



Petroleum Asphalt Cements

Safety Data Sheet

Version 002 — Last revision on 2014-05-29

SECTION 1 — IDENTIFICATION

Product Name: Petroleum asphalt cements
Product ID: CNX-003
Synonyms: Bitumen; paving asphalt; penetrating asphalt cements; roofing flux; viscosity graded asphalt
Molecular Formula: Mixture
Chemical Family: Petroleum hydrocarbon
Manufacturer: CHS, Inc.
P.O. Box 909
Laurel, Montana 59044, USA
Telephone: 406.628.5200 (*General*)
800.424.9300 (*Emergency – Within USA & Canada*)

SECTION 2 — HAZARD(S) IDENTIFICATION

Emergency Overview

WARNING



Harmful if inhaled (H332).
Suspected of causing cancer (H351).

PREVENTION

Obtain special instructions before use (P201).
Do not handle until all safety precautions have been read and understood (P202).
Avoid breathing fume, gas, or vapors (P261).
Use only outdoors or in a well-ventilated area (P271).
Wear gloves and eye protection (P280).
Use personal protective equipment as required (P281).

RESPONSE

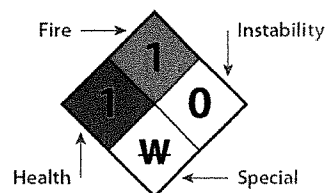
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

(P304 + P340).
 IF EXPOSED OR CONCERNED: Get medical advice/attention (P308 + P313).
 Call a poison center or doctor/physician if you feel unwell (P312).
 Wash contaminated clothing before reuse (P363).

Hazard Classifications (OSHA / GHS)

Acute toxicity, inhalation – Category 4
 Carcinogenicity – Category 2

NFPA



Potential Health Effects

- Eye Health Effects:** Contact may cause mild irritation including stinging, watering and redness. Contact with heated material may cause thermal burns. Vapors or fumes may cause watering of the eyes.
- Skin Health Effects:** Contact may cause mild to moderate skin irritation. Prolonged or repeated contact may worsen irritation by causing drying and cracking of the skin leading to dermatitis (inflammation). Long-term skin exposure can increase sensitivity to the sun and cause discoloration. Contact with the heated material may cause thermal burns. Fumes from heated material can also cause irritation. No harmful effects from skin absorption are expected.
- Inhalation Health Effects:** Inhalation of high vapor concentrations may cause respiratory irritation, headaches, dizziness or nausea, unconsciousness, and possibly death.

Under certain conditions, sulfur compounds in hot product may liberate hydrogen sulfide (H₂S) gas. Cooling product may continue to emit traces of H₂S temporarily from entrapped or dissolved gases. Exposure to high concentrations of H₂S (> 1000 ppm) will cause immediate unconsciousness and death through respiratory paralysis. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
- Ingestion Health Effects:** Ingestion may cause irritation of the digestive tract, nausea, vomiting and diarrhea.
- Carcinogenic Effects:** Repeated and prolonged exposure may be harmful and may cause cancer.

Carcinogenic Effects			
Component	NTP	IARC	OSHA
Asphalt (8052-42-4)	Known to be a human carcinogen	Carcinogenic to humans (Group 2B)	May contain Benzene (CAS: 71-43-2), which is specifically listed in 29 CFR 1910 subpart Z

Polycyclic aromatic hydrocarbons (130498-29-2)	Reasonably anticipated to be a human carcinogen	Carcinogenic to humans (Group 1)	Not specifically listed in 29 CFR 1910 subpart Z
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Potential Environmental Effects

Environmental Effects: Spills into watercourses may be harmful to organisms and bottom feeders.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredients				
Name	CAS #	RTECS #	EINECS #	% (Weight)
Asphalt	8052-42-4	VV7330000	238-878-4	> 99 %
Polycyclic aromatic hydrocarbons	130498-29-2	---	---	< 5 %
Hydrogen sulfide	7783-06-4	BD1200000	215-691-6	< 0.1 %

SECTION 4 – FIRST-AID MEASURES

Eye Contact

Flush eyes immediately with clear water for at least 15 minutes. Remove contact lenses if present and easy to do. If irritation persists, seek medical attention.

Skin Contact

Remove contaminated clothing and shoes. Wash area of contact thoroughly with soap and plenty of water. If irritation persists, seek medical attention. Wash clothing separately before reuse. If hot material contacts skin, place affected area under cold water. For severe burns over a large area of the body, immediately seek medical attention.

It is not usually advisable to immediately remove asphalt material from skin, as underlying tissue may easily be torn away. Natural separation will occur in 48 - 72 hours. For small amounts of material on skin, use mineral oil, mineral oil ointment, or commercial products specific for asphalt removal (such as DESOLV-IT) may be applied to soften the asphalt to facilitate removal. For larger amounts, removal should only be attempted under the direction of a physician.

If skin is contaminated with cool, solid asphalt, the area should be cleaned with waterless skin cleanser followed by soap and water.

Inhalation

Move to fresh air. If breathing difficulties develop, oxygen should be administered by qualified personnel. If victim is not breathing, clear airway and immediately begin artificial respiration. Seek immediate medical attention, if necessary.

Ingestion

Do not induce vomiting. Seek medical attention.

Notes to Physicians

Once it has cooled, adhered asphalt is not harmful to the skin and in fact provides a sterile cover over the affected area. The asphalt will detach itself, usually after a few days as healing occurs. If it is necessary to remove the asphalt, only medically approved solvents or warm paraffin should be used to prevent further skin damage.

If heated, this material may liberate hydrogen sulfide (H₂S). At high concentrations H₂S may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Nitrite therapy (found in the cyanide antidote kit) has been suggested as a therapy for H₂S exposure. Amyl nitrite is given by inhalation (for 30 seconds every minute until an intravenous line is established) followed by intravenous sodium nitrite (300 mg over absolutely no less than 5 minutes). This may aid recovery by forming sulfmethemoglobin, thus removing sulfide from combination in tissue. The antidotal efficacy of nitrite therapy is controversial, but is currently recommended if it can be started within the first few minutes after exposure. Nitrite therapy should not be allowed to interfere with the establishment of adequate ventilation and oxygenation. (*Source: ATSDR Toxic Substances Portal – Hydrogen Sulfide*).

Medical Conditions Aggravated by Exposure

Pre-existing skin or eye problems may be aggravated by prolonged exposure.

Other Comments

Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulfide (H₂S), a poisonous gas, and should consider the need for respiratory protection (see *Section 8*).

SECTION 5 – FIRE-FIGHTING MEASURES

NFPA 704 Hazard Classes:

Health: 1 (Slight)
Flammability: 1 (Slight)
Instability: 0 (Minimal)
Other Hazards: May react violently with water

Unusual Fire and Explosion Hazards

This material is flammable at temperatures above 500 °F (260 °C), but will not ignite readily. Flammable and toxic hydrogen sulfide (H₂S) may form in closed tank headspaces. Flammability of headspace vapors containing H₂S

will differ appreciably from the values given for asphalt. Hot asphalt may ignite flammable mixtures on contact. If water is applied to heated asphalt, it can cause violent foaming and boil over.

Extinguishing Media

Foam, dry chemical, carbon dioxide, and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Do not use a water stream. Water stream may cause violent eruptions and spreading of asphalt. Further application of water may lead to boil over. Water or foam may cause frothing.

Protection of Firefighters

Wear eye protection. Structural firefighters must use a self-contained breathing apparatus and full protective equipment. In addition, wear other appropriate protective equipment as conditions warrant (see *Section 8*).

Firefighting Procedures

Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

Other Information

Combustion Products: Fumes, smoke, carbon monoxide, and aldehydes. Hydrogen sulfide and oxides of sulfur may also be formed.

Flammable Properties: See *Section 9* for Flash Point, Explosive Limits, etc.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal Precautions

Keep public away. Avoid skin contact. Avoid breathing vapors, fumes, or gas. Wear appropriate protective equipment as conditions warrant (see *Section 8*).

Environmental Precautions

Keep product out of sewers and watercourses. Assure conformity with applicable government regulations.

Containment Procedures

Shut off the source of the leak if possible to do so without hazard. Eliminate all ignition sources. Advise the National Response Center (800-424-8802) if the material has entered a watercourse. Advise local and state emergency services, if appropriate. Contain liquid with sand, soil, or other absorbent material. Dike and divert spill into natural containment areas.

Clean-up Procedures

Recover and return free material to source. Use suitable sorbents to clean up residual liquids.

SECTION 7 — HANDLING AND STORAGE

Handling

Use product with caution around heat, sparks, pilot lights, static electricity, and open flame.

A written hot work permit is required for any repair or maintenance operations on any equipment, piping, container, or tank containing or contaminated with this chemical material, when any open flame, burning, acetylene cutting, arc welding, brazing, grinding, sand blasting, use of electrical power tools, or any spark producing operations are required for said repair and maintenance. The equipment, piping, container, or tank to be worked on should be drained, steamed, water washed, isolated and/or blinded, ventilated, or any combination of these, as deemed necessary to provide a safe hot work environment. The equipment, piping, container, or tank, and the surrounding area, should be inspected and tested for the percent of the lower explosive limit (LEL) and for toxic gas concentrations. Combustible material in the area should be protected or removed. Proper lockout/tagout and confined space entry procedures should be observed at all times. Each situation should be evaluated on an individual basis by competent safety personnel, who shall make all final determinations as to safety, proper personal protective equipment (PPE), and issuance of hot work permits.

For work on tanks, refer to Occupational Safety and Health Administration (OSHA) regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

Because hydrogen sulfide (H₂S) may accumulate in tanks and bulk transport compartments, personnel should stand upwind, keep their faces at least two feet from compartment openings, and avoid breathing vapors when opening hatches and dome covers. Prolonged breathing of 50 - 100 ppm of H₂S may produce eye and respiratory tract irritation, headache, nervousness, and nausea. Very short exposures to high concentrations of H₂S (e.g., 700 - 1000 ppm) may lead to unconsciousness, respiratory paralysis, and death.

Storage

This material is typically stored, transported, and used at temperatures above 275 °F (135 °C). Keep containers and storage containers closed when not in use. Do not store near heat, sparks, flame, or strong oxidants.

Hot asphalt must never be added to a tank or other container that is not completely dry. Contact with water results in violent expansion as the water turns to steam. This can lead to dangerous boil over and may cause damage or rupture of the tank or container. Keep away from any incompatible material (see *Section 10*).

Toxic quantities of hydrogen sulfide (H₂S) may be present in storage tanks and bulk transport vessels, which contain or have contained this material. Persons opening or entering these compartments should first determine if H₂S is present.

SECTION 8 — EXPOSURE CONTROLS / PERSONAL PROTECTION

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, and/or engineering professionals.

Personal Protective Equipment



- Respiratory Protection:** Minimize breathing vapors, fumes, or gases. Ensure adequate ventilation. Use supplied-air respiratory protection in confined or enclosed spaces, or when hydrogen sulfide (H₂S) exceeds permissible limits.
- Eye/Face Protection:** The use of eye protection (such as safety glasses) that meets or exceeds ANSI Z.87.1 is recommended. Depending on conditions of use, a face shield may be necessary.
- Skin Protection:** Avoid skin contact. Wear gloves to protect against skin contact. The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on conditions of use, additional protection may be necessary to prevent skin contact, such as face shield, apron, body suit, long sleeves, etc.
- General Considerations:** When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

Engineering Controls

Use local exhaust to capture vapor, mists, or fumes when handling hot product, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limits or buildup of explosive concentrations of vapor in air. Use explosion-proof equipment.

Exposure Limits / Guidelines

Component	ACGIH TLV	NIOSH REL	OSHA PEL
Asphalt (8052-42-4)	TWA: 0.5 mg/m ³	STEL: 5 mg/m ³	---
Polycyclic aromatic hydrocarbons (130498-29-2)	TWA: 0.2 mg/m ³ (as coal tar pitch volatiles)	TWA: 0.1 mg/m ³ (as coal tar pitch volatiles, cyclohexane-extractable fraction)	TWA: 0.2 mg/m ³ (as coal tar pitch volatiles, benzene-soluble fraction)
Hydrogen sulfide (7783-06-4)	TWA: 1 ppm STEL: 5 ppm	CEIL: 10 ppm	CEIL: 20 ppm Maximum: 50 ppm (for 10 minutes)

Note: State, local, or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Supplemental Information

Notations			
Component	NIOSH IDLH	Skin Notation	Sensitization
Polycyclic aromatic hydrocarbons (130498-29-2)	80 mg/m ³ (as coal tar pitch volatiles)	---	---
Hydrogen sulfide (7783-06-4)	100 ppm	---	---

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical Form	Solid at ambient temperature, viscous liquid when heated
Appearance	Black
Odor	Characteristic sour, tar-like odor
Odor Threshold	<i>Not available</i>
pH	<i>Not available</i>
Freezing Point	131 °F (55 °C)
Boiling Point	> 650 °F (> 340 °C)
Flash Point	> 450 °F (> 232 °C) by open cup
Flammability	Non-combustible
Explosive Limits	0.9 % (LEL) – 7.0 % (UEL)
Evaporation Rate	<i>Not available</i>
Vapor Pressure	< 0.1 mmHg at 68 °F (20 °C)
Vapor Density	> 5
Specific Gravity	1.0 – 1.1
Density	8 – 9.5 lbs/gal
Solubility	Negligible
Partition Coefficient	<i>Not available</i>
Auto-ignition Temperature	> 905 °F (485 °C)
Decomposition Temperature	<i>Not available</i>
Viscosity	<i>Not available</i>
Molecular Formula	<i>Not available</i>
Molecular Weight	<i>Not available</i>

SECTION 10 — STABILITY AND REACTIVITY

Stability:	Stable under normal temperature conditions and recommended use.
Conditions to Avoid:	Hydrogen sulfide (H ₂ S) from the material can react with the iron in an asphalt storage tank to form ferrous sulfide, which is pyrophoric. Water in contact with hot asphalt may result in a violent reaction causing an increase in tank pressure and substantial foaming and frothing of the product.
Incompatible Materials:	Strong oxidants; concentrated oxygen; sodium hypochlorite; calcium hypochlorite.
Hazardous Polymerization:	Not known to occur.

SECTION 11 — TOXICOLOGICAL INFORMATION**General Toxicity**

Signs and Symptoms:	Effects of over-exposure may include irritation of the digestive tract, irritation of the respiratory tract, nausea, vomiting, diarrhea and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).
Aspiration Hazard:	<i>Not available.</i>
Sensitization:	Not expected to be a skin or respiratory sensitizer.
Specific Target Organs:	Acute exposure: eyes, respiratory system, skin. Chronic exposure: respiratory system.
Carcinogenicity:	Skin application of asphalt fume condensate fractions has caused tumors in laboratory mice. However, animal studies in which high concentrations of asphalt fumes were breathed for extended periods of time did not cause carcinogenic effects.
Germ Cell Mutagenicity:	<i>Not available.</i>
Reproductive Toxicity:	<i>Not available.</i>

Toxicological Effects of Components

Toxicological Information		
Component	Category	Data
Asphalt (8052-42-4)	Exposure Routes	Inhalation; skin absorption; skin and/or eye contact.
	Symptoms	Irritation of eyes and/or respiratory system; potential occupational carcinogen.
	Target Organs	Eyes; respiratory system.
	Short-Term Exposure	The substance is irritating to the eyes and the respiratory tract. The substance when heated causes burns on the skin.
	Long-Term Exposure	Fumes of this substance are possibly carcinogenic to humans.

Polycyclic aromatic hydrocarbons (130498-29-2)	Exposure Routes	Inhalation; skin absorption; ingestion; skin and/or eye contact.
	Symptoms	Dermatitis; bronchitis; potential carcinogen.
	Target Organs	Respiratory system; skin; bladder; kidneys.
	Short-Term Exposure	The substance is irritating to the eyes, the skin and the respiratory tract. Exposure to sun may enhance the irritating effect and lead to burns.
	Long-Term Exposure	Repeated or prolonged contact with skin may cause dermatitis and hyperpigmentation of skin. This substance is carcinogenic to humans.
Hydrogen sulfide (7783-06-4)	Exposure Routes	Inhalation; skin and/or eye contact.
	Symptoms	Irritation of the eyes: conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; irritation of the respiratory system; apnea, convulsions, or coma; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance.
	Target Organs	Eyes; respiratory system; central nervous system.
	Short-Term Exposure	The substance is irritating to the eyes and the respiratory tract, and may cause effects on the central nervous system. Exposure may result in unconsciousness or death. Inhalation of gas may cause lung oedema. The effects may be delayed. Rapid evaporation of the liquid may cause frostbite.
	Long-Term Exposure	<i>Not available.</i>

Note: Data for Exposure Routes, Symptoms, and Target Organs were obtained from the NIOSH Pocket Guide to Chemical Hazards. Data for Short- and Long-Term Exposure were obtained from the International Chemical Safety Cards from the International Occupational Safety and Health Information Centre.

SECTION 12 — ECOLOGICAL INFORMATION

Toxicity:	Spills into water ways may be harmful to organisms and bottom feeders.
Persistence & Degradability:	This product is estimated to have a slow rate of biodegradation.
Bioaccumulative Potential:	This product is not expected to bioaccumulate through food chains in the environment.
Mobility:	<i>Not available.</i>
Other Adverse Effects:	<i>Not available.</i>

SECTION 13 — DISPOSAL CONSIDERATIONS

The generator of a waste is always responsible for making proper hazardous waste determinations. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable federal, state, and local requirements and regulations.

This material, when discarded or disposed of as produced, is not specifically listed as a hazardous waste in federal regulations; however it may be characteristically hazardous if it is considered toxic, corrosive, ignitable, or reactive according to federal definitions (40 CFR 261). Additionally, this material may be designated as hazardous according to state and/or local regulations.

SECTION 14 — TRANSPORTATION INFORMATION**DOT – United States – Department of Transportation**

Shipping Name: Elevated Temperature Liquid, N.O.S., (Asphalt)

ID Number: UN3257

Hazard Class: 9

Packing Group: III

SECTION 15 — REGULATORY INFORMATION**United States Regulations**

CERCLA/SARA Section 311/312 (Title III Hazard Categories)

Acute Health: Yes
 Chronic Health: Yes
 Fire Hazard: No
 Pressure Hazard: No
 Reactive Hazard: No

This material may contain one or more of the following chemicals identified by the EPA under Title 40 of the Code of Federal Regulations (CFR), including the CAA (40 CFR 50-97), CERCLA (40 CFR 302.4), SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), and/or TSCA (40 CFR 700-766).

Components Listed by Selected Parts of US 40 CFR					
Component	EPCRA 302	EPCRA 304	EPCRA 313	CERCLA 102/103	CAA 112(r)
Hydrogen sulfide (7783-06-4)	500 lbs TPQ	100 lbs RQ	Reportable	100 lbs RQ	---

This material may contain one or more chemicals identified on individual state hazardous substances lists. Contact each jurisdiction for more information.

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

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

SECTION 16 — OTHER INFORMATION**Preparation & Version Information**

Version 002 – Last revision on 2014-05-29.

Prepared by Certified Environmental Management, Ltd. (www.cemih.com).

Guide to Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CAA	Clean Air Act (United States)
CAS	Chemical Abstracts Service
CEIL	Ceiling Exposure Limit
CERCLA	The Comprehensive Environmental Response, Compensation, & Liability Act (United States)
CFR	Code of Federal Regulations (United States)
EINECS	European chemical Substances Information System
EPA	Environmental Protection Agency (United States)
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
NFPA	National Fire Protection Association
NTP	National Toxicology Program (United States)
OSHA	Occupational Safety and Health Administration (United States)
PEL	Permissible Exposure Limit (OSHA)
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act (United States)
TLV	Threshold Limit Value (ACGIH)
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act (United States)
TWA	Time Weighted Average (8 hours)
UEL	Upper Explosive Limit
UN	United Nations

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