



# environmental affairs

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

## RISK MANAGEMENT PLAN IN TERMS OF REGULATION 10 OF WASTE EXCLUSION REGULATIONS

<b>APPLICANT</b>	South African Bitumen Association					
<b>SOURCE (S) OF WASTE</b>	<p>Reclaimed Asphalt (RA) is generated at sites where surfaces containing asphalt are removed for reconstruction or resurfacing i.e. road construction sites where existing roads are being upgraded/modified. RA typically consists of 95% high quality aggregate and 5% of aged bitumen.</p> <p>The asphalt is removed by means of a milling process which removes the surface layers of the existing road by means of a milling machine. If this removed material is suitable for reclamation and recycling it is then re-used by mixing it with new (virgin) aggregate and new binder in a mixing plant to produce recycled asphalt material.</p>					
<b>WASTE TO BE BENEFICIATED</b>	Reclaimed Asphalt (RA)					
<b>BENEFICIAL USE/S</b>	<p>RA is primarily used in road construction. RA can be used as an aggregate substitute and it can also be used as an asphalt cement supplement in road construction.</p> <p>Other uses include RA being used as material for embankments or fill material.</p>					
<b>MSDS ATTACHED IF HAZARDOUS</b>	<table border="1"> <tr> <td><b>YES</b></td> <td><b>NO</b></td> <td rowspan="2">Typical MSDS attached as <u>Annexure A.</u></td> </tr> <tr> <td><b>X</b></td> <td></td> </tr> </table>	<b>YES</b>	<b>NO</b>	Typical MSDS attached as <u>Annexure A.</u>	<b>X</b>	
<b>YES</b>	<b>NO</b>	Typical MSDS attached as <u>Annexure A.</u>				
<b>X</b>						
<b>WASTE GENERATING FACILITY</b>	A list of RA sites in South Africa where RA is stored/processed is attached as <u>Annexure B.</u> This includes physical addresses and coordinates of the sites. These are all Sabita Members.					
<b>PHYSICAL ADDRESS</b>	As above					
<b>GPS CO-ORDINATES OF WASTE GENERATING FACILITY</b>	As above					
<b>POSTAL ADDRESS</b>	As above					
<b>CONTACT PERSON</b>	<p>Contact person and contact details for each site are included in <u>Annexure B.</u></p> <p><b>These sites are however represented by:</b></p>					

	Sabita (The Southern African Bitumen Association)
<b>TELEPHONE</b>	+27 (0)21 531 2718
<b>EMAIL</b>	info@sabita.co.za
<b>CELL</b>	-
<b>FAX</b>	086 685 3257

## RISK MANAGEMENT PLAN<sup>1</sup>

Risk Management Plan for Asphalt Plants			
Activity	Risk Description	Action(s) to minimise/manage the risk	Responsibility (who is responsible to carry out the action)
Drying and heating process	Particulates: Stack dust	<p>Competent operators (i.e. can recognise and react to “Upset conditions”)</p> <p>Plant / bag house operating procedures:</p> <ul style="list-style-type: none"> <li>• Visual checks of stack emission;</li> <li>• Continuous monitoring of system airflow, pressure and temperature;</li> <li>• Plant shut-down and repair for “Upset conditions”;</li> <li>• Critical spares on site. (i.e. additional set of bag house filter bags; Water-pump)</li> </ul> <p>Planned maintenance program:</p> <ul style="list-style-type: none"> <li>• Competent maintenance personnel on site or readily available;</li> <li>• Scheduled maintenance of identified “critical” equipment;</li> </ul> <p>Confirm valid national standards with SSA Periodic measurement done by approved inspection authority (SANAS accredited laboratories)</p> <p>Maintenance of monitoring systems should be included in the contract/service agreement.</p>	<p>The persons responsible for carrying out the actions to minimise and/or manage the risk at each facility is listed in <u>Annexure B</u>.</p> <p>However, Sabita plays an overarching role as the industry body.</p>
Loading, Mixing, Drying & Heating process.	Fugitive dust	Regular inspection and maintenance to assure dust does not “escape” from enclosed system.	

<sup>1</sup> Please note that this includes activities and risks that are associated with the general use and application of virgin asphalt and are not exclusive to Reclaimed Asphalt.

<p>Aggregate Stockpiles Loading Platform (loader) Cold feed bins Scalping screen Screening House Screening Plant Excess Filler (Fines): Raw materials en route to storage silo /receptacle.</p> <p>Conveyor belts</p> <p>Yard traffic - Access and site Roads</p>		<p>The following was also considered: Dust suppression by water spray is possible but not practicable for the following reasons:</p> <ul style="list-style-type: none"> <li>• Increased use of scarce water resources;</li> <li>• Possible limited water supply;</li> <li>• Higher moisture content of the raw materials would result in increased pressure on heating and drying process ultimately leading to increased carbon emissions;</li> </ul> <p>Feed sequence should be from finest to most coarse aggregate.</p> <p>Traffic calming measures (speed humps) and enforcement of maximum speed limits.</p>	
<p>Stack Bitumen Heating Burners Hopper / Hot Storage</p>	<p>Gaseous emissions</p>	<p>Switch to cleaner burner fuels. Proper setup and maintenance of burners. Optimizing burner setup.</p>	
<p>Loading trucks Stack Rubber blending Hot Storage Skip</p>	<p>Odour</p>	<p>Cover lorry load bin with tarpaulin?</p>	
<p>Plant Blower Fan Generator Exhaust Fan General plant operations Traffic</p>	<p>Noise</p>	<p>Site selection. Plant design &amp; layout. Planned maintenance program. Vehicle inspection and maintenance.</p>	
<p>Water effluent Wet Scrubber Sludge Recyclable Asphalt</p>	<p>Process waste</p>	<p>Design approved by competent person. Design of settling pit / dam incorporates sufficient secondary containment. (i.e. a soil berm wall).</p>	

Reclaimed Asphalt Pavement (RAP) Excess Filler			
Sampling Toluene distillation	Laboratory waste	Enforce procedures for safe storage of samples and safe disposal of distil residue	
Stack emissions Spillage Briquettes from Lab	Visual aspects	To minimise the visual impact: <ul style="list-style-type: none"> <li>Practice “good housekeeping” at all times;</li> <li>Ensure that “upset conditions” are rectified as soon as possible;</li> <li>Where necessary, engage with “neighbours” to manage potential negative perceptions;</li> </ul>	
Burner Fuels storage Own use Diesel storage/dispensing	Ground/soil (water) pollution	Fuel tanker to storage transfer procedure; Routine inspection of storage and transfer facilities; Bund walls and spill reaction plans; Stock reconciliation procedure;	
Stockpiles Facilities	Storm water management	Storm water management plan: Site design & layout incorporates physical barriers to prevent flooding of facilities and controlled drainage of storm water.	
<b>Risk Management Plan for Reclaimed Asphalt</b>			
<b>Activity</b>	<b>Risk Description</b>	<b>Action(s) to minimise/manage the risk</b>	<b>Responsibility (who is responsible to carry out the action)</b>
Suitability Testing against standards for reuse	Coal Tar content	Testing takes place as specified in the SANRAL South African Pavement Engineering Manual (2013), Chapter 3: Materials Testing which refers to the Technical Recommendations for Highways (TRH 21).  The Reuse of Reclaimed Asphalt which is contaminated with tar (coal tar) is prohibited for environmental and health reasons.	The persons responsible for carrying out the actions to minimise and/or manage the risk at each facility is listed in <u>Annexure B</u> .  However, Sabita plays an overarching role as the industry body.
Stockpiling of RA	Leachability	Careful planning for RA stockpiles: <ul style="list-style-type: none"> <li>Good management practices to control runoff.</li> </ul>	

		<ul style="list-style-type: none"> <li>• Control moisture content of RA stockpiles.</li> <li>• Stormwater management plan for the site to ensure stormwater is not contaminated and to divert contaminated runoff from the stormwater system.</li> <li>• Consider hardened/impermeable surfaces for RA stockpiles.</li> <li>• Avoid excessive accumulation of RA in stockpiles i.e. product management on site.</li> </ul>	
Stockpiling of RA	Visual Impact	<p>Careful planning for RA stockpiles:</p> <ul style="list-style-type: none"> <li>• Maintain maximum stockpile heights.</li> <li>• Avoid excessive accumulation of RA in stockpiles i.e. product management on site.</li> <li>• Visual screening around sites with sensitive visual receptors.</li> </ul>	
Stockpiling of RA	Dust	<ul style="list-style-type: none"> <li>• In areas where dust is a concern, stockpiles that aren't in use should be covered until settled.</li> <li>• Provide screening around site to protect from prevailing winds.</li> <li>• Limit handling of materials on particularly windy days.</li> </ul>	

It is important to note the following:

The Asphalt Industry in South Africa is a well-controlled and regulated industry that has been in existence for a great deal of time. It is also an industry that engages regularly with international counterparts and is continually improving technologies and processes.

The implementation of requirements and standards is currently effective and well managed and therefore provides a good indication that new standards and requirements, such as the Norms and Standards is also expected to be effectively implemented.

Sabita is expected to be the main driver disseminating the information and requiring their member organisation to adhere to any standards.

Sabita was established 30 years ago with the objective of providing a forum for all involved in the bituminous products industry. Sabita is a registered non-profit organisation operating as an association, through a section 21 company. Sabita currently represents 94 members across the spectrum of the bitumen and roads industries, from primary producers to specialised material / equipment suppliers.

Sabita undertakes the following activities:

- Extensive stakeholder engagement with SANRAL and other road authorities, local industry and forums and government.
- Education of members to ensure an understanding of the bitumen supply chain and their role in it through by:
  - Holding supply chain workshops.
  - Publishing supply chain information that clarifies processes and roles.
  - Developing national and regional bitumen consumption forecast models.
- Publication of 37+ Technical Guidelines and numerous articles to support the use of bituminous materials ranging from research into bitumen stabilised materials to hot mix design.
- Since the establishment of the Asphalt Academy, as a joint venture with the CSIR in 2001/2002, over 6 500 delegates have attended either a course or attended a symposium.
- Issue CDs containing selected Sabita technical guides, free of charge to students at tertiary institutions.
- Initiate the development and implementation of industry training courses for NQF 1-4 levels through a pilot with e-Thekwini Metro.
- Initiatives undertaken to ensure the implementation of Health and Safety and Environment (HSE) include the following:
  - Development of an HSE charter to which its members subscribe.
  - Establishment of an HSE Committee to tackle industry wide issues.
  - Development and publication of safe work practices with manuals on.
  - Implementation of a bitumen safety training scheme.
  - Publication of generic safety awareness material and assembly of appropriate first aid kits to deal with bitumen related incidents.
  - Development of an HSE certification and award scheme.
  - Development of an HSE management system.
- In order to promote sustainability within the industry Sabita has:
  - Developed a carbon measurement tool to assist members to achieve the desired CO<sub>2</sub> reductions.
  - Sponsored the research and publication of the National Standard TRH 21 document dealing with recycled asphalt.
  - Supported the introduction of less energy intensive asphalt mixes (WMA).
  - Engaged Government on emission standards for asphalt plants.
  - Assist with compliance with the changes associated with the replacement of the Air Pollution Prevention Act by the Air Quality Act
  - Successfully lobbied for the discontinuation of coal tar as a road construction material.

- Continued to promote the further use of reclaimed asphalt (RA) and other environmental benefits of asphalt (noise reduction, skid resistance etc.) through positive articles and investigations.
- Developed a best practice guide for the operation of asphalt plants.

Sabita clearly demonstrates the ability, experience and knowledge to guide and influence the industry to ensure the effective implementation of any standards or requirements that may be introduced.



**DECLARATION**

I, M Saied Solomons hereby declare that I have read the completed a Risk Management form and hereby confirm that the information is to the best of my knowledge true and correct.

Furthermore, I declare that I am fully aware of my responsibilities in terms of the Waste Exclusion Regulations, and that failure to comply with these Regulations may constitute an offence in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008).

Applicant (Full names): Saied Solomons

Designation: Chief Executive Officer

Signature:



Date: 1<sup>st</sup> April 2020

Place: Cape Town

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Date Received			
Decision Taken	Authorised		Not authorised (provide reasons)
Reference Number			

# **Annexure A: Typical Material Safety Data Sheet for Reclaimed Asphalt**

## SECTION 1: IDENTIFICATION

### Product Identifier

**Product Form:** Mixture

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

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

### Intended Use of the Product

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.

### Name, Address, and Telephone of the Responsible Party

#### **Company**

Lafarge North America Inc.

8700 West Bryn Mawr Avenue, Suite 300

Chicago, IL 60631

Information: 773-372-1000 (9am to 5pm CST)

email: [SDSinfo@Lafarge.com](mailto:SDSinfo@Lafarge.com)

Website: [www.lafarge-na.com](http://www.lafarge-na.com)

### Emergency Telephone Number

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

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

**Classification (GHS-US)**

Carc. 1A H350

STOT RE 1 H372

Full text of H-phrases: see section 16

### Label Elements

#### **GHS-US Labeling**

**Hazard Pictograms (GHS-US)** :



**Signal Word (GHS-US)** : Danger

**Hazard Statements (GHS-US)** : H350 - May cause cancer.

H372 - Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements (GHS-US)** : P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 - Do not breathe dust or vapors.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear protective gloves, protective clothing, and eye protection.

P308+P313 - If exposed or concerned: Get medical advice/attention.

P314 - Get medical advice/attention if you feel unwell.

P405 - Store locked up.

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

### Other Hazards

Dust may cause mechanical irritation to eyes, nose, throat, and lungs. Direct contact may result in corneal injury. Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary disease) can be aggravated by exposure.

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At elevated temperatures, this product will cause thermal burns and may release toxic hydrogen sulfide (H<sub>2</sub>S). Hydrogen sulfide is a fatal and highly flammable gas with a rotten egg odor that quickly causes odor fatigue. Explosion can occur if hydrogen sulfide is allowed to accumulate in the headspace of closed systems in the presence of an ignition source.

**Unknown Acute Toxicity (GHS-US)** Not available

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### Mixture

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Limestone	(CAS No) 1317-65-3	90 - 95	Not classified
Asphalt	(CAS No) 8052-42-4	<0.1, 0.1 - 1, 1 - 5, 5 - 10	Carc. 2, H351
Quartz	(CAS No) 14808-60-7	1 - 5, 5 - 10, 10 - 30, 30 - 60, 60 - 100	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372

More than one of the ranges of concentration prescribed by the Controlled Products Regulations has been used where necessary, due to varying composition.

Full text of H-phrases: see section 16

### SECTION 4: FIRST AID MEASURES

#### Description of First Aid Measures

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

**Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. If you feel unwell, seek medical advice.

**Skin Contact:** Remove contaminated clothing. Drench affected area with water for several minutes. Obtain medical attention if irritation develops or persists. Seek immediate medical attention for thermal burns. Do not attempt to forcibly remove material from skin after cooling.

**Eye Contact:** Do not rub. Rinse eyes thoroughly with water for several minutes, including under lids, to remove all particles. Obtain medical attention if irritation develops or persists. Seek immediate medical attention for thermal burns. Do not attempt to forcibly remove material from eyes after cooling.

**Ingestion:** Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTER or doctor/physician.

#### Most Important Symptoms and Effects Both Acute and Delayed

**General:** Emissions from asphalt are suspected of causing cancer. Dust may cause immediate or delayed irritation to eyes, skin and respiratory tract. During processing, inhalation of fumes may cause dizziness and/or irritation to the eyes, nose, and throat. This product if heated, may release asphalt fumes that may cause irritation to the throat, nose and skin irritation. If inhaled, the fumes may cause nausea, headache, or dizziness. Prolonged and repeated contact with cold asphalt may cause dermatitis and other skin problems, while contact with hot product will cause thermal burns. If ingested, the product may cause internal organ irritation and may cause possible nausea, vomiting, and diarrhea. Hot asphalt droplets or particles can cause eye burns or irritation. A splash in the eye of hot asphalt can cause serious eye injury. Hot molten product will cause thermal burns to the skin.

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**Inhalation:** Exposure to fumes, vapors, or dust may cause irritation of the nose, throat, and respiratory system. Hot RAP releases irritating fumes or vapors; symptoms may include headache, dizziness, loss of coordination, and drowsiness. Cutting, crushing or grinding hardened asphalt will release dust. Breathing dust may cause irritation and silicosis. The three types of silicosis include: 1) 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); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) 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. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. 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. 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. Silicosis increases the risk of tuberculosis. Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

**WARNING:** irritating and toxic hydrogen sulfide gas may be present. Greater than 15-20ppm continuous exposure can cause mucous membrane and respiratory tract irritation. 50-500 ppm can cause headache, nausea, and dizziness. Continued exposure at these levels can lead to loss of reasoning and balance, difficulty in breathing, fluid in the lungs, and possible loss of consciousness. Greater than 500ppm can cause rapid unconsciousness and death if not promptly revived.

**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.

**Eye Contact:** Eye contact to airborne dust may cause immediate or delayed irritation or inflammation. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

**Ingestion:** Do not ingest RAP. Ingestion of small quantities of RAP is not known to be harmful; ingesting large quantities can cause intestinal distress.

**Chronic Symptoms:** Emissions from asphalt are suspected of causing cancer. If dust is generated, repeated exposure through inhalation may cause cancer or lung disease. Repeated or prolonged skin contact may cause dermatitis. Product may contain polynuclear aromatic hydrocarbons (PNAs). Evidence from animal studies indicates that prolonged exposure to various PNAs can cause cancer of the lungs, skin, and other organs.

### **Indication of Any Immediate Medical Attention and Special Treatment Needed**

If medical advice is needed, have product container, label, or SDS at hand. If burned by hot product, cool affected area immediately with cool water. Do not attempt to remove solidified material from skin or eyes. Seek medical attention immediately. If exposed or concerned, get medical advice and attention.

## **SECTION 5: FIRE-FIGHTING MEASURES**

### **Extinguishing Media**

**Suitable Extinguishing Media:** Use extinguishing media appropriate for surrounding fire.

**Unsuitable Extinguishing Media:** Do not use water when molten material is involved, contact of hot product with water will result in a violent expansion as the water turns to steam causing explosion with massive force.

### **Special Hazards Arising From the Substance or Mixture**

**Fire Hazard:** Combustible. May release flammable gases.

**Explosion Hazard:** Product is not explosive. However, thermal decomposition may generate fumes that are flammable or explosive (hydrogen sulfide). Hydrogen sulfide is a fatal and highly flammable gas. Explosion can occur if allowed to accumulate in the headspace of storage tanks, and in the presence of an ignition source.

**Reactivity:** May release poisonous hydrogen sulfide.

### **Advice for Firefighters**

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** Carbon oxides (CO, CO<sub>2</sub>). Hydrocarbons. Hydrogen sulfide.

### **Reference to Other Sections**

Refer to section 9 for flammability properties.

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### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Do not breathe dust or vapors. Avoid all contact with skin, eyes, or clothing.

#### For Non-Emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Ventilate area.

#### Environmental Precautions

Prevent entry to sewers and public waters.

#### Methods and Material for Containment and Cleaning Up

**For Containment:** Place spilled material into a container. Avoid actions that cause dust to become airborne. Avoid inhalation of dust. Wear appropriate protective equipment as described in Section 8. Do not wash RAP down sewage and drainage systems or into bodies of water (e.g. streams). For molten product: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Where possible allow molten material to solidify naturally.

**Methods for Cleaning Up:** Avoid actions that cause 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. For molten product: Cool molten material to limit spreading. Allow liquid material to solidify before cleaning up.

#### Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

### SECTION 7: HANDLING AND STORAGE

#### Precautions for Safe Handling

**Additional Hazards When Processed:** If stored under heat for extended periods or significantly agitated, this material might evolve or release hydrogen sulfide, a flammable gas. Hydrogen sulfide is a toxic gas that can be fatal. Exercise caution and ensure adequate ventilation. 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.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Wash contaminated clothing before reuse.

#### Conditions for Safe Storage, Including Any Incompatibilities

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers. Nitrates. Chlorates. Peroxides.

#### Specific End Use(s)

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 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government

Limestone (1317-65-3)		
Mexico	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Mexico	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable dust)
Alberta	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
British Columbia	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (total dust)

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<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total dust) 3 mg/m <sup>3</sup> (respirable fraction)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (particulate matter containing no Asbestos and <1% Crystalline silica)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (respirable mass) 10 mg/m <sup>3</sup> (total mass)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (respirable mass) 10 mg/m <sup>3</sup> (total mass)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (Limestone, containing no Asbestos and <1% Crystalline silica-total dust)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	30 mppcf 10 mg/m <sup>3</sup>
<b>Asphalt (8052-42-4)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume, inhalable fraction)
<b>USA ACGIH</b>	ACGIH chemical category	Not Classifiable as a Human Carcinogen fume, coal tar-free
<b>USA NIOSH</b>	NIOSH REL (ceiling) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (fume)
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (Petroleum; Bitumen-fume)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (inhalable fume)
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume, inhalable fraction)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (petroleum fumes)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume, inhalable fraction)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume, inhalable fraction)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (Petroleum fumes)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (Petroleum fumes)
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (Petroleum fumes)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (Petroleum fumes)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume, inhalable)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume, inhalable fraction)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (fume)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (fumes-inhalable fraction)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (fume and inhalable fraction)
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (fume)
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (fume)
<b>Quartz (14808-60-7)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (respirable fraction)
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable fraction)
<b>USA ACGIH</b>	ACGIH chemical category	A2 - Suspected Human Carcinogen
<b>USA OSHA</b>	OSHA PEL (STEL) (mg/m <sup>3</sup> )	250 mppcf/%SiO <sub>2</sub> +5, 10mg/m <sup>3</sup> /%SiO <sub>2</sub> +2
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup> (respirable dust)
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	50 mg/m <sup>3</sup> (respirable dust)
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable particulate)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable)
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable fraction)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (respirable fraction)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable fraction)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable fraction)

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<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (respirable mass) 0.3 mg/m <sup>3</sup> (total mass)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (respirable mass) 0.3 mg/m <sup>3</sup> (total mass)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	0.10 mg/m <sup>3</sup> (designated substances regulation-respirable)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable fraction)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (respirable dust)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup> (respirable fraction)
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	300 particle/mL
<b>Particulates not otherwise classified (PNOC) (RR-00072-6)</b>		
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> Respirable fraction 10 mg/m <sup>3</sup> Total Dust
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> Respirable fraction 15 mg/m <sup>3</sup> Total Dust
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total) 3 mg/m <sup>3</sup> (respirable)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total dust) 3 mg/m <sup>3</sup> (respirable fraction)
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable particles, recommended) 3 mg/m <sup>3</sup> (respirable particles, recommended)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (particulate matter containing no Asbestos and <1% Crystalline silica, respirable fraction) 10 mg/m <sup>3</sup> (particulate matter containing no Asbestos and <1% Crystalline silica, inhalable fraction)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable particles, recommended) 3 mg/m <sup>3</sup> (respirable particles, recommended)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable particles, recommended) 3 mg/m <sup>3</sup> (respirable particles, recommended)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (respirable mass) 10 mg/m <sup>3</sup> (total mass)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (respirable mass) 10 mg/m <sup>3</sup> (total mass)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable) 3 mg/m <sup>3</sup> (respirable)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable particles, recommended) 3 mg/m <sup>3</sup> (respirable particles, recommended)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (including dust, inert or nuisance particulates; containing no Asbestos and <1% Crystalline silica-total dust)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (insoluble or poorly soluble-inhalable fraction) 6 mg/m <sup>3</sup> (insoluble or poorly soluble-respirable fraction)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (insoluble or poorly soluble-inhalable fraction) 3 mg/m <sup>3</sup> (insoluble or poorly soluble-respirable fraction)

### Exposure Controls

**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices.

**Personal Protective Equipment:** Gloves. In case of dust production: Protective goggles. Dust mask.





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**Materials for Protective Clothing:** Suitable materials with adequate protection.

**Hand Protection:** Wear gloves in situations where abrasions may occur.

**Eye Protection:** Chemical goggles or safety glasses. Wearing contact lenses under dusty conditions is not recommended.

**Skin and Body Protection:** Wear suitable protective clothing.

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

**Thermal Hazard Protection:** If material is hot, wear thermally resistant protective gloves. Protect skin and eyes from contact with molten material.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Black color and various shapes
Odor	: Slight petroleum odor
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: > 93.3 °C (200 °F)
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Insoluble in water
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** May release poisonous hydrogen sulfide.

**Chemical Stability:** Stable under recommended handling and storage conditions (see section 7).

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Open flame. Sources of ignition. Extremely high or low temperatures. Incompatible materials.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers. Nitrates. Chlorates. Peroxides.

**Hazardous Decomposition Products:** Thermal decomposition generates: Carbon oxides (CO, CO<sub>2</sub>). Hydrocarbons. Hydrogen sulfide.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects - Product

**Acute Toxicity:** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Not classified

**Serious Eye Damage/Irritation:** Not classified

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

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**Teratogenicity:** Not available

**Carcinogenicity:** May cause cancer

**Specific Target Organ Toxicity (Repeated Exposure):** Causes damage to organs through prolonged or repeated exposure

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Exposure to fumes, vapors, or dust may cause irritation of the nose, throat, and respiratory system. Hot HMA releases irritating fumes or vapors; symptoms may include headache, dizziness, loss of coordination, and drowsiness. Cutting, crushing or grinding hardened asphalt will release dust. Breathing dust may cause irritation and silicosis. The three types of silicosis include: 1) 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); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) 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. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. 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. 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. Silicosis increases the risk of tuberculosis. Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

**WARNING:** irritating and toxic hydrogen sulfide gas may be present. Greater than 15-20ppm continuous exposure can cause mucous membrane and respiratory tract irritation. 50-500 ppm can cause headache, nausea, and dizziness. Continued exposure at these levels can lead to loss of reasoning and balance, difficulty in breathing, fluid in the lungs, and possible loss of consciousness. Greater than 500ppm can cause rapid unconsciousness and death if not promptly revived.

**Symptoms/Injuries After 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.

**Symptoms/Injuries After Eye Contact:** Eye contact to airborne dust may cause immediate or delayed irritation or inflammation. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

**Symptoms/Injuries After Ingestion:** Do not ingest RAP. Ingestion of small quantities of RAP is not known to be harmful; ingesting large quantities can cause intestinal distress.

**Chronic Symptoms:** Emissions from asphalt are suspected of causing cancer. If dust is generated, repeated exposure through inhalation may cause cancer or lung disease. Emissions from asphalt are suspected of causing cancer. Repeated or prolonged skin contact may cause dermatitis. Product may contain polynuclear aromatic hydrocarbons (PNAs). Evidence from animal studies indicates that prolonged exposure to various PNAs can cause cancer of the lungs, skin, and other organs.

### **Information on Toxicological Effects - Ingredient(s)**

#### **LD50 and LC50 Data:**

<b>Asphalt (8052-42-4)</b>	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
<b>Quartz (14808-60-7)</b>	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
<b>Asphalt (8052-42-4)</b>	
IARC Group	2B
National Toxicology Program (NTP) Status	Twelfth Report - Items under consideration.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.
<b>Quartz (14808-60-7)</b>	
IARC Group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

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## SECTION 12: ECOLOGICAL INFORMATION

**Toxicity** No additional information available

**Persistence and Degradability** Not available

### **Bioaccumulative Potential**

<b>Asphalt (8052-42-4)</b>	
<b>BCF Fish 1</b>	(no bioaccumulation expected)
<b>Log Pow</b>	> 6

**Mobility in Soil** Not available

**Other Adverse Effects** Not available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial, and international regulations.

**Additional Information:** Where possible, recycling of used and unused uncontaminated substance is recommended.

## SECTION 14: TRANSPORT INFORMATION

**In Accordance With ICAO/IATA/DOT/TDG**

**14.1. UN Number** Not regulated for transport

**14.2. UN Proper Shipping Name** Not regulated for transport

**14.3. Additional Information** Not regulated for transport

**Transport by Sea** Not regulated for transport

**Air Transport** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

### **US Federal Regulations**

<b>Lafarge Reclaimed Asphalt Pavement (RAP)</b>	
<b>SARA Section 311/312 Hazard Classes</b>	Delayed (chronic) health hazard
<b>Limestone (1317-65-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Asphalt (8052-42-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>SARA Section 311/312 Hazard Classes</b>	Delayed (chronic) health hazard
<b>Quartz (14808-60-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>SARA Section 311/312 Hazard Classes</b>	Immediate (acute) health hazard Delayed (chronic) health hazard

### **US State Regulations**

<b>Quartz (14808-60-7)</b>	
<b>U.S. - California - Proposition 65 - Carcinogens List</b>	WARNING: This product contains chemicals known to the State of California to cause cancer.
<b>Limestone (1317-65-3)</b>	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List	
<b>Asphalt (8052-42-4)</b>	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List	
<b>Quartz (14808-60-7)</b>	
U.S. - Massachusetts - Right To Know List	

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U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

### Canadian Regulations

#### Lafarge Reclaimed Asphalt Pavement (RAP)

WHMIS Classification Class D Division 2 Subdivision A - Very toxic material causing other toxic effects



#### Limestone (1317-65-3)

Listed on the Canadian NDSL (Non-Domestic Substances List)

WHMIS Classification Uncontrolled product according to WHMIS classification criteria

#### Asphalt (8052-42-4)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

#### Quartz (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1 %

WHMIS Classification Class D Division 2 Subdivision A - Very toxic material causing other toxic effects  
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 05/15/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

### GHS Full Text Phrases:

Carc. 1A	Carcinogenicity Category 1A
Carc. 2	Carcinogenicity Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H335	May cause respiratory irritation
H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

### Party Responsible for the Preparation of This Document

Lafarge North America Inc.  
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An electronic version of this SDS is available at: [www.lafarge-na.com](http://www.lafarge-na.com) under the Sustainability and Products sections. Please direct any inquiries regarding the content of this SDS to [SDSinfo@Lafarge.com](mailto:SDSinfo@Lafarge.com).

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North America GHS US 2012 & WHMIS 2

## **Annexure B: Reclaimed Asphalt sites in South Africa where RA is stored/processed**

### SA Sites where Reclaimed Asphalt (RA) are stored/processed

Name of Company	Contact Person	Contact Telephone	Address of site	GPS Co-ordinates	No of Employees
Shisalanga Construction (Pty) Ltd - Cliffdale	Sandra Wakeford	0781171234	Road D755 Lot E 6616 of Cliffdale , Hillcrest KZN	29°48'40.07"S   30°41'4.50"E	28
Shisalanga Construction (Pty) Ltd - Margate	Sandra Wakeford	0781171235	Waldene Estate Farm Watch C5 Shakaskraal 4430	29°27'8.22"S   31°11'45.03"E	11
Shisalanga Construction ( Pty) Ltd - Escourt	Sandra Wakeford	0781171236	Blu rock Quarry Alfred Street Extention, Estcourt, Estcourt, 3310	29°00'22.07"S   29°53'03.05"E	11
More Asphalt (Pty)Ltd	Owen Peringuey	021) 975 0784	Lafarge Tygerberg Quarry, M13 Cape Farms, Cape Town	33° 49' 41.07" S;   18° 34' 45.08" E	2
National Asphalt (Pty) Ltd - Bon Accord	Dave Bennett	012 562 9516	47 Graf Rd, Bon Accord Pretoria 0009	25°37'54.98"S, 28°12'28.02"E	62
National Asphalt (Pty) Ltd -Nelspruit	Dave Bennett	012 562 9516	Karino Farm Nelspruit	25°29'2.03"S, 31°5'15.47"E	13
National Asphalt (Pty) - Portland	Dave Bennett	012 562 9516	Visserhok Rd, Cape Town off N7 onto M48	33°46'11.92"S, 18°33'54.98"E	22
National Asphalt - Vanderbijl	Dave Bennett	012 562 9516	Farm Klein Rietspruit Corner Klasie Havenga and Frikkie Meyer Boulevard, Vanderbijlpark. Next to N1 at Potchefstoom / Van der Bijl Intersection	26°41' 48.64"S, 27°42' 31.98"E	13
National Asphalt - Laezonia	Dave Bennett	012 562 9516	Muldersdrift Road (R114), Portion 14, Doornrandjes, 386 JR Laezonia, 0026	Latitude: S 25° 55'10 3584" Longitude: E 28°0'25.9344"	11
Polokwane Surfacing	Hannes Els	083 677 8520	Portion 22 Palmietfontein 24 ks Polokwane 0700	23°58'25.03"S 29°27'28.05"E	15
Hillary Construction	Vos Botha	726136216	Plot no 5 Laporta Vase Kroonstad	27°41'40"s 27°14'43"E	1
Much Asphalt - Eersterivier	Francois van der Spuy	021 900 4400	3 Ryneveld Street	-34.002236, 18.739252	35
Much Asphalt - Contermanskloof	Brendon Masters	021 550 6920	Contermanskloof Road	-33.799142, 18.568073	36

Much Asphalt - Port Elizabeth	Nathan Jacobs	041 364 1116	Malabar Street, Linton Grange	-33°55'49.40"S, 25°33'16.68"E	17
Much Asphalt - Coedmore	Trevor Thompson	031 450 1400	200 Coedmore Road	-29.900862, 30.952859	24
Much Asphalt - Eikenhof	Chesney Glossop	087 997 1108	4333 Old Vereeniging Road Oliphants Eikenhof	-26.1728.5, 27.5919.5	20
Much Asphalt - Pietermaritzburg	Jasper van der Westhuizen	033 940 0381	New Greytown Road Pietermaritzburg	-29°3342.28S, 30°2544.80E	23
Much Asphalt - Empangeni	Sikhulele Maseko	035 792 8443	Heatonville Road	-28.743430, 31.880067	12
Much Asphalt - East London	Francois Meyerhof	043 745 2016	Mdantsane Access Road	32.9775°S, 27,8239°E	15
Much Asphalt - Benoni	Brian Neville	011 423 1004	Main Reef Road (R29)	-26.194674, 28.356803	26
Much Asphalt - Roodepoort	Greg van Wyk	087 997 1107	8 Houtkapper Street, Florida	-26.1810°S, 27.8973E	21
Much Asphalt - Witbank	Mthobise Shandu	087 997 1113	cnr Einstein & Newton Str, Ferrobank	-25.8480°S, 29.1645°E	16
Much Asphalt - Polokwane	William Nenjerama	087 997 1109	744, LS, Roodepoort Road	-23°58'8.89"S, 29°25'1.83"E	12
Much Asphalt - Bloemfontein	Andries Radebe	087 997 1110	Christo Groenewalt Street, Hillside	-29°3'54.60"S, 26°14'24.40"E	15

<b>CITY OF CAPE TOWN</b>				<b>X</b>	<b>Y</b>
Fish Hoek Depot	Duncan Daries	0214003210	Poplar Rd, Fish Hoek	-54295.153	-3777782.262
Mitchells Plain Depot	Duncan Daries	0214003210	Weltevreden Rd, Mitchells Pl	-37883.233	-3769798.073
Hout Bay Depot	Duncan Daries	0214003210	Cnr Victoria/Main Rd, Hout B	-59457.390	-3767119.125
Heideveld Depot	Duncan Daries	0214003210	Sentinel Rd, Heideveld	-41164.612	-3760222.594
Ndabeni Depot	Duncan Daries	0214003210	Oude Molen Rd, Ndabeni	-47234.945	-3756057.986
Ebenezer Depot	Duncan Daries	0214003210	Ebenezer Rd Depot, Foreshore	-53735.342	-3753970.878
Strand Complex	Duncan Daries	0214003210	Power Ave, Strand	-14122.366	-3776948.024
Maccassar Depot	Duncan Daries	0214003210	Albatros Ave, Macassar	-22211.034	-3770371.143
Khayelitsha Complex	Duncan Daries	0214003210	Govan Mbeki St, Khayelitsha	-29498.240	-3768952.955
Delft South Complex	Duncan Daries	0214003210	Hague Rd, Delft South	-32986.333	-3761398.688
Kuils River Complex	Duncan Daries	0214003210	Fabriek St, Kuilsriver	-29386.403	-3756716.246
Sacks Circle Depot	Duncan Daries	0214003210	Sacks Circle, Bellville	-32079.564	-3755966.888
Killarney Works Complex	Duncan Daries	0214003210	Koeberg Rd, Table View	-43809.404	-3745520.578
Kraaifontein Complex	Duncan Daries	0214003210	Eerstelaan, Kraaifontein	-25337.542	-3747679.700
Langeberg Complex	Duncan Daries	0214003210	Langeberg Rd, Durbanville	-31487.562	-3744598.838
Atlantis Complex	Duncan Daries	0214003210	Neil Hare Rd, Atlantis	-47749.149	-3718035.891
Hillstar Depot	Duncan Daries	0214003210	Bamboesvlei Rd, Ottery	-46033.417	-3764712.762
Melton Rose Complex	Duncan Daries	0214003210	Albert Philander St, Melton	-26408.012	-3761813.968