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 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.
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

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 must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. 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. In the event of fire and/or explosion do not breathe fumes.
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

Personal precautions, protective equipment and emergency procedures	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. Prevent entry into waterways, sewers, basements or confined areas. For waste disposal, see section 13 of the SDS.

7. Handling and Storage

Precautions for safe handling	<p>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. Use personal protective equipment as required. Avoid prolonged exposure. Use only with adequate ventilation. Observe good industrial hygiene practices. Wash thoroughly after handling. When handling, do not eat, drink or smoke.</p>
Conditions for safe storage, including any incompatibilities	<p>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.</p>

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/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	
Sulfur (CAS 7704-34-9)	TWA	10 mg/m ³	

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/m ³	Aerosol, inhalable.
Nickel (CAS 7440-02-0)	TWA	0.05 mg/m ³	

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/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	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/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³	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/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³	

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Asphalt (CAS 8052-42-4)	TWA	0.5 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Asphalt (CAS 8052-42-4)	Ceiling	5 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m ³	
Vanadium (CAS 7440-62-2)	STEL	3 mg/m ³	

Components	Type	Value	Form
	TWA	1 mg/m ³	
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	Mechanical ventilation should be used when handling this product in enclosed spaces. Local exhaust ventilation may be necessary.		
Individual protection measures, such as personal protective equipment			
Eye/face protection	Face shield or chemical goggles.		
Skin protection			
Hand protection	Heat-protective gloves.		
Other	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. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.		
Thermal hazards	Not available.		
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

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	<0.15 ppm for Hydrogen sulphide (H ₂ S)
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	905 °F (485 °C) (Typically)
Decomposition temperature	Not available.
Viscosity	Viscous liquid above 194°F (90°C)

10. Stability and Reactivity

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

Routes of exposure	Eye, Skin contact, Inhalation, Ingestion.
Information on likely routes of exposure	
Ingestion	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.
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.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
2-Propenoic acid, ethyl ester, polymer with ethene (CAS 9010-86-0)		
Acute		
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Not available	
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
Nickel (CAS 7440-02-0)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Not available	

Components	Species	Test Results
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
Vanadium (CAS 7440-62-2)		
Acute		
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Rat	2000 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	This product is not expected to cause skin sensitization.	
Mutagenicity	Not classified.	
Carcinogenicity	Suspected of causing cancer.	
Canada - Manitoba OELs: carcinogenicity		
ASPHALT (BITUMEN) FUME, AS BENZENE-SOLUBLE AEROSOL, INHALABLE FRACTION (CAS 8052-42-4)		Not classifiable as a human carcinogen.
NICKEL, ELEMENTAL, INHALABLE FRACTION (CAS 7440-02-0)		Not suspected as a human carcinogen.
IARC Monographs. Overall Evaluation of Carcinogenicity		
Asphalt (CAS 8052-42-4)		Volume 103 - 2B Possibly carcinogenic to humans.
Nickel (CAS 7440-02-0)		Volume 49 - 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. Chronic exposure to vanadium may damage the kidneys. Repeated high exposure to vanadium may cause anemia. Acne-like lesions. Pigmentation of skin.

12. Ecological Information

Ecotoxicity See below

Ecotoxicological data

Components		Species	Test Results
Nickel (CAS 7440-02-0)			
Algae	IC50	Algae	0.18 mg/L, 72 Hours
Crustacea	EC50	Daphnia	100 mg/L, 48 Hours
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1 mg/L, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	2.923 mg/L, 96 hours
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	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

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



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

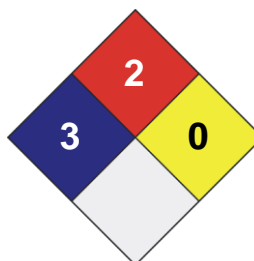
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*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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Issue date

09-March-2017

Version #

01

Effective date

09-March-2017

Prepared by

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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.