

**AIA  
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ASSOCIATION INTERNATIONALE DE L'ASPHALTE AIA  
INTERNATIONAL MASTIC ASPHALT ASSOCIATION IMAA  
INTERNATIONALE GUSSASPHALT-VEREINIGUNG IGV  
SEILERSTR. 22 BOX 5853 CH 3001 BERN  
PHONE +41 (0)31 310 20 32 FAX +41 (0)31 310 20 35  
INFO@MASTIC-ASPHALT.EU WWW.MASTIC-ASPHALT.EU

**INFORMATION AND RECOMMENDATIONS FOR:  
MATERIAL SAFETY DATA SHEET  
MASTIC ASPHALT (MA)**

***Final version IMAA HSE Group January 2013***

**ACKNOWLEDGEMENT**

The International Mastic Asphalt Association (IMAA) is grateful to the members of the working group Health and Safety (HSE) in producing this document:

Julien Buisson	OA	FR
Jürg Depierraz	IMAA	CH
Peter Rode	BGA	DE
Paul Steenmans	OBAC	BE
Hans Veerman	NGO	NL

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**IMPORTANT ADVICES TO READERS OF THIS DOCUMENT**

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION AND RECOMMENDATIONS TO ENSURE THE SAFE STORAGE, HANDLING AND USE OF THIS PRODUCT. THE INFORMATION SHOULD BE BROUGHT TO THE ATTENTION OF THE PERSON IN YOUR ORGANISATION RESPONSIBLE FOR ADVISING ON SAFETY MATTERS.

**The International Mastic Asphalt Association IMAA provides with the document in hand information and recommendations for the creation of voluntary MSDS for mastic asphalt although the mastic asphalt industry has no obligation to establish MSDS (mastic asphalt is not a substance and is not under REACH regulation).**

**These recommendations apply to all mastic asphalt products. They are intended to assist suppliers in the preparation and maintenance of safety data sheets for mastic asphalt applications. There is no obligation upon suppliers either to use the format or to include any or all of the information provided herein. Suppliers are responsible for ensuring that their safety sheets comply with the applicable national and international requirements.**

*Considerable efforts have been made to ensure the accuracy and reliability of the information contained in this publication. However, neither IMAA nor any company participating in IMAA or any national association can accept liability for any loss, damage or injury whatsoever resulting from the use of this information.*

**1. Identification of the substance / Preparation and company**

(to be completed for every mastic asphalt type)

Product name: mastic asphalt (MA)

Product type: ..... to be completed by the producer / supplier

Main uses: ..... to be completed by the producer / supplier

**PRODUCER / SUPPLIER:**

Name &amp; Address: .....

Telephone: .....

Fax: .....

E-Mail: ..... Emergency telephone number:

.....

**2. Composition / Information on ingredients**

Mastic asphalt is a voidless asphalt consisting of mineral aggregates, fillers or natural rock asphalt powder and bitumen either natural or refined (except oxidised bitumen with the CAS number 64742-93-4 with a PI > 2.0) and additives for some special applications. The mineral aggregate in the mixture is graded to be of a low void content. The binder content is so adjusted to the void content in the mineral aggregate that voids are completely filled. Mastic asphalt is pourable when hot and requires no compaction.

EINECS/CAS number for components: Check with supplier for correct EINECS/CAS number and also for correct PI (only mandatory for hazardous substances).

..... to be completed by manufacturer

..... to be completed by manufacturer

There are no EINECS and CAS numbers for mastic asphalt, because mastic asphalt is a preparation.

The CAS system of reference is American in origin.

*Depending on the additives supplier should insert relevant information.*

**3. Hazards Identification****Human Health hazards**

Mastic asphalt is handled at elevated temperature, which may cause severe thermal burns.

In the heated state mastic asphalts gives off fumes. Other than irritation of the respiratory system, these fumes are not thought to produce a significant health hazard. Prudence would dictate that exposure to these fumes should be kept to a minimum by observing good work practice and ensuring good ventilation around work areas (taking into consideration the IARC classification ref. 2011/HSE Committee/035).

### **Physical and Chemical hazards**

If mastic asphalt is over-heated (over the recommended handling temperatures) combustible fumes may be formed resulting in a fire or explosion hazard.

### **Specific hazards**

Mastic Asphalts are not classified as dangerous preparations under European Community criteria (see the references Dangerous Substances Directive and Dangerous Preparations Directive).

### **Environmental hazards**

There are no environmental hazards.

## **4. First-Aid Measures**

### **Inhalation**

If inhalation of mists, fumes or vapour causes irritation to the nose or throat, or coughing remove to fresh air. If symptoms persist obtain medical advice.

### **Eyes**

Hot mastic asphalt splashed into the eye should be cooled immediately by irrigating with cold running water for 10 to 15 minutes. In the event of any product remaining try to remove only by continuing irrigation with water. Obtain immediate medical attention.

Cold (solid) product: Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.

### **Skin**

Do not try to remove the hot mastic asphalt from the skin. Cool off immediately with cold water for at least 20 minutes. However, body hypothermia must be avoided. Do not try to remove the solidified mastic asphalt from the skin. The patient should be referred urgently for specialist medical assessment and treatment.

All burns should receive medical attention. Where a limb is encased, care should be taken to avoid the development of a tourniquet effect.

Treatment should in general be symptomatic and directed towards relieving any effects. If for any reason the mastic asphalt must be removed, this can be done using slightly warmed medicinal liquid paraffin.

## **5. Fire-Fighting Measures**

### **Extinguishing media**

Attempt to extinguish fire by using dry chemical powder, foam, inert gas, sand or water spray (fog).

Call the fire brigade.

Water jets must never be used.

### Specific hazards

Respiratory problems or nausea by excessive exposure to mastic asphalt fumes caused by fire.

Burning mastic asphalt gives rise to a complex mixture of gases and airborne particles including carbon monoxide and sulphur oxides.

### Fire fighter Protection

Proper equipment (gloves, shoes, goggles and/or self-contained breathing apparatus).

## 6. Accidental Release Measures

### Personal precautions

Hot mastic asphalt should be handled in such a way as to avoid risk of burns.

### Environmental precautions

Prevent spillage of hot mastic asphalt into drains in order to avoid blockage.

### Clean-up methods

#### **Small spill:**

Allow to cool and solidify. Remove mechanically into containers for disposal or reclamation in accordance with local regulations.

#### **Large spill:**

Prevent from spreading by making a trench or barrier with sand, earth or other material. Otherwise treat as for small spillage.

## 7. Handling, storage and transport

Temperatures should be kept as low as possible to minimise **fumes (depending on local working conditions)**.

When mastic asphalt is supplied in block form on pallets, it should be noted that the pallets and strapping are not sufficient for safe crane handling. Special purpose lifting tackle and caging are required in accordance with current safety regulations. Blocks should be transported in high-sided vehicles or netted. When removing the tensioned strapping from pallets eye protection should be worn. Similar protection should be worn when breaking blocks with a hammer prior to melting.

Pallets of mastic asphalt blocks should be placed on a solid, even base. Double stacking of pallets is not recommended. Some deformation of roofing, paving and tanking grade blocks may occur at high ambient temperatures.

## 8. Exposure Controls and Personal Protection

### Exposure Controls

Hot mastic asphalt can give off fumes. Exposure to these fumes should be minimised by the use of good working practice and the control of temperature.

### Exposure Limit Values

The producer/supplier should insert national or local regulations. In the absence of such regulation the following controls are recommended:

- Bitumen fumes: 0.5 mg/m<sup>3</sup> Benzene Extractable Inhalable Particulate [ACGIH] or 5 mg/m<sup>3</sup> Total Particulate Matter [NIOSH].

Monitoring procedure for bitumen fumes can be found on the following web sites:

- <http://www.acgih.org/>
- <https://osha.europa.eu/en/topics/ds/oel/index.stm>

### Personal protection

Where hot mastic asphalt is handled in confined spaces, effective local ventilation and/or suitable personal protection must be provided.

Protective clothing should be worn, including gloves, safety boots and coveralls.

Coveralls should be cleaned as necessary to avoid permeation of the product to under clothing.

Good personal hygiene in respect of hands and underwear should always be maintained in the course of work.

Individual respiration protection is normally not required under ordinary conditions of use and with adequate ventilation.

## 9. Physical and Chemical Properties

### Appearance

Physical State: Solid at ambient temperature; viscous material at normal handling temperatures

### Odour

Typical odour only during application, none at solid state.

### Oxidising Properties

Not relevant.

### pH

Not relevant.

### Evaporation rate

Not relevant.

### Specific Temperature of change of physical state

Mastic asphalt is a thermoplastic material.

### Distillation characteristics

Not relevant.

### Flash Point

Above 300 °C (EN 22592 / EN 22719).

**Vapour pressure**

Negligible at ambient temperature.

**Vapour density**

> 1 relative to air.

**Density**

2.0 - 2.5 t/m<sup>3</sup> at 25 °C depending upon type. 2.0 – 2.5 t/m<sup>3</sup> in molten state

**Solubility**

Water: Insoluble, non-miscible.

Organic solvents: Partly soluble in many organic solvents.

Fats: Partly soluble.

**Explosive properties**

Not relevant.

**Viscosity**

Depends on temperature.

**Other data**

Electrical conductivity: Insulating.

Hygroscopicity: Not hygroscopic.

**10. Stability and Reactivity****Stability**

Stable under normal storage and handling conditions.

**Conditions to avoid**

Excessive heating above the maximum recommended handling and storage temperatures will cause degradation and evolution of flammable vapours.

**Material to avoid**

Do not allow molten product to contact water or other liquid.

Avoid contact of molten product with strong oxidising agents.

**Hazardous decomposition products**

Oxides of carbon and sulphur.

**11. Toxicological Information****Acute toxicity**

Mastic asphalt presents no acute health hazard to skin or eyes other than burning when handled at normal handling temperatures.

### Chronic toxicity

Mastic asphalt presents no chronic hazards at ambient temperature.

Under normal conditions of application skin contact with mastic asphalt is expected to be limited by the high temperatures needed to work the material. The safety hazard, therefore, normally limits any chronic skin hazard.

Mastic asphalt is not classified as dangerous under EC criteria.

### Inhalation

At ambient temperature there are no fumes. At elevated temperatures, fumes will be given off. Long term exposure will cause irritation to the respiratory system. The concentration of emitted vapours must be kept below the occupational exposure standards. Fumes contain polycyclic aromatic hydrocarbons but these are of high molecular weight and boiling point and are more complex ring systems than those considered to be potential carcinogenic hazards (see IARC Monograph conclusions ref. 2011/HSE Committee/035).

*Depending on any other additives (supplier should insert relevant information).*

### Sensitisation and irritation

Mastic asphalt is not known to be a skin sensitiser, although condensed mastic asphalt fumes are likely to be slightly irritant to the skin. Vapours from hot mastic asphalt may be slightly irritant to the eyes and the upper respiratory tract.

## 12. Ecological Information

### Eco-toxicity

The product is not environmentally toxic. It is not dangerous to plant and aquatic environments.

### Mobility

Ground: according to its physical properties, mastic asphalt is not mobile and will remain at the site of release.

Water: insoluble Persistence and degradability

Mastic asphalt is not biodegradable.

### Other adverse effects

Mastic Asphalt is not thought to present any significant environmental hazard. If hot mastic asphalt is spilled on to soil or water it quickly cools and becomes solid and on-ly a physical fouling hazard then exists.

## 13. Disposal Considerations

### Waste from residues

Methods for safe disposal.

- Recycling is recommended in conformance with European Waste Directives.
- Not classified as a hazardous waste according to the European Waste Catalogue.
- Dispose in conformance with national and local regulations.



#### 14. Transport Information

Not classified as hazardous for road transport at temperature  $\leq 240$  °C. (according ADR).

#### 15. Regulatory Information

Not classified as long as the components are not classified.

*Also mention, where possible, the national laws, which implement these provisions and any other national measures that may be relevant.*

#### 16. Other Information

The advice given in this safety data sheet reflects current knowledge of the hazards and risks associated with the handling of mastic asphalt.

Suppliers are responsible for ensuring that their safety sheets comply with the applicable national and international requirements.

Legislation and other sources, which have been used in the compilation of this Safety Data Sheet, include:

- IARC: Occupational Exposures to Bitumens and their Emissions, ref. 2011/HSE Committee/035
- Institute of Petroleum - Bitumen Safety Code - Part 11 of Model Code of Safe practice
- European Inventory of Existing Chemical Substances (EINECS)
- Chemical Abstracts Service (CAS)
- European Agreement Concerning the international carriage of Dangerous Goods by Road (ADR)
- International Maritime Dangerous Goods code (IMDG)
- Bitumen Burns Card – Notes for Guidance of First Aid and Medical Personnel [<http://www.eurobitume.org>]
- Waste Directive
- Dangerous Substances Directive
- Dangerous Preparations Directive

For further information contact: *(to be completed by each company/supplier)*

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.....  
.....

The information contained in this data sheet does not constitute an assessment of workplace risk as required by current European and local legislation. Whilst every care is taken to see that the information is correct and up to date, it is not intended to form part of any contract or give rise to any collateral liability, which is hereby specifically excluded.

Berne, January 2013 IMAA

## Appendix 1

**Important Abbreviations**

<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists
<b>AGS</b>	Committee on Hazardous Substances
<b>BWA (former IWA)</b>	Bitumen Waterproofing Association
<b>DAV</b>	German Asphalt Association
<b>DECOS</b>	Dutch Health and Safety Committee
<b>DFG</b>	German Research Organisation
<b>DKG</b>	German Research Organisation on cancer
<b>EAPA</b>	European Asphalt Pavement Association
<b>FGSV</b>	Agency for Research on roads and transportation
<b>HSE</b>	Health and Safety Executive (GB)
<b>IARC</b>	International Agency for Research on Cancer
<b>IMAA</b>	International Mastic Asphalt Association
<b>MAK</b>	Maximum allowed concentration on workplace
<b>MSDS</b>	Material Safety Data Sheet
<b>NIOSH</b>	National Institute of Occupational Safety and Health
<b>OSHA</b>	Occupational Safety and Health Agency
<b>PI</b>	Penetration Index