

RUETGERS Canada Inc.

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MATERIAL SAFETY DATA SHEET: COAL TAR PITCH

1 - PRODUCT IDENTIFIER: COAL TAR PITCH

Product Name(s):

Pitch (Liquid), Pitch (Flaked)

Formula:

Complex mixture of aromatic and heterocyclic hydrocarbons

Synonym(s):

Electrode Pitch, Binder Pitch, Aromatic Pitch

Chemical Family:

Aromatic hydrocarbons

Product Use(s):

Electrode Binder, Anode Binder

WHMIS Classification:

Class(es): D.2A, D.2B

T.D.G. Classification & Shipping Name:

Not Regulated

NFPA Hazard Classification:

Flammability: 1
Health: 2
Reactivity: 0

IMO Number:

None

DOT Shipping Numbers:

NA 3077, UN 3077, UN 3256, UN 3257, depending on the shipping mode, temperature and flash point. See Section 8.

2 - PHYSICAL DATA

Odour And Appearance:

Temperature dependent. Black solid when allowed to cool.

Physical State:

Solid @ 21.1 °C

Solubility In Water:

Negligible

Specific Gravity (Water=1):

1.33 ± 0.03 @ 25 °C

Boiling Point:

>240 °C

Freezing Point:

Not applicable

Odour Threshold:

Not available

Coefficient of Water/Oil Distribution:

Not available

% Volatiles:

0% @ 360 °C (132M & 150M)

Up to 5% @ 360 °C (110M)

>1

Vapour Density (Air = 1):

None @ 20 °C

Vapour Pressure (mm Hg):

Not applicable

pH:

Not applicable

Evaporation Rate (butyl acetate = 1):

Not available



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3 - HAZARDOUS INGREDIENTS

<u>Ingredients</u>	<u>C.A.S. #</u>	<u>Conc. % (W/W)</u>	<u>L.D.₅₀ (Species & Route)</u>
Coal Tar Pitch	65996-93-2	100	Skin-Mouse TDL _o : 3600 mg/kg/18W-I Oral-Rat: 6200 mg/kg

The following substances are considered hazardous by one or more regulatory agencies and were identified in typical coal tar pitch samples at concentrations greater than 0.01% by weight but less than SARA Section 313 de minimis concentrations using gas chromatography/mass spectroscopy USEPA Reference Methods 8240 (volatile organic compounds) and 8270 (semi-volatile organic compounds), along with sample preparation method USEPA Reference Method 3510 (separator funnel liquid extraction with methylene chloride):

<u>Component</u>	<u>CAS No.</u>
2-methylnaphthalene	91-57-6
Acenaphthene	82-32-9
Anthracene	120-12-7
Benzo-c-acridine	225-51-4
Benzo(e)pyrene	192-97-2
Benzo-g,h,i-perylene	191-24-2
Benzo(a)pyrene	50-32-8
Benzo(j)fluoranthene	205-82-3
Benzo(k)fluoranthene	207-08-9
Benzo-c-acridine	225-51-4
Chrysene	218-01-9
Dibenzofuran	132-64-9
Dibenz(a, h)anthracene	53-70-3
Fluoranthene	206-44-0
Fluorene	86-73-7
Indeno(1,2,3-cd)pyrene	193-39-5
Naphthalene	91-20-3
Phenanthrene	85-01-8
Pyrene	129-00-0

Substances subject to reporting under SARA Section 313 are listed in Section 9.

4 - FIRE & EXPLOSION HAZARDS

<u>Flash Point (PMCC):</u>	
110M	234-245 °C
132M	242-271 °C
150M	262-284 °C
<u>U.F.L and L.F.L.:</u>	Not available
<u>Auto-Ignition Temperature:</u>	> 399 °C
<u>Sensitivity to Mechanical Impact:</u>	None



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4 - FIRE & EXPLOSION HAZARDS (continued)

<u>Sensitivity to Static Discharge:</u>	Yes, for solid pitch dust.
<u>Conditions of Flammability:</u>	At elevated temperatures may generate vapours that may ignite in the presence of air and a source of ignition.
<u>Means of Extinction:</u>	Sand, CO ₂ , foam, water fog, dry chemical, steam.
<u>Fire Fighting Procedures:</u>	Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water or water spray to cool fire-exposed containers and structures and to protect personnel. Water/fog can control unconfined pitch fires, but water may cause frothing or eruption in closed tanks.
<u>Unusual Fire and Explosion:</u>	Burning may emit hazardous fumes/vapours which can form flammable/explosive mixtures in air and which may be in concentrations greater than the PEL/TLV. Airborne pitch dust may form explosive mixtures with air. Cloud ignition temperature is 710°C minimum. Explosion concentration (dust) 1000 mg/ 0.03 m ³ . Closed containers may explode when exposed to extreme heat. Liquid (molten) pitch at elevated temperatures will sustain combustion.
<u>Hazardous Combustion Products:</u>	CO ₂ , CO, NO _x , SO ₂ and PAH's

5 - REACTIVITY DATA

<u>Chemical Stability:</u>	Yes
<u>Conditions Contributing To Instability:</u>	None known @ STP
<u>Hazardous Polymerization:</u>	None
<u>Incompatibility:</u>	Avoid contact with water when confined and in a molten state. Avoid contact with strong oxidizing agents.
<u>Reactivity:</u>	None
<u>Hazardous Decomposition Products:</u>	Does not decompose at ambient temperatures. Upon burning or heating may emit hazardous fumes/vapours in concentrations greater than the PEL/TLV.



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6 - TOXICOLOGICAL PROPERTIES

Route of Entry:	Skin <u>X</u>	Eye <u>X</u>	Ingestion <u>X</u>	Inhalation <u>X</u>
Effects of Acute Exposure:	Irritating to skin, eyes, throat and nose. Severe burn and inflammation may result after contact with liquid.			
Eye Contact:	Exposure to fumes or vapours, may cause irritation and burning to the eyes. Reversible symptoms may include irritation, a burning sensation, intolerance to light, redness/swelling/tearing, and possible erosion of the surface of the cornea. Contact with heated material may cause thermal burns.			
Skin Contact:	Contact with the skin can result in irritation which, when accentuated by sunlight, may result in a phototoxic skin reaction. Contact with heated material may cause thermal burns. Hot/molten coal tar pitch is a severe burn hazard. Prolonged and repeated skin contact in the absence of recommended hygiene practices may cause acne, folliculitis and more serious skin disorders such as changes in skin pigmentation, ulcerations, benign skin growths and skin cancer.			
Inhalation:	Inhalation of fumes or vapours may cause temporary respiratory irritation. Acute respiratory effects caused by over-exposure to coal tar pitch volatiles may include coughing, sneezing, and swollen or irritated nasal mucosa or sinuses. Inhalation of fumes or vapours in significant excess of the PEL/TLV may lead to systemic symptoms such as salivation; vomiting; respiratory difficulties; headache; loss of pupillary reflexes; central nervous system (CNS) effects such as dizziness, weakness, possible loss of coordination and collapse; cyanosis; hypothermia; and convulsions.			
Ingestion:	Ingestion may cause irritation of the gastrointestinal tract followed by one or more of the following: nausea, vomiting, and abdominal discomfort.			
Effects Of Chronic Exposure:	See "Skin Contact Effects" above.			
Carcinogenicity:	NTP <u>X</u>	IARC <u>X</u>	OSHA <u>X</u>	ACGIH <u>X</u>
Exposure Limit:	OSHA PEL/ACGIH TLV=0.2 mg/m ³ (as coal tar pitch volatiles, benzene soluble fraction).			
Sensitization:	None known			



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6 - TOXICOLOGICAL PROPERTIES (continued)

<u>Synergistic Effects:</u>	None known
<u>Irritancy:</u>	See "Effects of Acute Exposure" and "Effects of Chronic Exposure" above.
<u>Reproductive Toxicity and Teratogenicity:</u>	None known. Although coal tar pitch does contain substances considered to be reproductive hazards by the State of California, no scientific study supports an association between coal tar pitch exposures and human reproductive hazards.
<u>Persons More Susceptible to Exposure:</u>	Individuals with chronic respiratory disorders may be more susceptible to the effects of exposure to any airborne material. Individuals with preexisting skin disorders may be more susceptible to irritation, dermatitis and phototoxic reactions. Persons with a history of central nervous system (CNS) functional illness may be more susceptible to the effects when working with this product (see "Effects of Acute Exposure") above.
<u>Mutagenicity:</u>	Available data characterizes coal tar pitch as a mutagen.

7 - FIRST AID

<u>Skin Contact:</u>	For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible, submerge area in cold water. Pack with ice. Seek medical aid immediately. For other contact, remove all contaminated clothing and wash exposed area thoroughly with non-abrasive soap and water, or a mild detergent.
<u>Eye Contact:</u>	Flush eyes immediately with large amounts of water for at least 15 minutes, occasionally lifting the eyelids. Seek medical aid immediately.
<u>Inhalation:</u>	Remove subject from exposure area to fresh air immediately. If breathing is difficult, give oxygen. If breathing has stopped, administer artificial respiration (e.g. mouth-to-mouth). Seek medical aid immediately.
<u>Ingestion:</u>	If the person is conscious, first induce vomiting to prevent further absorption. Do not give anything by mouth to an unconscious person. Give oxygen if respiration is shallow. Seek medical aid immediately.



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8 - PREVENTATIVE MEASURES

Respiratory Protection:

The need for respiratory protection depends on the type and magnitude of exposure. Use a MSHA/NIOSH approved respirator. Approved MSHA/ NIOSH respirators include either of the following, as required: a half-face piece or a full-face piece respirator with an organic vapour/particulate cartridge; or a full-face piece continuous flow, positive pressure air supplied respirator.

Skin Protection:

Wear full body, industrial-type work clothing closed at the neck and sleeves. As required to prevent skin contact, wear chemical resistant gloves, footwear and coveralls; wear heat resistant gloves when handled at elevated temperatures. Application of certain protective creams for coal tar products and sunscreens before and during work may be beneficial and are recommended. Remove and launder contaminated clothing separate from other laundry before reuse.

Eye Protection:

Wear chemical/industrial safety glasses (with side shields), goggles, or face shields to prevent eye contact. Do not wear contact lenses when handling this material. Chemical splash goggles or face shields are highly recommended if handling molten material.

Personal Hygiene:

Wash exposed areas thoroughly with soap and water after handling and especially before eating, drinking, using tobacco products or rest rooms. Take a complete soap and water shower at the end of each work day. Do not smoke or eat in areas where this material is handled. Work clothes should be laundered before reuse. Remove and launder contaminated clothing separate from other laundry before reuse. Saturated shoes/boots should be discarded.

**Handling Procedures/
Equipment:**

Avoid prolonged or repeated contact with skin or breathing of fumes/vapours. Observe good personal hygiene practices and recommended procedures. Avoid contact with molten material. Wear appropriate protective equipment when performing maintenance on contaminated equipment. Closed system handling of liquid pitch could create excessive vapour concentrations in confined spaces; e.g., tanks, rail cars, tank trailers. When entering a confined space that has been in liquid pitch service follow confined space entry procedures set forth in the applicable regulations.

Engineering Controls:

Provide sufficient general or local exhaust ventilation in pattern/volume to maintain concentrations below the PEL/TLV and to maintain areas below flammable vapour concentrations.



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8 - PREVENTATIVE MEASURES (continued)

Spill or Leak Procedures:

Avoid breathing vapours or contact with skin and eyes. Remove all ignition sources. Try to stop the source of the leak if possible without hazard. Ventilate the area if spill occurs indoors. Release or spillage of solid can be treated as a coal spillage and recovery made avoiding skin and eye contact. Shovel into dry, labeled containers and secure cover. Contain runoff of fire control water. If hot liquid is spilled, contain by dyking/berming with absorbent solids, such as sand, ashes, earth or other inert material as necessary to prevent entry into sewers or open bodies of water. Avoid contact with hot liquid/fumes/vapours. Provide cleanup personnel with appropriate protective clothing.

In cases involving release to the environment, in Canada report to provincial authorities, municipal authorities, or both, as required; in the U.S., report the release to The National Response Center at 1-800-424-8802.

Due to the concentration of benzo(a)pyrene in coal tar pitch and the reportable quantity for benzo(a)pyrene of one pound, a CERCLA (Superfund) release of approximately 8 gallons (80 pounds) of coal tar pitch requires National Response Center notification.

Waste Disposal:

In Canada, dispose of the material in accordance with provincial regulations. In the U.S., dispose of the material as required by applicable federal, state and local regulations.

Storage Requirements:

Store in a labeled container in a clean, dry, well-ventilated area away from all sources of ignition. Protect containers from physical damage. Maintain good housekeeping.

SPECIAL SHIPPING INFORMATION:

DOT Shipping Description:
(shipped below 100°C)

Other regulated substances, Solid, n.o.s. (contains benzo(a)pyrene and dibenz(a,h)anthracene), 9, NA 3077, PG III, RQ (contains benzo(a)pyrene and dibenz(a,h) anthracene).

DOT Shipping Description:
(shipped below 100°C)

Environmentally Hazardous Substance, Solid, n.o.s. (contains benzo(a)pyrene and dibenz(a,h)anthracene), 9, UN 3077, PG III, RQ (contains benzo(a)pyrene and dibenz(a,h) anthracene).

DOT Shipping Description:
(shipped below 100°C for marine bulk solid shipments)

Environmentally Hazardous Substance, Solid, n.o.s. (contains benzo(a)pyrene and dibenz(a,h)anthracene), 9, UN 3077, PG III, RQ (contains benzo(a)pyrene and dibenz(a,h) anthracene).

DOT Shipping Description:
(shipped above 100°C but below flash point)

Elevated Temperature Liquid, n.o.s. (contains benzo(a)pyrene and dibenz(a,h)anthracene), 9, UN 3257, PG III, RQ (contains benzo(a)pyrene and dibenz(a,h) anthracene).

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SPECIAL SHIPPING INFORMATION: (continued)

DOT Shipping Description:
(shipped at or above flash point)

Elevated Temperature Liquid, flammable, n.o.s. (contains benzo(a)pyrene and dibenz(a,h)anthracene), 3, UN 3256, PG III, RQ (contains benzo(a)pyrene and dibenz(a,h)anthracene).

IMO Shipping Description:
(Pitch prill hazardous only in bulk)

Environmentally Hazardous Substance, Solid, n.o.s. (contains benzo(a)pyrene and dibenz(a,h)anthracene), 9, UN 3077, RQ (contains benzo(a)pyrene and dibenz(a,h)anthracene).

TSCA Status:

This product appears on the Toxic Substances Control Act (TSCA) Inventory.

California Proposition 65:

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

SARA Section 313:

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, and of 40 CFR Part 372, Subpart D:

<u>Component</u>	<u>CAS No.</u>
Benzo(a)anthracene	56-55-3
Benzo(b)fluoranthene	205-99-2
Benzo(a)pyrene	50-32-8

9 - ENVIRONMENTAL/REGULATORY STATUS

There are no known ingredients other than those listed in Section 3 which occur at a concentration greater than 0.01 % by weight and which are listed as a carcinogen in the IARC Monographs on the Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances). This is based on gas chromatograph/mass spectroscopy USEPA Reference Methods 8240 (volatile organic compounds) and 8270 (semi-volatile organic compounds), along with sample preparation method USEPA Reference Method 3510 (separatory funnel liquid extraction with methylene chloride) on typical samples of coal tar pitch.

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