

MANUFACTURES SAFETY DATA SHEET

ASPHALT

Eurovia Roadstone
1 Western Extension
Chequers Lane, Dagenham
RM9 6QD

1. IDENTIFICATION OF THE SUBSTANCE

Bituminous road materials comprise of coated macadam, asphalts and other proprietary products. These can be supplied hot or cold for surfacing or resurfacing of public and private roads. This material is manufactured in accordance with BS EN 13108.

2. HAZARD IDENTIFICATION

Asphalt is not considered to be a dangerous material under the Dangerous Substances Directive 67/548/EEC and European Classification on Labelling EC 1272/2008. However, the main hazards presented by asphalt are due to the temperature of the material and these are outlined below.

- 1. Hot bitumen can burn.
- 2. In confined spaces, inhalation of high concentrations of vapour for prolonged periods can be dangerous. Bituminous fumes are unlikely to act as a health risk if they are inhaled in the open air.
- 3. Chemical burns can result from contact with bitumen and if exposed for long periods of time, warts can develop. Ignorance to personal hygiene can exacerbate this, leading to more serious skin conditions.
- 4. Polycyclic aromatic hydrocarbons within some colour pigmented products are classified as category 3 carcinogens as they can cause skin cancer.
- 5. Extended periods of exposure to Respirable Crystalline Silica* (quartz) can lead to respiratory problems such as silicosis, a lung disease caused by the inhalation of silica.

**References to respirable silica only apply if hardened asphalt is cut, drilled, milled or planed.*

3. COMPOSITION / INFORMATION ON INGREDIENTS

Asphalt is a mixture of aggregates, sand, filler, bitumen and additives.

- Bitumen is a hydrocarbon derived from the distillation of crude oil but it may be synthetic or modified using polymers and other chemicals such as cellulose fibres. The bitumen content of most mixes is typically less than 10%, acting to bind the rest of the ingredients together.

- Aggregates used in asphalt may be naturally occurring (e.g. limestone, granite, gritstone, sand etc), artificial (e.g. slag aggregates) or recycled (e.g. road planings, inert construction and demolition waste, glass etc).
- Fluxing oil, latex, pigments and none inert fillers (e.g. ash and other additives) may also be included in specific products.
- Recycled products may also be used for specified applications and thus unknown compounds may be introduced into the mix during the recovery process.

Hazardous Ingredient				
Substance Name	EC Number	%	DSD Classification	CLP Classification
Crystalline Silica*	238-878-4	Variable	Xn; R48/20	H372; STOT RE1

4. FIRST AID MEASURES

General Measures - If injury develops from contact with hot bituminous material you should: Rest, keep warm and obtain medical attention.

- **Inhalation:** Immediately move into fresh air. If breathing difficulties are experienced, seek medical attention. If breathing has stopped, begin artificial resuscitation and seek medical attention immediately.
- **Skin Contact:** Burns caused by contact with hot material should be cooled immediately with significant amounts of cold water and the material removed with vegetable oil under medical supervision. No attempt should be made to remove anything from the burn area (e.g. clothing that it is adhering to the skin) unless breathing is being impaired. Bitumen may be removed under medical supervision.
- **Eye Contact:** If material is hot, apply the same measures as above for 'skin contact'. If the material is cold, immediately and thoroughly wash out with eye wash solution or clean water for 10 minutes, seeking medical attention.
- **Ingestion:** Move into fresh air. If person is conscious, rinse out mouth and give water to drink. Seek medical advice and do not induce vomiting.

5. FIRE FIGHTING MEASURES

Water and CO₂ extinguishers are not suitable for fires ignited by live electrical equipment or flammable gasses, which can be the most common sources of fires.

- **Suitable Extinguishing Media:** Dry powder or foam extinguishers.
- **Unsuitable Extinguishing Media:** Do not use water or CO₂. These types of extinguishers are only suitable for lower classifications of fire, those of which are unlikely to be seen onsite.
- **Special Exposure Hazards in Fire:** Hydrocarbon fumes may be released, including other hazardous combustion products such as smoke.
- **Special Protective Equipment for Fire Fighters:** Full protective equipment including suitable respirators or breathing apparatus must be worn.

6. ACCIDENTAL RELEASE MEASURES

Bitumen may be removed from road making tools and machinery using a proprietary tar and bitumen remover, normally a hydrocarbon solvent. However, this method is not suitable for removal of bitumen from already macadamed surfaces. Reference should also be made to the supplier's safety data sheet prior to use to ensure adequate health, safety and environment protection measures are employed.

- **Personal Precautions:** Wear overalls, heat-resistant safety boots and gloves. Suitable respiratory protection should be worn in areas with poor ventilation. Personal protective equipment guidance is given in Section 8 and Section 7 provides guidance on handling the product.
- **Environmental Measures:** Entry into watercourses, drains and ditches should be avoided. Materials should be stored in a dry area free from potential chemical contamination or fire when situated near water systems.
- **Method of Cleaning:** Hot material spills should be quickly cleared using suitable mechanical methods before the material sets. Tools and machinery with a bitumen remover may be used to scrape up the bitumen, but the supplier's safety data sheet should be consulted before use.

7. HANDLING AND STORAGE

- **Handling:** The product should be handled in a way which minimises contact with the eyes and skin. Inhalation of fumes should be avoided as far as is possible. If this is not possible then the product should be handled so that fume concentration and exposure time is limited. If there is a risk that vapours may form, then steps should be taken to put additional ventilation in place. Handle away from sources of ignition and heat. Do not smoke, eat or drink during use.
- **Storage:** Hot asphalt is normally used upon receipt. Cold mixed or extended life materials should be stored in a secure, clean and dry area free from the risk of chemical contamination. Refer to the relevant Technical Data Sheet for the specific product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Measures should be taken to prevent the inhalation of vapours/fumes. This should be achieved by ensuring asphalt is only laid in well ventilated areas. The inhalation of dust produced from cutting, drilling, planing or surface treatment of hardened asphalt should be managed by filtration, extraction and suppression.

Exposure Control Limits / Source					
	a) asphalt Fumes	b) asphalt Fumes	Total Dust	Respirable Dust	Respirable Quartz – (Crystalline Silica* SiO ₂)
Workplace Exposure Limit (W.E.L.)	5mg/m ²	10mg/m ²	10mg/m ²	4mg/m ²	0.1mg/m ²
Time Weighted Average (T.W.A)	8hrs	15mins	8hrs	8hrs	8hrs



Respiratory Protection: Respirators should be worn if fumes are likely to be present in significant quantities to keep exposure below the Workplace Exposure Limits stated above. For respirator requirements, the Chemical Agents Directive advises the use of a particulate filter type P3 or equivalent and an inorganic type B or equivalent.



Skin Protection: Overalls or full length clothing should be worn to protect skin from burns and prevent bitumen permeating through to the skin. To protect against foot injuries, heat resistant safety boots are advised. Impervious gloves and overalls should be worn. Gloves should be removed and hands thoroughly washed before handling food or drink. Skin barrier cream can be used to reduce chances of sustaining skin burns.



Eye Protection: Goggles should be worn if there is a risk of product entering the eyes.

8. PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties will vary dependent on the material source, but generic asphalt properties are described in the displayed table.

Appearance	Black coated granular solid
Odour	Strong characteristic bitumen odour
pH	Not applicable
Boiling point/range	Not determined
Melting point/range	90-100°C
Flash point	>200°C
Flammability	Not determined
Auto Flammability	>230°C
Explosive properties	Not applicable
Oxidizing properties	Not determined
Vapour pressure	Not applicable
Relative density	Above 2.00
Water solubility	Insoluble
Fat solubility	Not determined

9. STABILITY AND REACTIVITY

Asphalt is typically stable at normal temperatures (less than 230°C) and under recommended storage conditions. Toxic fumes and dark smoke will be produced in the event of a fire.

- **Conditions to Avoid:** Sources of ignition and temperatures greater than 230°C can cause the bitumen binder to thermally decompose.
- **Materials to Avoid:** Strong mineral acids and oxidising agents i.e. chlorates which may be used in agriculture.
- **Hazardous Decomposition Products:** The conditions the bitumen binder is exposed to will largely determine the substances that are produced from its decomposition. However, the following substances may be produced: Hydrogen Sulphide, Carbon Dioxide, Carbon Monoxide, Water, Particulate Matter, Sulphur Oxides, Polycyclic Aromatic Hydrocarbons, Unburnt Hydrocarbons, Nitrogen Oxides and Vanadium Pentoxide.

11. TOXICOLOGICAL INFORMATION

As the IARC classify respirable crystalline silica as a Group 1 carcinogen, long term exposure may cause cancer and prolonged periods of inhalation may lead to silicosis in the lungs.

- **Inhalation:** Respiratory system damage may be inflicted due to inhaling respirable aggregate dust from cutting or planing hardened asphalt. Inhaling asphalt fumes over a prolonged period may cause irritation of the respiratory system.
Bitumen used in asphalt may release small amounts of hydrogen sulphide gas. With good general ventilation, this is not likely to cause any problems. However, with poorly ventilated enclosed spaces, concentrations may build up to hazardous levels.
- **Skin Contact:** Burns may result from contact with hot asphalt. Prolonged contact of asphalt with the skin may cause dermatitis and malignant warts.
- **Eye Contact:** Long term contact with eyes may cause irritation and damage to the eyes.

12. ECOLOGICAL INFORMATION

The bitumen binder can pose a low environmental hazard. In order to prevent this, material should be prevented from entering and blocking watercourses. Where used and disposed of as intended, no adverse environmental effects are foreseen meaning asphalt should not pose an ecological hazard.

- **Mobility:** The hardened bituminous product will sink in water and form a solid layer on the surface of the ground, demonstrating its immobility.
- **Persistence and Degradability:** Hardened bituminous materials are resistant to degradation and will persist in the environment.
- **Ecotoxicity:** The product is not expected to be toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Hardened asphalt can be readily recycled and effort should be made to reuse the product. Failing this, hardened bituminous material is classified as inert waste and can be disposed of as normal industrial waste in accordance with waste regulations explained below.

- **Handling of any residues/waste products:** If asphalt is to be disposed via landfill, reference should be made to the relevant waste management legislation including the requirements of the Hazardous Waste Regulations and the associated Waste Acceptance Criteria. This should ensure the product is disposed of in accordance with local and national legal requirements.

14. TRANSPORT INFORMATION

Bituminous products are not classified as dangerous for transport. It is recommended that loads are kept secure and covered prior to use.

15. REGULATORY INFORMATION

Classification: Consideration of the following risk and safety phrases is recommended despite the material being classified as not dangerous:

-67/548/EEC:

Risk Phrases: R34 – May cause burns;
R36/37 – Irritation to eyes and respiratory system.

Safety Phrases: S36/37/39 – Wear suitable protective equipment; S51 – Use in well ventilated areas.

-EC1272/2008:

Hazard Statements:

H317 – May cause skin irritation.

H335 – May cause respiratory irritation.

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

Precautionary Statements:

P261 – Avoid breathing dust/fume/vapours.

P271 – Use only outdoors or in a well ventilated area.

P281 – Use personal protective equipment as required (see section 8).

16. OTHER INFORMATION

Training and Advice – Wear and use appropriate PPE

Recommended restrictions on use – Use in accordance with manufacturer's technical instructions.

Further information – Contact the Eurovia Health & Safety Team / Contact Product Technical Support at Eurovia using the details given at the top of page 1.

Key data used to compile data sheet:

>Classification, Labelling and Packaging of Substances and Mixtures Regulations (CLP) EC1272/2008*

>EH40/2005 Workplace Exposure Limits (as amended)

>HSE Crystalline Silica EH59*

>HSE Guidance Note EH40/2007

>PPE Regulations 1992

>COSHH Regulations 2002

>Environmental Protection Act 1990

>Dangerous Substances Directive (DSD) 67/548/EEC

Legal Advice

The information in this Safety Data Sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. This information herein represents the best information currently available at the time of issue. However, no warranty is expressed or implied with respect to the accuracy of such information and its use.

This safety information sheet does not constitute the user's own assessment of workplace risk, and it is the user's sole responsibility to take all necessary precautions when using this product. Because of this, users should make their own investigations to determine the suitability of the information for their purposes and against all applicable legislation.