

Material Safety Data Sheet

Section 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Lafarge Reclaimed Asphalt Pavement (RAP)

Product Identifiers: Reclaimed Asphalt Pavement, RAP, Crusted Asphalt Base Course, Reclaimed Paving Material, Reclaimed Blacktop, Reclaimed Asphalt Concrete, and Recycled Asphalt Pavement.

Manufacturer: Lafarge North America Inc.
12950 Worldgate Drive, Suite 500
Herndon, VA 20170

Information Telephone Number: 703-480-3600 (9am to 5pm EST)

Emergency Telephone Number: 1-800-451-8346 (3E Hotline)





Product Use: RAP is used as an aggregate substitute and asphalt cement supplement in recycled asphalt paving, as a granular base or subbase, stabilized base aggregate, as an embankment or fill material and in other construction applications.

Section 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent (By Weight)	CAS Number	OSHA PEL -TWA (mg/m ³)	ACGIH TLV-TWA (mg/m ³)	LD ₅₀	LC ₅₀
Aggregate	90-95	Various	NA	NA	NA	NA
Asphalt Cement (as Fume)	< 10	8052-42-4	NA	0.5	NA	NA
Crystalline Silica	> 1	14808-60-7	[(10) / (%SiO ₂ +2)] (R); [(30) / (%SiO ₂ +2)] (T)	0.025 (R)	NA	NA
Particulate Not Otherwise Regulated	-	NA	15 (T); 5 (R)	10 (T); 3 (R)	NA	NA

Note: Asphalt pavement is a mixture of gravel or rock, sand, filler (eg. limestone or hydrated lime) and asphalt cement. It may also contain fly ash, slag, fibers (synthetic or organic), color pigment and other recycled material (eg. ceramics, plastic, glass, etc.). Properties and composition of RAP can vary depending on the original properties and composition of the recovered asphalt pavement.

Section 3: HAZARD IDENTIFICATION

	WARNING	 Respiratory Protection  Eye Protection  Gloves
	<p>Irritant – Dust and fumes may irritate eyes, skin and respiratory tract.</p> <p>Toxic - Harmful by inhalation. (Contains crystalline silica)</p> <p>Use proper engineering controls, work practices, and personal protective equipment.</p> <p>Read MSDS for details.</p>	

Emergency Overview: RAP varies in size and shape, and when cold it is as solid material that is black in color. When hardened asphalt pavement is subject to mechanical forces, such as demolition or asphalt recycling, dust particles will be generated. These particles may be an eye, respiratory or skin irritant. Hot asphalt will cause severe thermal burns. When heated, this product may release toxic hydrogen sulfide (H₂S) vapors. A single, short-term exposure to RAP dust presents little or no hazard.

Section 3: HAZARD IDENTIFICATION (continued)

Potential Health Effects:

Eye Contact: Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with large amounts of RAP dust can cause moderate eye irritation and abrasion. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye. When this product is subject to high heat RAP will cause severe burns.

Skin Contact: RAP dust may cause dry skin, discomfort, irritation and dermatitis. When this product is subject to high heat RAP will cause severe burns.

Dermatitis: RAP dust, in association with sweat and friction, can lead to skin irritation and dermatitis. Skin affected by dermatitis may include symptoms such as, redness, itching, rash, scaling, and cracking. Irritant dermatitis is caused by the physical properties of RAP dust such as abrasion.

Inhalation (acute): When this product is heated, RAP may release irritating fumes or vapors such as smoke, carbon dioxide, carbon monoxide, unburned hydrocarbons. Hydrogen sulfide and other sulfur-containing gases can evolve from this product at elevated temperatures. Exposure to fumes or vapors may cause irritation of the nose and throat, and symptoms such as headache, dizziness, loss of coordination, and drowsiness. Cutting, crushing or grinding hardened asphalt products will release dust. Breathing dust may cause nose, throat or lung irritation, including choking, depending on the degree of exposure.

Inhalation (chronic): Risk of injury depends on duration and level of exposure.

Silicosis: This product contains crystalline silica. Cutting, crushing or grinding hardened asphalt or other crystalline silica-bearing materials will release respirable crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease. See Note to Physicians in Section 4 for further information.

Carcinogenicity: RAP is not listed as a carcinogen by IARC or NTP; however, RAP contains trace amounts of crystalline silica which is classified by IARC and NTP as known human carcinogens.

Autoimmune Disease: Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys.

Tuberculosis: Silicosis increases the risk of tuberculosis.

Renal Disease: Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

Ingestion: Do not ingest RAP. Although ingestion of small quantities of RAP is not known to be harmful, large quantities can cause distress to the digestive tract. However chewing asphalt has caused gastrointestinal effects. Stomach obstructions have been reported in individuals who have chewed and swallowed asphalt.

Medical Conditions Aggravated by Exposure: Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary disease) can be aggravated by exposure.

Section 4: FIRST AID MEASURES

Eye Contact: Rinse eyes thoroughly with water for at least 15 minutes, including under lids, to remove all particles. Seek medical attention for abrasions. For contact with hot product, flush with large amounts of water for at least 15 minutes. Immediately call a physician.

Skin Contact: Wash with cool water and a pH neutral soap or a mild skin detergent. Do not use solvents or thinners to remove product from skin. Seek medical attention for rash, irritation, and dermatitis.

For contact with hot product, immerse or flush skin with cold water for at least 15 minutes. Call a physician. Do not attempt to remove solidified product, since removal may cause further tissue injury.

Inhalation: Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

Ingestion: Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control center immediately.

Note to Physician: The three types of silicosis include:

- Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD).
- Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years). Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis.
- Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels.

Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures.

Section 5: FIREFIGHTING MEASURES

Flashpoint & Method:	Asphalt Cement: > 200°C	Firefighting Equipment:	A SCBA is recommended to limit exposures to combustion products when fighting any fire.
General Hazard:	Combustible solid. Avoid breathing fumes and dust.		
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire.	Combustion Products:	Toxic gases produced in fire, such as CO, CO ₂ , H ₂ S

Section 6: ACCIDENTAL RELEASE MEASURES

General: Use a shovel to scrape up product and place product into suitable containers for recovery or disposal. Avoid actions that cause the RAP dust to become airborne. Avoid inhalation of RAP dust. Avoid contact with heated product. Wear appropriate protective equipment as described in Section 8.

Waste Disposal Method: Dispose of RAP according to Federal, State, Provincial and Local regulations.

Section 7: HANDLING AND STORAGE

General: Handle with care and use appropriate control measures. Do not stand on stockpiles of RAP, they may be unstable. Use engineering controls (e.g. wetting stockpiles) to prevent windblown dust from stockpiles, which may cause the hazards described in Section 3.

Usage: Cutting, crushing or grinding hardened asphalt or other crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.

Avoid contact with skin, eyes and clothing. Use additional precautions when handling hot product. Maintain employee exposure levels below established regulatory limits. Do not allow hot product to contact skin. Use all appropriate Personal Protective Equipment (PPE) described in Section 8 below.

Housekeeping: Avoid actions that cause the RAP dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8 below.

Storage Temperature: Store away from heat, open flames, strong oxidizers or other ignition sources.

Clothing: Promptly remove and launder clothing that is dusty. Thoroughly wash skin after exposure to dust.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Use local exhaust or general dilution ventilation when using at elevated temperatures or during activities that generate dust or fumes, to maintain levels below exposure limits.

Personal Protective Equipment (PPE):

Respiratory Protection: Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to dust or fumes above exposure limits.

Eye Protection: Wear ANSI approved glasses or safety goggles when handling RAP and when involved with activities that generate dust, to prevent contact with eyes. Wearing contact lenses when using RAP, under dusty conditions, is not recommended.

Skin Protection: Wear leather or cloth work gloves to prevent skin contact and insulated gloves when handling hot product. Thoroughly wash hands and other exposed skin after exposure to RAP. Remove clothing and protective equipment that becomes dusty and launder before reusing.

Foot Protection: Wear ANSI approved hard-toed safety boots when handling RAP.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid when cold.	Evaporation Rate:	NA.
Appearance:	Black color and various shapes.	pH (in water):	NA.
Odor:	Slight petroleum odor.	Boiling Point:	NA.
Vapor Pressure:	NA.	Freezing Point:	NA.
Vapor Density:	NA.	Viscosity:	NA.
Specific Gravity:	NA.	Solubility in Water:	Not Soluble.

Section 10: STABILITY AND REACTIVITY

Stability:	Stable. Avoid contact with incompatible materials, excessive heat, sources of ignition and open flame.
Incompatibility:	RAP is incompatible with strong acids or bases, and oxidizing agents such as nitrates, chlorates and peroxides.
Hazardous Polymerization:	None.
Hazardous Decomposition:	When heated may liberate hydrogen sulfide and various hydrocarbons.

Section 11 and 12: TOXICOLOGICAL AND ECOLOGICAL INFORMATION

For questions regarding toxicological and ecological information refer to contact information in Section 1.

Section 13: DISPOSAL CONSIDERATIONS

Dispose of waste and containers in compliance with applicable Federal, State, Provincial and Local regulations.


Section 14: TRANSPORT INFORMATION

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations.

Section 15: REGULATORY INFORMATION

OSHA/MSHA Hazard Communication:	This product is considered by OSHA/MSHA to be a hazardous chemical and should be included in the employer's hazard communication program.
CERCLA/SUPERFUND:	This product is not listed as a CERCLA hazardous substance.
EPCRA SARA Title III:	This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered a hazardous chemical and a delayed health hazard.
EPRCA SARA Section 313:	This product contains none of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
RCRA:	If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

Section 16: OTHER INFORMATION (continued)

- TSCA:** This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
- California Proposition 65:** Crystalline silica (airborne particulates of respirable size) is a substance known by the State of California to cause cancer.
- WHMIS/DSL:** Products containing crystalline silica are classified as D2A and are subject to WHMIS requirements.
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Section 16: OTHER INFORMATION

Abbreviations:

>	Greater than	NA	Not Applicable
<	Less than	NFPA	National Fire Protection Association
ACGIH	American Conference of Governmental Industrial Hygienists	NIOSH	National Institute for Occupational Safety and Health
CAS No	Chemical Abstract Service number		
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	NTP	National Toxicology Program
		OSHA	Occupational Safety and Health Administration
CFR	Code for Federal Regulations	PEL	Permissible Exposure Limit
CL	Ceiling Limit	pH	Negative log of hydrogen ion
DOT	U.S. Department of Transportation	PPE	Personal Protective Equipment
EST	Eastern Standard Time	R	Respirable Particulate
HEPA	High-Efficiency Particulate Air	RCRA	Resource Conservation and Recovery Act
HMIS	Hazardous Materials Identification System	SARA	Superfund Amendments and Reauthorization Act
IARC	International Agency for Research on Cancer	T	Total Particulate
		TDG	Transportation of Dangerous Goods
LC ₅₀	Lethal Concentration	TLV	Threshold Limit Value
LD ₅₀	Lethal Dose	TWA	Time Weighted Average (8 hour)
mg/m ³	Milligrams per cubic meter	WHMIS	Workplace Hazardous Materials Information System
MSHA	Mine Safety and Health Administration		

This MSDS (Sections 1-16) was revised on March 1, 2008.

An electronic version of this MSDS is available at: www.lafarge-na.com under the Products section.

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