



Asphalt Cement, All Grades

Material Safety Data Sheet

CITGO Asphalt Refining Company
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Thorofare, NJ 08086-2557

MSDS No. ASPLT
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IMPORTANT: Prepared in accordance with 29 CFR 1910.1200. Read this MSDS before handling or disposing of this product and pass this information on to employees, customers and users of this product.

Hazard Rankings		
	HMIS	NFPA
Health Hazard	* 2	1
Fire Hazard	1	1
Reactivity	0	0

* = Chronic Health Hazard

Emergency Overview			
Physical State	Liquid.		
Color	Brown to black.	Odor	Characteristic, sour, tar-like odor.
WARNING:			
Hot product can cause burns to skin. If burned by hot product, cool affected area immediately with cool water. Do not attempt to remove solidified material from skin. Seek medical attention immediately.			
Hot asphalt can release toxic Hydrogen Sulfide gas (H₂S)! Hydrogen Sulfide can accumulate in vapor space of tanks and vessels during transfer and storage of this material.			
Water contact can cause a violent eruption of hot asphalt			
Fumes from hot product can cause irritation to the eyes, skin, and respiratory system.			

Protective Equipment
Minimum Recommended See Section 8 for Details This recommendation reflects minimum PPE when product is at elevated temperatures.

SECTION 1. PRODUCT IDENTIFICATION

Trade Name	Asphalt Cement, All Grades	Technical Contact	(856) 224-7409
Product Number	Various	Medical Emergency	(832) 486-4700
CAS Number	Mixture.	CHEMTREC Emergency (United States Only)	(800) 424-9300
Product Family	Asphalt Products.		
Synonyms	Performance Graded Asphalt (unmodified) PG 52-28 (15252), PG 52-34 (15253), PG 58-22 (15254), PG 58-28 (15259), PG 64-22 (15264), PG 64-28 (15266), PG 67-22 (15268), and PG 70-22 (15270). Penetration Graded Asphalt (unmodified) 40/50, 60/70 (15044), 85/100 (15871), 135/145 (15045), 180/200 (15025), and 200 (15026). Asphalt Cement AC 5 (15050), AC 10 (15100), AC 20 (15407), AC 30 (15300) and AC 40 (15301). EB-58 (15858). L-619 Roofers Flux (15805), Industrial Asphalt, Bitumen, Asphalt Flux (15040), Bituminous Oil (15031), Recycling Agent RA 500 (15033), RA 1000 (15260), RA 1500 (15261).		

SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Asphalt	8052-42-4	88 - 100
Proprietary Process Oils	Mixture.	0 - 10
Proprietary amine complex antistrip additive	Mixture.	0 - 1

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SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation No significant adverse health effects are expected to occur upon short-term exposure to this product at ambient temperatures. Breathing heated mist or vapor can irritate the mucous membranes of the nose, throat, bronchi, and lungs. Hydrogen sulfide (H₂S) can evolve when this product is stored or handled at elevated temperatures. H₂S can cause respiratory irritation and hypoxia. At low concentrations, H₂S has an odor of rotten eggs. At higher concentrations, H₂S odor is not apparent. At concentrations above 500 ppm, H₂S causes unconsciousness and death by respiratory paralysis. The National Institute for Occupational Safety and Health has determined that atmospheres containing 100 ppm or more of H₂S are immediately dangerous to life and health.

Eye Contact Hot material can cause burns to the eye. This material can cause eye irritation with tearing, redness, or a stinging or burning feeling. Effects may become more serious with repeated or prolonged contact.

Skin Contact Hot material can cause burns to the skin. May cause skin irritation with redness, an itching or burning feeling, and swelling of the skin. Effects may become more serious with repeated or prolonged contact. Skin contact may cause harmful effects in other parts of the body.

Ingestion Contact with hot material may cause thermal burns. If swallowed at ambient temperatures, no significant adverse health effects are anticipated. If swallowed in large quantities, this material can obstruct the intestine.

Chronic Health Effects Summary This material, or a component of this material, has been shown to cause cancer in laboratory animals. The relevance of this to humans is not clear. See Toxicological Information (Section 11)

Conditions Aggravated by Exposure Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Kidneys, Central Nervous System (CNS)

Target Organs Contains material which may cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eye, lens or cornea

Carcinogenic Potential Certain preparations of this material are classified as carcinogenic by OSHA, NTP, or IARC. See Section 11 of this MSDS for additional information concerning the carcinogenic potential of this product.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	<input checked="" type="checkbox"/>	Sensitizer	<input type="checkbox"/>	Combustible	<input type="checkbox"/>	Explosive	<input type="checkbox"/>	Pyrophoric	<input type="checkbox"/>
Toxic	<input type="checkbox"/>	Highly Toxic	<input type="checkbox"/>	Flammable	<input type="checkbox"/>	Oxidizer	<input type="checkbox"/>	Water-reactive	<input type="checkbox"/>
Corrosive	<input type="checkbox"/>	Carcinogenic	<input type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Organic Peroxide	<input type="checkbox"/>	Unstable	<input type="checkbox"/>

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SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation	Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.
Eye Contact	Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.
Skin Contact	If burned by hot material, cool skin by quenching with large amounts of cool water. For contact with product at ambient temperatures, remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.
Ingestion	Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. If significant amounts are swallowed or irritation or discomfort occurs, seek medical attention immediately.
Notes to Physician	<p>SKIN: Hot material may cause skin burns. Immerse skin covered with hot material in cool water to limit tissue damage and prevent spread of liquid product. Consider leaving cooled material on skin unless contraindicated by contamination or potential for tattooing. If removal is necessary, mineral oil may be of assistance in minimizing skin loss when removing cool, hardened asphalt.</p> <p>EYES: Hot material may cause burns to the eyes. Early ophthalmologic evaluation is recommended.</p> <p>INGESTION: Check for possible bowel obstruction with ingestion of large quantities of material.</p>

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-IIIB combustible material.		
Flash Point	Open cup: >232°C (>450°F).		
Lower Flammable Limit	No data.	Upper Flammable Limit	No data.
Autoignition Temperature	Not available.		
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur and/or nitrogen. Hydrogen sulfide and other sulfur-containing gases can evolve from this product particularly at elevated temperatures.		
Special Properties	Fight the fire from a safe distance in a protected location. Cool surface with water fog. Molten material can form flaming droplets if ignited. Water or foam can cause frothing. Use of water on product above 100° C (212° F) can cause product to expand with explosive force. Do not allow liquid runoff to enter sewers or public waters.		
Extinguishing Media	Use dry chemical, foam, Carbon Dioxide or water fog.		

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Protection of Fire Fighters

Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Remove all potential ignition sources. Administer appropriate first aid as needed. Verify that responders are properly HAZWOPER-trained and wearing appropriate protective equipment during cleanup operations. Isolate the area of the spill and restrict access. For small spills, remove released material with shovels and place into containers for disposal. For large spills, evacuate area immediately. Evaluate potential exposure to response personnel. Respiratory protection may be required. Use protective clothing. Dike far ahead of a liquid spill to ensure complete collection. Do not allow free liquids to enter drains, sewers, ground water, drainage ditches or surface waters. This material is heavier than water. Releases to surface waters will sink. Report releases in accordance with local, state and federal requirements. Some releases must be reported to the National Response Center (800/424-8802).

SECTION 7. HANDLING AND STORAGE

Handling

Use normal precautions when handling hot, molten liquid solutions. Do not breathe fumes or vapor from heated material. Do not allow hot material to contact skin. Wash thoroughly after handling.

Storage

Materials represented by this MSDS are classified as NFPA Class III B combustible liquid. Generally, storage temperatures of 350 °F or below are recommended in cone roof storage tanks to minimize the formation of pyrophoric sulfides and carbonaceous deposits on the tank roof and appurtenant structures. Consult API Recommended Practice 2023 for additional guidance. Store distant from fire and ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Engineering controls are normally required when handling hot materials. Use process enclosures, local exhaust ventilation, or other controls to maintain airborne levels below recommended exposure limits (see below). Engineering controls should meet applicable requirements of the National Electrical Code (NEC) Standards. Ensure that an emergency eye wash station and safety shower are located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

This recommendation reflects minimum PPE when product is at elevated temperatures.



Eye Protection

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Use a full-face shield and chemical safety goggles if handling heated material. With product at ambient temperatures, safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Keep a suitable eye wash station immediately available to the work area.

- Hand Protection** When handling product at elevated temperatures, use long-cuffed leather or heat-resistant gloves. When product is at ambient temperatures, use gloves constructed of chemical resistant materials such as heavy nitrile rubber if frequent or prolonged contact is expected.
- Body Protection** Prevent skin contact when handling heated material. Use insulated, heat-resistant clothing such as a chemical resistant apron or slicker suit. Use a full-body heat-resistant or internally cooled suit when work conditions dictate.
- Respiratory Protection** Contaminant air concentrations determine the level of respiratory protection required. Use only NIOSH-approved respiratory equipment within the limits of the protection factors for that equipment. Use supplied air respirators when H₂S concentrations are expected to exceed applicable workplace exposure levels. Do not use air purifying respiratory equipment when considering elevated H₂S concentrations. Respiratory equipment must be selected on the basis of the maximum expected air concentration.
- General Comments** Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents, or harsh abrasive skin cleaners.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Asphalt	ACGIH TLV (United States). TWA: 0.5 mg/m ³ 8 hour(s).
Hydrogen Sulfide	ACGIH TLV (United States). TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). OSHA (United States). CEIL: 20 ppm 8 hour(s). STEL: 50 ppm 15 minute(s). Form: *10 minute peak; once per 8 hour shift

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	Color	Brown to black.	Odor	Characteristic, sour, tar-like odor.
Specific Gravity	>1 (Water = 1)	pH	Not Applicable.	Vapor Density	>1 (Air = 1)
Boiling Range	IBP: AP 400° C (AP 752° F))			Melting/Freezing Point	Not available.
Vapor Pressure	Not available.			Volatility	Negligible volatility.
Solubility in Water	Insoluble in cold water.			Viscosity (cSt @ 40°C)	not available
Flash Point	Open cup: >232°C (>450°F).				
Additional Properties	No additional information.				

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SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable.	Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Keep away from extreme heat, strong acids and strong oxidizing conditions.		
Materials Incompatibility	Strong oxidizers.		
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.		

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Proprietary Process Oils

Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The International Agency for Research on Cancer (IARC) has concluded that this category of untreated and mildly-treated oils are possibly carcinogenic to humans (Group 2B).

Asphalt, unoxidized

Acute effects:

Asphalt fumes have been associated with irritation of eyes nose and throat. Also, lower respiratory effects have been reported.

Carcinogenicity:

Animal Studies:

Certain extracts of asphalt (bitumen) have been shown to produce cancers in mouse skin painting studies. In 1985, the International Agency for Research on Cancer (IARC) concluded that there was insufficient evidence to conclude that asphalts alone are carcinogenic to humans. However, IARC did determine 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.

Skin painting studies have demonstrated that certain high temperature asphalt fume condensates can produce cancers in mice. The causal agent is thought to be 4 to 6 ring polycyclic aromatic compounds. These compounds can be found in asphalt fumes generated at temperatures exceeding normal storage and application temperatures of paving asphalt. Studies on fumes similar to those found in the asphalt paving work environment indicated no mutagenic activity.

Epidemiological Studies:

Epidemiological studies have indicated a link between exposure to asphalt fumes and certain types of cancer, including cancers of the lung and G.I. tract in a cohort of Danish workers. However, these studies apparently either did not evaluate or inadequately controlled for confounders such as smoking and concomitant coal tar exposure.

In a cohort of European paving and mastic asphalt workers, an IARC sponsored study suggested a slight increase in lung cancer mortality when asphalt workers were compared to the general national population. The IARC study further suggested that there is a marginal relationship in increased lung cancers and increased average asphalt fume exposure. However, the IARC study could not exclude confounding from exposure to other agents in the workplace. Further, the study did not conclude that increased lung cancer mortality is linked to increased duration of exposure or to cumulative exposure to asphalt fumes. Consequently, the results of this IARC study are considered equivocal.

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	Analysis for ecological effects has not been conducted on this product. Spills into water ways may be harmful to benthic organisms and bottom feeders.
Environmental Fate	This product is estimated to have a slow rate of biodegradation. This product is not expected to bioaccumulate through food chains in the environment.


SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact your regional US EPA office for guidance concerning case specific disposal issues.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status	This material is regulated by the US DOT only when it is offered for shipment at temperatures above 212° F (100° C). This material is deemed as non-hazardous when shipped at ambient temperatures and does not require DOT labeling.		
Proper Shipping Name	Elevated Temperature Liquid, n.o.s.		
Hazard Class	9	Packing Group(s)	III
		UN/NA Number	UN 3257
Reportable Quantity	A Reportable Quantity (RQ) has not been established for this material.		
Placard(s)		Emergency Response Guide No.	128
		MARPOL III Status	Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

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SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above <i>de minimis</i> levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. This product or refinery stream is not known to contain chemical substances subject to this statute. However, it is recommended that you contact state and local authorities to determine if there are any other reporting requirements in the event of a spill.
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Polynuclear Aromatic Hydrocarbons
New Jersey Right-to-Know Label	For New Jersey R-T-K labeling requirements, refer to components listed in Section 2.
Additional Remarks	No additional regulatory remarks.

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	1.00
Revision Date	3/16/2006
Print Date	Printed on 3/16/2006.

ABBREVIATIONS

AP: Approximately	EQ: Equal	>: Greater Than	<: Less Than	NA: Not Applicable	ND: No Data	NE: Not Established
ACGIH: American Conference of Governmental Industrial Hygienists				AIHA: American Industrial Hygiene Association		
IARC: International Agency for Research on Cancer				NTP: National Toxicology Program		
NIOSH: National Institute of Occupational Safety and Health				OSHA: Occupational Safety and Health Administration		
NPCA: National Paint and Coating Manufacturers Association				HMIS: Hazardous Materials Information System		
NFPA: National Fire Protection Association				EPA: US Environmental Protection Agency		

DISCLAIMER OF LIABILITY

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***** END OF MSDS *****