



MATERIAL SAFETY DATA SHEET

P. O. Box 7227
Oakland, CA 94601
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SECTION I MATERIAL IDENTIFICATION

CHEMICAL NAME Not Applicable	CHEMICAL FORMULA Mixture	MOLECULAR WEIGHT Not Applicable
TRADE NAME(S) Modified Asphalt Concrete		
SYNONYMS Hot-Mix Paving Material, Petroleum-derived Asphalt Concrete, Blacktop		DOT IDENTIFICATION NO. Unclassified

SECTION II PRODUCT AND COMPONENT DATA

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO.	% (APPROX.) (optional)	OSHA PEL	ACGIH TLV - TWA
Aggregate (crushed stone, sand, gravel)	Mixture		NA	NA
Silica, crystalline - typically Quartz (content typically greater than 1% and can be higher than 20%)	14807-60-7		See Section X	0.05 mg/m ³
Other possible forms of crystalline silica				
Cristobalite	14464-46-1		See Section X	0.05 mg/m ³
Tridymite	15468-32-3		See Section X	0.05 mg/m ³
Modified Petroleum Asphalt Oil	Mixture		NA	NA
Contains: Petroleum Residues Vacuum Distillates - Asphalt (see note)	68955-27-1		500 ppm	400 ppm
Additives		<1%		

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR Black, viscous, granular. Petroleum odor.	SOLUBILITY IN WATER Negligible		
BOILING POINT	>700 °F	SPECIFIC GRAVITY (H₂O = 1 @ 39.2 °F)	2.2-2.5
VAPOR PRESSURE (mm Hg)	NA	MELTING POINT	100-130 °F
VAPOR DENSITY IN AIR (AIR = 1)	>1	EVAPORATION RATE (Butyl Acetate = 1)	NA

SECTION IV PHYSICAL HAZARDS (FIRE AND EXPLOSION HAZARD DATA)

FLASHPOINT (METHOD USED) Product: NE; petroleum asphalt; >550 °F (PMCC)	FLAMMABLE LIMITS IN AIR (% Vol. in air) Product: NE; petroleum asphalt Oil 1.0%-7.0%	LEL NE	UEL NE
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EXTINGUISHING AGENTS

Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, steam), and water fog. Avoid use of straight-stream water. Do not use water on asphalt fire in tank or other containers since it may cause violent eruption and spreading of burning asphalt. Do not enter confined fire space without full bunker gear including a positive pressure NIOSH approved self-contained breathing apparatus. Cool fire exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Do not heat above flash point vapors may ignite. Petroleum asphalt fumes can explode when concentrated in an enclosed environment and supplied with an ignition source. Never use welding or cutting torch on or near containers (especially empty) because vapors can ignite explosively. Hot asphalt may ignite flammable mixtures on contact. Sulfur oxides and hydrogen sulfide, both of which are toxic, may be released upon combustion.

SECTION V REACTIVITY DATA

STABILITY	Unstable	NA	CONDITIONS TO AVOID Keep away from ignition sources. Avoid contact with incompatible materials.
	Stable	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

Do not allow molten product to contact water or liquids as this can cause violent eruptions, splatter hot material or ignite flammable materials. May react with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide and other compounds (such as amines, nitrogen dioxide, sulfur dioxide, ozone, hydrogen sulfide, and various hydrocarbons) may be released by thermal decomposition. Hazardous vapors may collect in enclosed vessels or areas if not properly ventilated.

HAZARDOUS POLYMERIZATION	May Occur	NA	CONDITIONS TO AVOID Not Applicable
	Will Not Occur	NA	

SECTION VI TOXICITY AND FIRST AID

PRIMARY ROUTE(S) OF EXPOSURE	Inhalation? Yes	Skin? Yes	Ingestion? No
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HEALTH HAZARDS (ACUTE AND CHRONIC)

Eye Contact: Heated material can cause severe thermal burns. Contact with petroleum distillates may cause a burning sensation with temporary irritation. Asphalt emissions may cause eye irritation.

Skin Contact: Heated material can cause severe thermal burns. Emissions may cause mild irritation. There may be an increased sensitivity to sunburn when the skin is exposed to petroleum asphalt fumes.

Chronic exposure to petroleum asphalt has caused skin disorders such as dermatitis, folliculitis, or oil acne. There may be an increased sensitivity to sunburn when the skin is exposed to petroleum asphalt emissions (fumes, mists, vapors). Cutback asphalt oil contains petroleum oils similar to ones categorized by the IARC as causing skin cancer in mice.

Ingestion: Direct contact with heated material can produce thermal burns on contacted tissues. Petroleum asphalt has a low toxicity when ingested. However, petroleum distillates (including kerosene and diesel fuel) may be absorbed from the gastrointestinal tract, with possible systemic effects (gastrointestinal irritation, vomiting, diarrhea, and CNS depression) and possible aspiration into the lungs. Aspiration of petroleum distillates has caused pulmonary edema and chemical pneumonitis.

Inhalation: Emissions from heated petroleum asphalt may have an unpleasant odor, and may produce nausea and irritation of the upper respiratory tract. Hydrogen sulfide causes respiratory irritation at concentrations of 4 to 100 ppm. At low concentrations H₂S has a rotten egg odor. At elevated concentrations, H₂S acts as a systemic poison, causing unconsciousness and death by respiratory paralysis.

Chronic inhalation of petroleum asphalt emissions may contribute to respiratory irritation. If hardened asphalt concrete is subjected to mechanical forces (such as in demolition or asphalt recycling work) which generate dust particles, exposure to respirable silica (quartz) dust is possible. Chronic exposure to respirable dust in excess of appropriate exposure limits has caused pneumoconiosis (lung disease). Chronic exposure to respirable silica-containing dust in excess of appropriate exposure limits has caused silicosis, a progressive pneumoconiosis. Chronic tobacco smoking may further increase the risk of developing chronic lung problems.

CARCINOGENICITY

Petroleum asphalt and the asphalt additives in this product are not listed on the NTP, IARC, or OSHA lists of carcinogens. Crystalline silica, a component of this product, is listed by IARC but not by OSHA. IARC has determined that there is sufficient evidence for carcinogenicity to experimental animals exposed to crystalline silica and limited evidence for carcinogenicity to humans. "Limited evidence" means that a causal relationship is possible; however, other explanations such as chance, bias or confounding factors cannot adequately be excluded. NTP has listed crystalline silica as reasonably anticipated to be a human carcinogen (RAHC). The IARC has determined that there is sufficient evidence for the carcinogenicity of extracts of steam-refined bitumens, air refined bitumens and pooled mixtures of steam- and air-refined bitumens in experimental animals. Further, IARC has determined that there is limited evidence for the carcinogenicity of undiluted steam-refined bitumens in experimental animals. Also, IARC determined that there is inadequate evidence that bitumen alone are carcinogenic to humans.

NTP
Silica - RAHC

IARC
Silica -
Carcinogen
(Group 1)

OSHA
NE

CALIFORNIA PROPOSITION 65

***WARNING:** This product contains a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm.*

STATE LISTED COMPONENT(S)

Crystalline silica, Petroleum Distillates

SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of petroleum asphalt via inhalation include irritation of the nose and throat. It also may cause nausea and dizziness if inhaled. Other symptoms include eye irritation, dermatitis, and possible loss of consciousness.

Symptoms of silicosis (but not limited to): Shortness of breath, difficulty breathing with or without exertion, coughing, diminished work capacity, diminished chest expansion, reduction in lung volume, right heart enlargement or failure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Existing abnormal conditions of the skin and/or respiratory system may be aggravated by exposure to asphalt fumes and by petroleum distillates. Exposure to dust from disrupted hardened asphalt concrete may aggravate respiratory diseases or dysfunctions, and skin and eye conditions.

EMERGENCY AND FIRST AID

Eyes: Flush eye(s) with plenty of water for 15 minutes, while holding eyelid(s) open. Beyond flushing, do not attempt to remove material from eyes except under medical supervision. Contact physician immediately.

Skin: Hot Material: Remove contaminated clothing and immediately flush in cool water for at least 15 minutes. Apply ice water or cold packs to burned area if burned area is less than 10% of the body surface. Do not attempt to remove material from a burn. Get prompt medical attention. Cold Material: Clean exposed skin with oil-dissolving skin cleanser. Do not use solvents or thinners to remove material from skin.

Ingestion: Do not induce vomiting. If conscious, give large amounts of water. Contact a physician immediately.

Dust inhalation: Remove to fresh air if breathing is difficult. Get prompt medical attention if breathing remains difficult or if irritation persists.

For additional information contact: Director of Health and Safety

Gallagher & Burk
P. O. Box 7227
Oakland, CA 94601
925-829-8220

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Personnel involved in cleanup processes should implement controls as identified in Section VIII as appropriate. Keep all ignition sources at least 50 feet away. Avoid personal contact with heated material. Prevent materials from entering streams, drainages, or sewers. Spills entering surface waters (or any other watercourse or sewers entering/leading to surface waters) that cause a sheen must be reported to the National Response Center 800/424-8802. Some of the components in these products are subject to the reporting requirements of Title III of SARA, 1986, and 40 CFR 372.

WASTE DISPOSAL METHOD

Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

STORAGE AND HANDLING PRECAUTIONS

Store away from all ignition sources and open flames, in accordance with applicable laws and regulations. Storage containers should be ventilated to reduce fire and explosion hazard, and possible overexposure of personnel to fumes and vapors. Do not weld, heat, or drill container. Emptied container may contain hazardous material which may ignite explosively if heated sufficiently. When petroleum asphalt products are heated, potentially irritating emissions (fumes, mists, vapors) may be released. Respirable dust may be generated when hardened asphalt concrete is subjected to mechanical forces, such as in demolition work, surface treatment (sanding, grooving, chiseling, etc.), and recycling of pavement. Tripping accidents have occurred because of asphalt buildup on bottoms of shoes and boots. Materials should be removed regularly to prevent such accidents.

Do not store near food and beverages or smoking material. Avoid incompatible materials.

OTHER PRECAUTIONS

SECTION VIII PERSONAL PROTECTION AND CONTROL MEASURES

RESPIRATORY PROTECTION

Not required under normal use and working conditions. For air contaminant concentrations which exceed or are likely to exceed applicable exposure limits, use a NIOSH-MSHA approved, contaminant-specific, air-purifying respirator. If such concentrations are sufficiently high that the air-purifying respirator is inadequate, or if oxygen adequate to sustain life is not present, use a positive pressure self-contained breathing apparatus. Consult an industrial hygienist for evaluation of exposures. Follow all applicable MSHA or OSHA respirator use, fitting, and training standards and regulations.

VENTILATION	Local Exhaust	Special
Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits. Use only in well ventilated areas.	As required	
	Mechanical (General) As required	Other

PROTECTIVE GLOVES

Resistant gloves

EYE PROTECTION

Safety glasses with side shields should be worn as minimum protection. Wear chemical safety goggles to prevent eye contact with material.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

Protective clothing should be worn to prevent skin contact.

HYGIENE

Use normal good hygiene practices. Clothes saturated from contact with petroleum distillates should be removed promptly to prevent continued contact with skin. Wash hands with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use. Clean skin with soap and water, or an oil-dissolving skin cleaner. Do not use solvents or thinners to remove material from skin.

OTHER CONTROL MEASURES

A fresh water supply for emergency first aid and washing facilities should be readily available. An oil-dissolving skin cleaner should be available. Workers should station themselves on the windward side of asphalt emissions when possible. It is recommended that asphalt emissions be monitored regularly to determine exposure levels. Respirable dust levels should be monitored regularly to determine exposure levels. Respirable dust levels should be monitored regularly for activities which generate dust from hardened asphalt concrete. Dust levels in excess of the PEL should be reduced by engineering controls such as wet suppression, ventilation, process enclosure or enclose employee work stations.

SECTION IX TRANSPORTATION

DOT HAZARD CLASS

None

PLACARD REQUIRED

None

LABEL REQUIRED

If the shipping temperature of a solid equals or exceeds 464 °F, D.O.T. regulations classify the solid as an "Elevated Temperature Material", and a "HOT" label is required, as required by the OSHA and MSHA Hazard Communication standards [29 CFR 1910.1200 (f) and 30 CFR Part 42], and applicable state and local regulations.

SECTION X EXPOSURE LIMITS

PARTICULATES (DUST)	MSHA PEL (Permissible Exposure Level)	OSHA PEL (Permissible Exposure Level)	NIOSH REL (Recommended Exposure Limit)	ACGIH TLV (Threshold Limit Value)
TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS: Ca/OSHA PEL - 10 mg/m ³ (Total), 5 mg/m ³ (respirable)		15 mg/m ³ (Total) 5 mg/m ³ (Respirable) NA NA NA	NE NA NA NA	10 mg/m ³ (Inhalable) 3 mg/m ³ (Respirable) NA NA NA
PETROLEUM ASPHALT (ASPHALT FUMES) TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:	MSHA PEL (Permissible Exposure Level)	OSHA PEL (Permissible Exposure Level)	NIOSH REL (Recommended Exposure Limit)	ACGIH TLV (Threshold Limit Value)
TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:		NE NA NA NA	5 mg/m ³ NA NA NA	0.5 mg/m ³ NA NA NA
QUARTZ (CRYSTALLINE SILICA) TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:	MSHA PEL (Permissible Exposure Level)	OSHA PEL (Permissible Exposure Level)	NIOSH REL (Recommended Exposure Limit)	ACGIH TLV (Threshold Limit Value)
TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:		30 mg/m ³ / (%SiO ₂ +2) total 10 mg/m ³ / (%SiO ₂ +2) respirable NA NA NA	0.05 mg/m ³ NA NA 50 mg/m ³	0.05 mg/m ³ NA NA NA
PETROLEUM DISTILLATES (NAPHTHA) TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:	MSHA PEL (Permissible Exposure Level)	OSHA PEL (Permissible Exposure Level)	NIOSH REL (Recommended Exposure Limit)	ACGIH TLV (Threshold Limit Value)
TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:		500 ppm NA NA NA	350 mg/m ³ NA 1800 mg/m ³ 1100 ppm	400 ppm NA NA NA
CRISTOBALITE AND TRIDYMITÉ (CRYSTALLINE SILICA) TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:	MSHA PEL (Permissible Exposure Level)	OSHA PEL (Permissible Exposure Level)	NIOSH REL (Recommended Exposure Limit)	ACGIH TLV (Threshold Limit Value)
TWA (Time-weighted Average) STEL (Short-term Exposure Limit) C (Ceiling) IDLH (Immediate Dangerous to Life and Health) OTHER EXPOSURE LIMITS/LEVELS:		½[30 mg/m ³ / (%SiO ₂ +2)] total ½[10 mg/m ³ / (%SiO ₂ +2)] respirable NA NA NA	0.05 mg/m ³ NA NA 50 mg/m ³	0.05 mg/m ³ NA NA NA
OTHER EXPOSURE LIMITS/LEVELS: Ca/OSHA PEL - 0.05 mg/m ³				

SECTION XI COMMENTS AND NOTES

Modified Asphalt Oil may contain but not limited to:

- Petroleum Residues Vacuum Distillates - Asphalt (CAS # 68955-27-1) 0 - 5%
 - Copolymer of ethylene and Octane (CAS # 26221-73-8) 0 - 0.5%
 - Maleic Anhydride Modified Polypropylene (CAS # NA) 0 - 0.5%
 - Ground Tire Rubber (CAS # NA) 0 - 0.5%
 - Polymer (CAS # 68683-29-4) 0 - 0.5%
 - Styrene - Butadiene block copolymer (CAS # 9003-55-8) 0 - 0.5%
 - Sulfur (CAS # 7704-34-9) 0 - 0.5%
 - Calcium Oxide (CAS # 1305-78-8) 0 - 0.5%
 - Asphalt fumes (CAS # 8052-42-2) < 0.1%
 - Hydrogen sulfide (CAS # 7783-06-4) < 0.1%
-