

MATERIAL SAFETY DATA SHEET

PALMER ASPHALT COMPANY

Manufacturer: Palmer Asphalt Company

Quick Identifier: **Bulldog Modified Bitumen Adhesive - Trowel Grade #196**

Address: 196 West 5th Street, P.O. Box 58
Bayonne, NJ 07002

MSDS #: #196

Issue Date: February 1, 1990

Emergencies: 201-339-0855
8:00 a.m. - 5:00 p.m. EST

Date Prepared: Rev. April 6, 2011

After Hours Call: CHEMTREC:
800-424-9300 (Domestic - No. America)
703-527-3887 (International)

Prepared By*: PRI Asphalt Technologies, Inc.

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

Common Name (used on label): Bulldog Modified Bitumen Adhesive - Trowel Grade 196

CAS Number*: N/A, a complex mixture

Chemical Name: N/A

Chemical Family: N/A

SECTION 2 - COMPOSITION AND INGREDIENT

COMPONENTS - Chemical Name & Common Names (Hazardous Components 1% or Greater, Carcinogens 0.1% or Greater)	CAS #	ACGIH TLV	%*
Petroleum Asphalt	8052-42-4	5.0mg/m ³ (fume)	less than 70%
Mineral Spirits	8052-41-3	100 ppm	less than 35%
Petroleum Solvent	64742-95-6	100 ppm	less than 10%
Potassium Aluminum Silicate	12001-26-2	10 mpp cf	less than 10%
Cellulose	9004-34-6	5mg/m ³ (respirable dust)	less than 10%
Attapulgate Clay	12174-11-7	5 mg/m ³ (respirable dust)	less than 10%
Styrene-Butadiene-Styrene Block Co-Polymer	9003-55-8	Not est'd	less than 8%
Amine Salt	28701-67-9	50 ppm (supplier)	less than 2%
Silica, Crystalline	14808-60-7	0.1 mg/m ³	less than 1%

SECTION 3 - HEALTH AND HAZARD IDENTIFICATION

Emergency Overview: Black liquid. Can cause headache, dizziness, drowsiness, or irritation to the skin, eyes, and respiratory system. If inhaled, leave area to breathe fresh air. Avoid further overexposure. If symptoms persist, get medical attention immediately.

Potential Health Effect/Rate of Entry: Inhalation: Can cause headache, dizziness, nausea, drowsiness, stupor, irritation to respiratory system.

Eyes: Can cause irritation. **Ingestion:** Can cause gastrointestinal irritation. **Skin:** Can cause irritation.

Aggravated Medical Conditions: Pre-existing eye, skin, liver, and respiratory disorders may be aggravated by exposure.

Acute Health Effects: See effects described above.

Chronic Health Effects: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Prolonged or repeated skin contact with these products may result in irritation and dermatitis. Although a direct association between asphalt and cancer or other lung disease has not been established in man, asphalts contain variable amounts of polycyclic aromatic hydrocarbons and other volatiles which have been shown to cause cancer and respiratory damage in animals. Prolonged or repeated exposure to petroleum distillates (Petroleum naphtha, stoddard solvent, or mineral spirits) may cause the defatting, irritation, dermatitis, narcotic and CNS effects described above, liver effects, and jaundice. Kidney and lung effects have been noted in some animals. Inhalation of crystalline silica (quartz) can cause cancer based on animal data, and IARC concludes sufficient evidence in humans (Group 1). Prolonged and repeated overexposure to free crystalline silica dust above the TLV level may cause scarring of the lungs with cough and shortness of breath. A delayed lung injury, silicosis may result from breathing free silica. Fillers are encapsulated and not expected to be released from product under normal conditions of use.

Variability Among Individuals: Health studies have shown that individual sensitivities vary from person to person. As a precaution, exposure to vapors, liquids, mists, or fumes should be minimized.

Effects of Overexposure: (Signs and symptoms of exposure) High vapor concentrations (>1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects, including death.

Nature of Hazard and Toxicity Information: Prolonged or repeated skin contact with this product tends to remove skin oils possibly leading to irritation and dermatitis. However, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria. Product contacting the eyes may cause eye irritation. Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion may cause mild to severe pulmonary injury and possibly death.

Pre-existing Medical Conditions Which May be Aggravated by Exposure: Person with pre-existing central nervous system disease, skin disorders, or chronic respiratory disease should avoid exposure to this product.

SECTION 4 - PRIMARY ROUTES OF ENTRY AND EMERGENCY FIRST AID PROCEDURES

Eye Contact: Petroleum distillate (mineral spirits), petroleum asphalt, fibers and minerals can cause severe irritation, redness, tearing, and blurred vision. Fibers and minerals may cause mechanical irritation, Amine Salts are corrosive.

Skin: Petroleum Distillate and Asphalt - prolonged or repeated contact can cause moderate irritation, defatting dermatitis. Remove contaminated clothing, thoroughly wash exposed area with soap and water. If irritation or redness develops and persists, get medical attention. Amine salts may cause skin sensitivities, an allergic reaction, which becomes evident on overexposure.

Inhalation: Mineral Spirits and Aromatic Petroleum Distillate - excessive inhalation of vapors can cause irritation of nose or throat, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness and even asphyxiation. Remove individual to fresh air; if breathing is difficult, administer oxygen, if breathing has stopped, give artificial respiration. Keep person warm and quiet. **GET MEDICAL ATTENTION.**

Ingestion: Aspiration hazard. DO NOT INDUCE VOMIT - transport to hospital immediately. **GET MEDICAL ATTENTION IMMEDIATELY.** Note to Physician - perform gastric lavage in accordance with procedures for ingestion of petroleum products. Amine salts may be corrosive to mouth, esophagus, and stomach.

SECTION 5 - FIRE AND FIRE-FIGHTING MEASURES

Flash Point: (Minimum) 100°F TCC (Mineral Spirits) ASTM D 3143

Autoignition Temperature: Greater than 400°F, ASTM E 659

National Fire Protection Association (NFPA 704) - Hazard Identification: Health - 1 Flammability - 2 Reactivity - 0

Handling Precautions: Keep containers tightly closed. Keep containers cool, dry, and away from sources of ignition. Use this product with adequate ventilation. Material is COMBUSTIBLE. Material requires electrical grounding during material transfer process. All electrical equipment in storage or handling areas should be installed per NFPA requirements.

Flammable or Explosive Limits: (Approximate percent by volume in air): Lower (LEL) 0.9% Upper (UEL) 6.7%

Extinguishing Media and Fire Fighting Procedures: Extinguish with dry chemical and CO₂. Universal type foam and water fog are effective, but may cause frothing. DO NOT USE WATER. Petroleum-based compounds can float on water.

Decomposition Products under Fire Conditions: May form toxic materials, carbon dioxide and carbon monoxide, and nitrogen oxides.

"Empty" Container Warning: Dispose of in an environmentally safe manner and in accordance with governmental regulations. "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. For work on tanks, refer to OSHA regulation ANSI Z49.1 and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Steps to be taken if spilled or released:

- Shut off and eliminate all ignition sources.
- Keep people away.
- Recover free product; add sand, earth, or other suitable absorbents.
- Minimize skin contact and breathing vapors.
- Ventilate confined spaces; open all windows and doors.
- Keep product out of sewers and water courses by diking or impounding.
- Advise authorities if product has entered or may enter sewers, water courses or extensive land areas.
- ASSURE CONFORMITY WITH APPLICABLE GOVERNMENTAL REGULATIONS.

SECTION 7 - HANDLING AND STORAGE

Handling and Storage Precautions: Store in closed container. Keep product and vapor away from heat, sparks and flame. Do not store in direct sunlight. Prevent inhalation of vapor, ingestion, and contact with skin and eyes. Keep container closed when not in use. Vapor may migrate to sources of ignition. Do not smoke, weld, generate sparks, or use flame near container. Change soiled work clothes frequently. Clean hands thoroughly after handling. To prevent gases, vapors or fumes from migrating into occupied sections of the building, close or cover all openings including windows, doors, and air intakes during and after application until gases, vapors or fumes dissipate. Precautions also apply to emptied containers.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ventilation: Use only with ventilation sufficient to prevent exceeding recommended exposure limit or build-up of explosive concentrations of vapor in air. Use explosion-proof equipment. No smoking or open lights.

Respiratory Protection: Use supplied air respiratory protection in confined or enclosed spaces, if needed.

Protective Gloves: Use chemical resistant gloves, if needed, to avoid prolonged or repeated skin contact.

Eye Protection: Use splash goggles or face shield when eye contact may occur.

Other Protective Equipment: Use chemical resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing which could result in prolonged or repeated skin contact.

Work Practices/Engineering Controls: Keep containers closed when not in use. DO NOT STORE NEAR HEAT, SPARKS, FLAME OR STRONG OXIDANTS. To prevent fire or explosion risk from static accumulations and discharge, effectively ground product transfer system in accordance with NFPA standard for petroleum products.

Personal Hygiene: Minimize breathing vapor or mist. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry clean before reuse. Remove contaminated shoes and thoroughly clean and dry before reuse. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

SECTION 9 - PHYSICAL DATA

The following are approximate or typical values and should not be used for precise design purposes.

Physical State: Cement-Type Material	Odor: Petroleum solvent
Boiling Range: 300°F IBP (ASTM D 86), Mineral Spirits	Vapor Pressure: Approximately 2.9 mm Hg @ 20°C, Mineral Spirits
Specific Gravity: Greater than 1.00	Vapor Density: Approximately 4.9 (air = 1.0), Mineral Spirits
Molecular Weight: N/A - complex mixture of hydrocarbons	Percent Volatile by Volume: Less than 40
pH: N/A	Solubility in Water @ 1 ATM and 77°F: Negligible, less than 0.1 (solvent portion)

SECTION 10 - STABILITY AND REACTIVITY

Stability: _____ unstable <input checked="" type="checkbox"/> stable	Hazardous Polymerization: _____ may occur <input checked="" type="checkbox"/> will not occur
Hazardous Decomposition Products: Hazardous decomposition products include: carbon dioxide, carbon monoxide, and nitrogen oxides.	
Incompatibility (Material to Avoid): Avoid contact with strong oxidizing agents such as: liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.	
Conditions to Avoid: Keep from heat, sparks, open flame.	

SECTION 11 - TOXICOLOGICAL INFORMATION (REFER TO SECTION 3)

Carcinogenicity: The following table indicates whether or not each agency has listed the ingredients as a carcinogen:

Ingredient	ACGIH	IARC	NTP	OSHA
Extracts of steam and air refined bitumens (Mineral Spirits Cutback Asphalt)	No	Yes	No	No
Mineral Spirits	No	No	No	No
Hydrogen Sulfide	No	No	No	No
Petroleum Asphalt		LD₅₀ Oral (g/kg)	LD₅₀ Dermal (g/kg)	LC₅₀ Inhalation (4 hours)
		Not Available	Not Available	Not Available
Mineral Spirits		>5 (rat)	Not Available	>5.5 g/m ³ (rat)
Hydrogen Sulfide		Not Available	Not Available	444 ppm (rat)

Petroleum Asphalt: In March, 1987, the International Agency for Research on Cancer (IARC) classified extracts of steam and air refined bitumens (such as mineral spirits cutback asphalt) as possible carcinogenic to humans (Group 2B). This classification was based on a combined evaluation of published human and animal studies. IARC concluded that the human studies did not provide adequate evidence that extracts of steam and air refined bitumens caused cancer in humans. No epidemiological study of workers exposed only to bitumens is available. The 2B classification was substantially based on experimental animal studies. Some bitumens (asphalt) diluted, dissolved or liquified in solvents (e.g. cutback asphalt) have produced skin cancer in laboratory animals at the site of application. NIOSH recently conducted mouse skin painting studies using selected fractions of asphalt fume condensate. Skin application of the condensate fractions resulted in skin tumors in laboratory mice. Based on skin painting data, IARC regards it prudent to treat a material for which there is sufficient evidence of carcinogenicity in animals as if it is possibly carcinogenic in humans.

SECTION 12 - ECOLOGICAL INFORMATION

This material may cause harm to animals, plants, or fish.

SECTION 13 - DISPOSAL CONSIDERATIONS

Characteristic hazardous waste: RCRA Class D001 - Ignitable Liquid or Solid Waste (RQ = 100.0 lbs.) EPA Reportable Quantities: None
Disposal Method: Subject to hazardous waste treatment, storage and disposal requirements under RCRA. Incinerate at EPA-approved facility or dispose of in compliance with federal, state, and local regulations.

SECTION 14 - TRANSPORTATION DATA

Transportation Incident Information: For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Guidebook for Hazardous Materials Incidents, DOT P 5800.3.

DOT Shipping Name(s): Not Regulated	Hazard Class or Division: N/A
UN/NA Number: N/A	DOT Label: Hazardous
Packing Group: None	Packaging Exceptions: None
Special Provisions: N/A	Bulk Packaging: N/A
Non-bulk Packaging: N/A	RQ: 100 lbs.
EPA Hazardous Substances: Hydrogen Sulfide	Marine Pollutants: White Spirits (Mineral Spirits)
Quantity Limitations: N/A	Hazardous Material Shipping Description: Marine Pollutant (White Spirits)
Freight Description: Asphalt	ERG Number: N/A

SECTION 15 - REGULATORY INFORMATION

TSCA Status: On TSCA Inventory

NSR Status (Canada): Each ingredient is on the DSL.

OSHA Status: N/A

<u>OSHA Hazardous Components</u>	<u>CAS Number</u>
Crystalline Silica (Quantity ¹)	14808-60-7
Asphalt ¹	8052-42-4
Amine Salt	28701-67-9
1,2,4 Trimethylbenzene (Mixed Isomers)	25551-13-7
Attapulgite Clay	12174-11-7

¹ Chemical is listed as an IARC, NTP, OSHA, or ACGIH Carcinogen.

SARA Title III:

Hazard Categories:

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

Reportable Ingredients:

Sec. 302/304: Hydrogen Sulfide

Sec. 313:

This information may be subject to the provisions of the Community Right-to-Know Reporting Requirements (40 CFR 370) if threshold quantity criteria are met.

California Proposition 65: This material contains detectable amounts of some chemicals known to the State of California to cause cancer, birth defects, or other reproductive effects.

Clean Water Act/Oil Pollution Act: This product has ingredient classified as an oil under Section 311 of the Clean Water Act (40 CFR 110) and the Oil Pollution Act of 1990. Discharge or spills which produce a visible sheen on either surface water or in waterways/sewers which lead to surface water, must be reported to the National Response Center at: (800) 424-8802.

CERCLA: This product contains ingredients derived from a fraction of crude oil and is excluded from the spill reporting requirements by CERCLA Section 101 (14) (F). The petroleum exclusion for this product may terminate and an accidental spill may require reporting to the National Response Center at: (800) 424-8802.

This product contains approximately 0.3% of Xylene. The reportable quantity of Xylene is 100 pounds. This product contains approximately 0.2% of Cumene. The reportable quantity of Cumene is 5,000 pounds.

SECTION 16 - OTHER INFORMATION

The information and recommendations contained herein are to the best of PALMER ASPHALT'S knowledge and belief, accurate, and reliable as of the date issued. PALMER ASPHALT does not warrant or guarantee their accuracy or reliability, and PALMER ASPHALT shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the users consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use.

The Environmental Information included under Section 12 hereof as well as the Hazardous Material Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by PALMER ASPHALT COMPANY in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with PALMER ASPHALT'S interpretation of the available data.

For Other Product Information Contact:

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MANUFACTURERS OF BULLDOG AND PRIVATE LABEL COLD-APPLIED COATINGS AND CEMENTS