

Arrow Paving Co. Asphalt Emulsions**MATERIAL SAFETY DATA SHEET****1. Chemical Product & Company Identification**

Trade Name(s)	PM-22
CAS Number	Mixture
MSDS Number	ES1020
Product Code	ND
Synonym(s)	Anionic Asphalt Emulsion, Heavy
Manufacturer/Supplier	Arrow Paving Co 1350 N Broad Lexington, TN 38351

Telephone Numbers - General Assistance

Product information	
Call manufacturer	(731) 967 - 1247

2. Composition / Information on Ingredients

<u>Ingredient Name</u>	<u>CAS Number</u>	<u>Concentration</u>	<u>Exposure Limits / Health Hazards</u>
PETROLEUM APSHALT	8052-42-4	50-80 %	Asphalt Fumes 0.5 mg/m ³ 8 Hour TWA (ACGIH)
PETROLEUM BITUMEN	8052-42-4	50-80 %	Asphalt Fumes: 0.5 mg/m ³ 8Hour TWA (ACGIH)
WATER	7732-18-5	5-50 %	ND
PETROLEUM DISTILATES	PROPRIETARY	0-35 %	ND
POLYMER MODIFIER	PROPRIETARY	0-25%	ND
SURFACTANTS	MIXTURE	0-7 %	ND
EMULSIFIER	PROPRIETARY	0-4 %	ND
ADDITIVES	PROPRIETARY	0-3.5 %	ND
THICKENER	PROPRIETARY	0-2 %	ND

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
VULCANIZING AGENT	PROPRIETARY	0 - 2 %	ND
STABILIZER	PROPRIETARY	0 - 1 %	ND
ANTI-STRIP	PROPRIETARY	0 - 1 %	ND
HYDROGEN SULFIDE	7783-06-4	< 1 %	20 ppm CEILING (OSHA) 10 ppm 8-Hour TWA (ACGIH) 15 ppm 15-Min STEL (ACGIH)

*Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

The specific identities of some of the components of this product are being withheld as trade secrets. However, all pertinent hazards are addressed in this MSDS.

Asphalt products can contain hydrogen sulfide, because it is naturally occurring in crude oil from which asphalt is derived. Hydrogen sulfide can also be present as a by-product of asphalt processing.

Material may contain polycyclic aromatic hydrocarbons (PAHs).

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING!

HEALTH HAZARDS

MAY BE SEVERELY IRRITATING TO THE SKIN AND EYES
MAY BE IRRITATING TO THE RESPIRATORY TRACT
MAY BE HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN
FUMES FROM HEATED MATERIAL MAY BE IRRITATING AND HAZARDOUS
MAY CAUSE ALLERGIC SKIN REACTION
OVEREXPOSURE MAY CAUSE CNS DEPRESSION
ASPIRATION HAZARD IF SWALLOWED-CAN ENTER LUNGS AND CAUSE DAMAGE
POTENTIAL REPRODUCTIVE HAZARD
CONTAINS MATERIAL WHICH MAY CAUSE CANCER
SEE "TOXICOLOGICAL INFORMATION" (SECTION 11) FOR MORE INFORMATION

FLAMMABILITY HAZARDS

UNDEFINED (FLASH POINT > 200° F)
PER OSHA GUIDELINES, 29 CFR 1910.1200(c)

REACTIVITY HAZARDS

STABLE

POTENTIAL HEALTH EFFECTS, SKIN

SEVERELY IRRITATING. Contact may cause reddening, pain, itching, inflammation and possible tissue damage. Defatting agent.

Contains a component(s) that may cause allergic skin reactions in some individuals. May cause photoirritation in some individuals.

Absorption from prolonged or repeated skin contact may cause systemic toxicity.

Contact with heated material may cause thermal burns.

POTENTIAL HEALTH EFFECTS, EYE

SEVERELY IRRITATING. Exposure to vapors, fumes or mists may cause irritation. Direct contact may cause pain, tears, burns, sensitivity to light, swelling and possible corneal damage. Prolonged or repeated exposure may cause irritation and conjunctivitis.

Contact with heated material may cause thermal burns, destruction of eye tissue and possible permanent injury or blindness.

POTENTIAL HEALTH EFFECTS, INHALATION

Breathing of the mists, vapors or fumes may irritate the nose, throat and lungs. Symptoms may include sore throat, coughing, labored breathing, sneezing and burning sensation, depending on the concentration and duration of exposure. Fumes or vapors from the heated material may be irritating to the respiratory tract.

May cause central nervous system depression or affects. Symptoms may include headache, excitation, euphoria, dizziness, nausea, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Components have been shown to be weak cardiac sensitizers which can result in cardiac arrhythmia and ventricular fibrillation.

May release hydrogen sulfide gas which is highly toxic. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since odor fatigue rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions.

See Storage & Handling (Section 7) for more information.

Contains a component(s) which may cause allergic or asthma-like reactions in certain individuals.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

POTENTIAL HEALTH EFFECTS, INGESTION

May cause severe irritation with intense burning of the mouth and throat followed by abdominal pain and distress, nausea, vomiting, and diarrhea. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see Inhalation section).

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

4 FIRST AID MEASURES

SKIN

For hot material, immerse or flush skin with large amounts of the coldest water possible. Cover with clean cotton sheeting or gauze. Remove clothing if not sticking to skin. DO NOT try to remove solidified material from the skin as the damaged flesh can be easily torn. DO NOT try to dissolve with solvents or thinners. GET IMMEDIATE MEDICAL ATTENTION.

For cold material, immediately wash skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation persists.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

EYE

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

Burns due to contact with heated material require immediate medical attention.

INHALATION

Safely remove the victim from exposure to fresh air. DO NOT ATTEMPT TO RESCUE WITHOUT ADEQUATE PROTECTIVE GEAR AND PROPER TRAINING. Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION

Gastric lavage should be performed only by qualified medical personnel. If spontaneous vomiting occurs keep head below hips to prevent aspiration and monitor for breathing difficulty. Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

NOTES TO PHYSICIAN

Gastric lavage may be indicated if ingested.

Anemia may require the usual supportive measures. Medical evaluation of acute overexposure should include hematological determinations until stable. In severe acute and chronic poisoning, both renal and hepatic damage may occur and should be anticipated in such cases. Respiratory and pulmonary problems may require special attention. After severe acute symptoms have been alleviated, it may be advisable to consider periodic monitoring of the patient until such time as the likelihood of other adverse effects can be discounted.

Hydrogen sulfide is primarily a respiratory toxin inhibiting the cytochrome oxidase system; it is probably more potent than HCN. The lifetime of sulfide in oxygenated blood is short and sulfmethemoglobin is rapidly detoxified by red blood cells and the liver. If nitrites have been used for detoxification, check methemoglobin levels. Follow fluid and electrolyte balance carefully since metabolic acidosis may occur from increased anaerobic metabolism. Watch for pulmonary edema and aspiration pneumonia during convalescence.

For skin contact with hot asphalt material, do not peel the solidified material from the skin, or use solvents such as gasoline, kerosene, or paint thinner to remove. Cooled asphalt may adhere so tenaciously to the skin that attempted removal may cause severe distress to the patient. Covering the affected area using commercially available preparations containing the emulsifying agent polysorbate (Tween 80), or an antibiotic cream in a polysorbate base is the most effective method to dissolve the solidified asphalt. Asphalt can also be slowly dissolved with vegetable oil, baby oil or mineral oil.

If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, hydrogen sulfide and irritating vapors.

EXTINGUISHING MEDIA

Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire.

BASIC FIRE FIGHTING PROCEDURES

Material will burn in a fire. Exercise extreme care when using water spray on asphalt tank fires. When water is mixed with hot asphalt, steam may rapidly develop resulting in violent asphalt foaming and possible tank eruptions from increased pressure.

Evacuate area and fight fire from a safe distance.

Use water spray to cool adjacent structures and to protect personnel. Shut off source of flow if possible. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Hydrogen sulfide can react with the iron in an asphalt storage tank to form iron sulfide. Iron sulfide is pyrophoric. When exposed to air, iron sulfide is capable of igniting spontaneously.

Flash Point	> 212 °F (> 100.0 °C)
Autoignition Temperature	ND
Flammability Limits in Air, Lower, % by Volume	ND
Flammability Limits in Air, Upper, % by Volume	ND

6 ACCIDENTAL RELEASE MEASURES**EMERGENCY ACTION**

Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire. Evacuate area endangered by release as required. (See Exposure Control/Personal Protection - Section 8).

ENVIRONMENTAL PRECAUTIONS

If product is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released product. Notify local authorities and the National Response Center, if required.

SPILL OR LEAK PROCEDURE

Keep unnecessary people away. Isolate area for at least 50-100 meters (160-330 feet) to preserve public safety. For large spills, consider initial evacuation for at least 300 meters (1000 feet).

Keep ignition sources out of area and shut off all ignition sources. For spills on land, dike ahead of spill to contain. Scrape up spilled material for disposal. To reclaim, mix with gravel, dirt or rock. For spills on water, contain as much as possible with booms and begin recovery as soon as possible. If material sinks or becomes dispersed, consult with local, state and regional authorities for approved clean up procedures. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE**HANDLING**

Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

Do not heat to temperatures above the boiling point of water (approximately 212 F or 100 C).

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers. Empty containers may still contain product residue. Do not reuse without adequate precautions.

Hydrogen sulfide can build up in the head space of storage vessels containing any type of asphalt product. Use appropriate respiratory protection to prevent exposure. See Exposure Controls/Personal Protection (Section 8).

When entering a storage vessel that has previously contained any type of asphalt product, it is recommended that the atmosphere be monitored for the presence of hydrogen sulfide. See Composition Information (Section 2) for exposure limits.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION**ENGINEERING CONTROLS**

Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

Consult NIOSH (National Institute for Occupational Safety and Health) for more information on guidelines for engineering controls for .

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Keep away from eyes. Eye contact can be avoided by wearing a face shield and safety glasses with side shields, or a face shield and safety goggles.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Use appropriate chemical protective gloves when handling at room temperature . Use gloves that protect against thermal burns when handling at high temperatures. At a minimum, wear long-sleeved cotton shirt buttoned at the collar and full-length cotton pants. Synthetic fibers tend to melt and adhere to the skin when heated. Do not fold back or roll up cuffs. Additional protection may be necessary to prevent skin contact including use of apron, armcovers, face shield, or boots.

Strict hygiene practices are essential.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Inhalation of mists and vapors should be avoided at all times.

A NIOSH/MSHA approved air purifying respirator with an appropriate cartridge, canister, and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. The use of air purifying respirators is not recommended where hydrogen sulfide levels may exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

9 PHYSICAL & CHEMICAL PROPERTIES**ODOR AND APPEARANCE**

DARK BROWN WATER-BASED LIQUID WITH MUSTY ODOR

Boiling Point	212 °F (100.0 °C)
Specific Gravity	0.9 - 1.1
Melting Point	ND
Percent Volatile	ND
Vapor Pressure	23.76 mmHg AT 77 °F (25 °C) SAME AS WATER
Vapor Density	ND
Bulk Density	ND
Solubility in Water	DISPERSIBLE
Octanol/Water Partn	ND
Volatile Organic	ND
Pour Point	ND
pH Value	8 - 12
Freezing Point	< 32 °F (< 0.0 °C)
Viscosity	10 - 700 SFS AT 77 °F (25 °C)
Evaporation Rate	ND
Molecular Formula	ND
Molecular Weight	ND
Chemical Family	ANIONIC ASPHALT EMULSION
Odor Threshold	ND

10 STABILITY & REACTIVITY

STABILITY/INCOMPATIBILITY

Incompatible with oxidizing agents. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, hydrogen sulfide and irritating vapors.

11 TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact.

TOXICOLOGICAL DATA

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: kidney, liver, skin, spleen, thymus, lymph nodes, blood elements, testes, bone marrow, respiratory and nervous systems.

Exposure to components of this material may cause the following specific symptoms, depending on the concentration and duration of exposure: anemia, pallor, fatigue, oil acne, melanosis, loss of appetite, and anxiety.

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as solvent or painter's syndrome). Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal.

Irritating and toxic hydrogen sulfide gas may be found in confined vapor space. WARNING - "rotten egg" odor of hydrogen sulfide is not a reliable indicator for warning of exposure since odor fatigue readily occurs. Odor sensation lost immediately at concentrations greater than 150 ppm. Avoid exposures to hydrogen sulfide gases. Hydrogen sulfide causes rapid death due to metabolic asphyxiation. Case reports suggest that toxic amounts can enter the body through a punctured eardrum, even while wearing some types of respiratory protective equipment.

CARCINOGENICITY

This material contains petroleum asphalt. IARC has determined that there is inadequate evidence that undiluted, air-refined asphalt is carcinogenic to experimental animals, and there is only limited evidence that undiluted steam-refined and cracking-residue asphalts are carcinogenic to animals. Additionally, IARC

has concluded that there is inadequate evidence that asphalts alone are carcinogenic to humans.

In solution, solvent extracts of asphalts can produce skin cancer in animals following prolonged and repeated contact. IARC has concluded that there is sufficient evidence for the carcinogenicity of asphalt extracts in experimental animals. Therefore, asphalts that are diluted, dissolved, or liquefied in hydrocarbon solvents, may also be implicated as potentially carcinogenic. While brief or intermittent skin contact with this type of product is not expected to cause harm, those workers who do not practice good personal hygiene and who are exposed repeatedly via skin contact may be at risk. It is important that all precautionary measures outlined in this MSDS be followed.

Asphalt fumes from heated material may cause eye, respiratory tract and skin irritation, as well as nausea and headaches. These fumes may cause dermatitis and acne-like lesions as well as mild keratoses on prolonged and repeated exposure. Condensed asphalt fumes, which have been generated under laboratory conditions and which are chemically different from those found during typical asphalt operations, have been reported to cause bacterial mutations as well as cause skin tumors in animals following repeated, lifetime skin contact without washing. However, inhalation of asphalt fumes by laboratory animals, during controlled studies, did not produce lung cancer. Additionally, human studies to date have not established a link between asphalt fume exposure and lung cancer.

This material may contain trace amounts of polynuclear aromatic hydrocarbons (PAHs) as naturally occurring constituents of crude oils from which asphalt is derived. Repeated or prolonged exposure to some PAHs has been associated with effects to the liver, kidneys, immune system and skin with warty growths, skin burns, pigmentation of the bare skin and cornification of the surface layers. They have also been associated with anemia, photosensitivity, leukoplakia (white patches on the tongue, cheek or gums), edema of the eyelids, or conjunctival hyperemia, lacrimation, photophobia, headache, loss of appetite, visual powers and strength, cough, bronchitis and nausea. Some PAHs have been shown to be carcinogenic after prolonged or repeated skin contact in laboratory animals.

This material may contain untreated or mildly treated mineral oils.

This material may contain solvent extract oils. IARC has determined that there is sufficient evidence for the carcinogenicity of these oils in experimental animals.

Some of the components of this product are hazardous in the dust form. These components include crystalline silica, which is a suspected human carcinogen. However, because of the physical nature of this product, dust generation is not expected, so the health effects associated with the dusts are unlikely to occur.

TERATOGENICITY, MUTAGENICITY, OTHER REPRODUCTIVE EFFECTS

This product may contain components which may cause adverse reproductive and/or development effects.

Pregnant women may be at an increased risk from exposure.

Consumption of alcoholic beverages may enhance toxic effects.

SENSITIZATION TO MATERIAL

The possibility of allergic sensitization should be considered.

PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing medical conditions which may be aggravated by exposure include disorders of the kidney, liver, skin, blood, respiratory and nervous system.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ND

13 DISPOSAL CONSIDERATIONS**WASTE DISPOSAL**

This product, as supplied, when discarded or disposed of, may be a hazardous waste according to Federal regulations (40 CFR 261). Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 266 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

14 TRANSPORT INFORMATION**BILL OF LADING - HULK (U. S. DOT)**

ND

See Bill of Lading for proper shipping description, or consult 49 CFR 172.101 for specific shipping information.

15 REGULATORY INFORMATION**FEDERAL REGULATIONS**

All ingredients are either on the TSCA inventory or are not required to be listed on the TSCA inventory.

A release of this product, as supplied, is exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321(b)(3) and (5). Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to report may result in substantial civil and criminal penalties.

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

This product contains one or more substances listed as hazardous, toxic or flammable air pollutants under Section 112 of the Clean Air Act.

There may be special regulations at the local, regional or state/provincial level that pertain to this product.

STATE REGULATIONS

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

SARA TITLE III RATINGS

Immediate Hazard:	X	Delayed Hazard:	X	Fire Hazard:	-	Pressure Hazard:	-
Reactivity Hazard:	-						

NFPA RATINGS

Health:	1	Flammability:	1	Reactivity:	0	Special Hazards:	1
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HMIS RATINGS: * Indicates chronic health hazard

Health:	2*	Flammability:	1	Reactivity:	0
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16 OTHER INFORMATION

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Current Revision Date 01/19/2007

Replaces Sheet Dated

MATERIAL SAFETY DATA SHEET

Vance Brothers, Inc.

5201 Brighton, P.O. Box 300107

Kansas City, MO 64130

Phone: 816-923-4325/ 800-821-8549 FAX: 816-923-6472

Emergency Phone Number (CHEMTREC): 800-424-9300

HMIS HAZARD RATING	
2	HEALTH
1	FLAMMABLE
0	REACTIVITY

I. PRODUCT INFORMATION

TRADE NAME MC-250, MC-800, MC-3000	C.A.S. NUMBER Mixture
SYNONYMS Cutback Asphalt, Road Oil, Prime Oil	PRODUCT CODE NUMBER 102, 103, 104, 111, 112, 116

II. PHYSICAL DATA

BOILING POINT @ 760 MM Hg >340°F	% VOLATILES BY VOLUME 5-30%	SOLUBILITY IN H ₂ O BY WEIGHT % Negligible
SPECIFIC GRAVITY 1.0 ± 0.2 g/ml @ 60°F	MELTING POINT Not Applicable	EVAPORATION RATE (BUTYL ACETATE = 1) ~600X Slower
VAPOR DENSITY (AIR = 1) >5.0	VAPOR PRESSURE Very Low	APPEARANCE AND ODOR Brown to Black Oil

III. HAZARDOUS COMPONENTS

C.A.S. NUMBER	MATERIAL OR COMPONENT	%	HAZARD DATA
8052-42-4	[1] Asphalt	70-95	TLV/TWA - 5 mg/m ³ for asphalt TLV/STEL - 10mg/m ³ for asphalt
8008-20-6	[2] Kerosene (Contains the following)	5-30	Not Available
71-43-2	[3] Benzene	<0.2	TLV/TWA - 10 ppm
1330-20-7	[4] Xylene	<1.5	TLV/TWA - 100 ppm

IV. HEALTH HAZARD INFORMATION

EXPOSURE LIMITS	TLV (ceiling) 25 ppm for Benzene	TLV/STEL 10 mg/m³ for Asphalt	TLV/PEL 10 ppm for Benzene	ODOR THRESHOLD LIMIT 100 mg/m³
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ROUTES OF EXPOSURE AND EFFECTS AS REQUIRED BY 29CFR1910.1200

INHALATION
central
Inhaling of mist or vapors can cause dizziness, headache, and nausea as well as irritation to the nose and throat. Inhalation of kerosene vapors can cause moderate nervous system depression, rapid breathing, low grade fever, and asphyxiation.

INGESTION
viscosity,
body weight in
High viscosity oils have been shown to be less toxic when ingested than lower higher volatility oils. However, the lethal dose of kerosene is 0.011 g/kg man.

SKIN ABSORPTION
can
This material is not known to be absorbed through the skin. However, skin contact cause mild irritation and dermatitis. See SKIN CONTACT section below.

SKIN CONTACT
studies
animals.
hygiene practices
Repeated or prolonged skin contact can cause irritation or dermatitis. Skin-painting with petroleum distillates have shown weak carcinogenic activity in laboratory animals. Contact with heated material can cause serious burns. Good personal hygiene practices should be employed to minimize exposure risks.

EYE CONTACT
be
recommended
Petroleum distillates can cause severe irritation in contact with the eyes. Care should be taken to prevent eye exposure. Safety glasses, goggles and faces shields are recommended when handling this material.

ACUTE OVEREXPOSURE
cause
asphyxiation.
product.
Skin effects may include irritation and itching. Accute inhalation of the product may cause dizziness, headaches, nausea and irritation of the eyes, nose and throat, and asphyxiation. Any pre-existing skin conditions may be aggravated by exposure to this product.

CHRONIC OVEREXPOSURE
observed.
exposure to this
Chronic health effects are not expected if proper personal safety and hygiene is observed. Pre-existing skin disorders may be aggravated by repeated or prolonged exposure to this product.

V. EMERGENCY AND FIRST AID PROCEDURES

INHALATION
If breathing is difficult, move person to fresh air and seek prompt medical attention.

INGESTION
alcohol
DO NOT induce vomiting. Vomiting may cause aspiration of the product into the lungs, which can cause chemical pneumonia and death. Avoid all digestible oils, fats, and alcohol which may increase intestinal absorption.

SKIN CONTACT
area
medical
If contact occurs when material is hot, flush area with water to cool. Wash affected area with waterless hand cleaner, followed by water and a mild detergent. **DO NOT** use solvents! For relief from irritation, apply hand lotion. If irritation persists, seek medical attention.

EYE CONTACT
Flush eyes with water for 15 minutes while holding eyelids open. If subject is wearing contact lenses, immediately seek an ophthalmologist for treatment.

VI. SPECIAL PROTECTION INFORMATION		
VENTILATION should Application	Care must be taken to assure that the PEL of 10 ppm ^{for} benzene is not exceeded. Normal exterior application not require the need for mechanical ventilation. must be made downwind from operator.	PERSONAL PROTECTIVE EQUIPMENT
RESPIRATORY PROTECTION	If needed, use an approved OSHA/NIOSH organic vapor canister respirator, or a positive atmosphere supplied air respirator as described in 29CFR 1910.134.	ORGANIC VAPOR RESPIRATOR
EYE PROTECTION handling	Goggles and full-face shield are recommended when this material.	GOGGLES FULL-FACE SHIELD
SKIN PROTECTION	Flannel-lined, insulated neoprene or nitrile gloves are recommended.	CHEMICAL RESISTANT GLOVES
OTHER PPE	Rubber or leather footwear is recommended. All clothing saturated with this product should be discarded.	BOOTS
VII. FIRE AND EXPLOSION DATA		
FLASH POINT 200 - 300°F	AUTOIGNITION TEMPERATURE Not Determined	LOWER FLAMMABLE LIMIT Not Determined
EXTINGUISHING MEDIA	If fire should occur, extinguish with foam, carbon dioxide or dry chemical extinguishers.	
SPECIAL FIRE FIGHTING PROCEDURES eruption self-contained	DO NOT use water on an asphalt fire contained in a vessel as it may cause violent of the liquid asphalt. Fire fighters should wear full protective equipment and breathing apparatus.	
UNUSUAL FIRE AND EXPLOSION HAZARDS	Water sprayed on burning product may cause frothing, steam, and eruptions.	
VIII. REACTIVITY DATA		
CONDITIONS CONTRIBUTING TO INSTABILITY	Avoid sources of ignition. DO NOT introduce water to material if it is at or above 212°F.	
INCOMPATIBILITY	This material is incompatible with strong oxidizers.	
HAZARDOUS DECOMPOSITION PRODUCTS thermal dioxide, and sulfur	Irritating or toxic vapors may be released when this material is burned. Possible decomposition gases include hydrogen sulfide, carbon monoxide, carbon dioxide.	
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION	None known.	

IX. SPILL AND LEAK PROCEDURES

SPILL CONTROL PROCEDURE

If possible, stop source of leak. Dike and contain to eliminate environmental contamination.
If material enters a waterway, notify police, local EPA and the National Response Center (1-800-424-8802).

NEUTRALIZING CHEMICALS

Bind small spills with coarse aggregate or sand. Pump large spills (if material is fluid) into holding vessel, or allow to cool and collect as a solid material.

WASTE DISPOSAL

If disposal is necessary, contact your state environmental agency for guidance with disposal methods and waste receiving locations in your area.

X. SPECIAL PRECAUTIONS

ENVIRONMENTAL

1. This product is considered oil under EPA-CWA Section 311. Spills into water Sources must be reported to 1-800-424-8802.
2. If this product becomes a waste material, refer to 40 CFR 261.21 (RCRA) for Latest waste disposal regulations and waste stream number.
3. This product is listed in the EPA/TSCA Inventory (40 CFR 700 to end).

LABELING

1. Maintain supplied label or add appropriate OSHA label.
2. This material is regulated by the Department of Transportation as HOT TARs, LIQUID (PETROLEUM ASPHALT CUTBACK), 3, UN1999, III if transported above 212°F.

XI. REFERENCES

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| <ol style="list-style-type: none"> 1. BITUMIN SAFETY CODE (ISBN-0905501-319-2) 2. ASPHALT INSTITUTE, DOCUMENT NO. IS-180 3. CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS, 5TH EDITION 4. DOCUMENTATION OF THRESHOLD LIMIT VALUES, 4TH EDITION 5. EPA/CWA SECTION 311 6. NIOSH-OCCUPATIONAL EXPOSURE TO REFINED PETROLEUM SOLVENTS | <ol style="list-style-type: none"> 7. HYGIENE AND SANITATION, VOLUME 33 8. NFPA 325M, 704 9. POISONING, TOXICOLOGY, SYMPTOMS, TREATMENTS 10. 29 CFR PART 1910 AS NOTED WITHIN 11. REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES 12. 40 CFR PARTS 170 - 179 |
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NOTE: This material safety data sheet is intended as a source of information for persons involved in any and all phases of handling this material, from production to final application, as required by 29 CFR 1910.1200. The health data provided is based on the nature of the raw constituents. This material is a mixture and the health effects as such have not been evaluated.

XII. ENVIRONMENTAL INFORMATION

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|---|-----------|----------|---------|-----|-----|-----|-----------|---------|----------|--------|------|------|--|-----|----|-----------|---|--|---------|---|--|------|---|--|----------|--|---|------------|--|---|--|-----------|------|----------|--------|-----------|------|------------------------|---------|------|
| <p>1. THIS PRODUCT CONTAINS THE FOLLOWING EXTREMELY HAZARDOUS SUBSTANCE(S) (SECTION 302 AND 304):</p> <table border="0"> <tr> <td>COMPONENT</td> <td>TPQ(LBS)</td> <td>RQ(BLS)</td> </tr> <tr> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <p>2. THIS PRODUCT CONTAINS THE FOLLOWING CERCLA HAZARDOUS SUBSTANCE (S) (SECTION 302 AND 304):</p> <table border="0"> <tr> <td>COMPONENT</td> <td>RQ(LBS)</td> <td>WEIGHT %</td> </tr> <tr> <td>Xylene</td> <td>1000</td> <td><1.5</td> </tr> </table> <p>3. THIS PRODUCT HAS THE FOLLOWING HAZARDS (SECTION 311 AND 312):</p> <table border="0"> <tr> <td></td> <td>YES</td> <td>NO</td> </tr> <tr> <td>IMMEDIATE</td> <td>X</td> <td></td> </tr> <tr> <td>DELAYED</td> <td>X</td> <td></td> </tr> <tr> <td>FIRE</td> <td>X</td> <td></td> </tr> <tr> <td>PRESSURE</td> <td></td> <td>X</td> </tr> <tr> <td>REACTIVITY</td> <td></td> <td>X</td> </tr> </table> | COMPONENT | TPQ(LBS) | RQ(BLS) | N/A | N/A | N/A | COMPONENT | RQ(LBS) | WEIGHT % | Xylene | 1000 | <1.5 | | YES | NO | IMMEDIATE | X | | DELAYED | X | | FIRE | X | | PRESSURE | | X | REACTIVITY | | X | <p>4. THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS (SECTION 313):</p> <table border="0"> <tr> <td>COMPONENT</td> <td>CAS#</td> <td>WEIGHT %</td> </tr> <tr> <td>Xylene</td> <td>1330-20-7</td> <td><1.5</td> </tr> <tr> <td>1,2,4,Trimethylbenzene</td> <td>95-63-6</td> <td><1.2</td> </tr> </table> <p>CARCINOGENITY: NTP NO IARC MONOGRAPHS NO OSHA NO</p> | COMPONENT | CAS# | WEIGHT % | Xylene | 1330-20-7 | <1.5 | 1,2,4,Trimethylbenzene | 95-63-6 | <1.2 |
| COMPONENT | TPQ(LBS) | RQ(BLS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N/A | N/A | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COMPONENT | RQ(LBS) | WEIGHT % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Xylene | 1000 | <1.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | YES | NO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IMMEDIATE | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DELAYED | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FIRE | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRESSURE | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REACTIVITY | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COMPONENT | CAS# | WEIGHT % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Xylene | 1330-20-7 | <1.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,Trimethylbenzene | 95-63-6 | <1.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

The information provided in this material safety data sheet has been obtained and compiled from sources believed to be reliable. This information relates to the specific material designated and may not be valid for such material used in combination with any other material or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. Vance Brothers, Inc. does not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent.

VANCE BROTHERS, INC.

5201 BRIGHTON, KANSAS CITY, MO 64130 (816) 923-4325
 3313 MOLINE STREET, AURORA, CO 80010 (303) 341-2604
 4908 N BRYANT, OKLAHOMA CITY, OK 73121 (405) 427-1389
 9306 E. 11TH, SUITE A, TULSA, OK 74112 (918)838-2533
 14021 AZURITE ST NW, RAMSEY, MN 55303 (612) 421-4034

DATE

January 15, 2007

PREPARED BY

Stan Fronckewicz