# eni ELIFLEX AM

Safety Data Sheet
According to Regulation (EC) No. 453/2010

**Revision date:** **13/02/2015** **Version: 6.00**

**Supersedes:** **02/12/2003**

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

| | | |
|---|---|---|
| Product form | : | Mixture |
| Trade name | : | eni ELIFLEX AM |
| EC index no | : | N/A |
| EC no | : | N/A |
| CAS No | : | N/A |
| REACH registration No | : | N/A |
| Product code | : | 21430 |
| Formula | : | N/A |
| Product group | : | Trade product |

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

| | | |
|---|---|---|
| Main use category | : | Industrial use,Professional use |
| Industrial/Professional use spec | : | Wide dispersive use |
| Use of the substance/mixture | : | Rubber production and processing (19)<br>Binder and release agent<br>Insulating agents<br>Polymer processing<br>----<br>Do not use the product for any purposes that have not been advised by the manufacturer. In that case, the user could be exposed to unpredictable risks. |
| Function or use category | : | Adhesives, binding agents, Construction materials additives, Impregnation agents, Insulating agents |

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

ENI S.p.A.
P.le E. Mattei 1 - 00144 ROMA Italy
Tel (+39) 06 59821
www.eni.com

Contact:
Downstream & Industrial Operations
Via Laurentina 449 00142 ROMA Italy
Tel (+39) 06 59881 Fax (+39) 06 59885700

Competent person responsible for the Safety Data Sheet (Reg. EC nr. 1907/2006): SDSInfo@eni.com

### 1.4. Emergency telephone number

Emergency number : CNIT +39 0382 24444 (24h) (IT + EN)

Poison centre (UK):
National Poisons Information Service Edinburgh (24h)
(+44) 844 892 0111
0870 600 6266 (UK only)
(Source: UN-WHO)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification according to Regulation (EC) No. 1272/2008 [EU-GHS / CLP]**

Not classified

**Adverse physicochemical, human health and environmental effects**

None to be reported, according to the present EU regulations.

### 2.2. Label elements

**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

*According to EU criteria, there are no labelling obligations for this product.*

**Other:**

General advice : "Use suitable gloves when handling product. Dispose of used/leftover product and package properly. Protect the environment."

### 2.3. Other hazards (not relevant for classification)

| | |
|---|---|
| Physical/chemical | : This product is combustible, but not classified as Flammable. The creation of flammable vapour mixtures takes place at temperatures which are higher than normal ambient levels. |
| Health | : If the product is handled or used at high temperature, contact with hot product or vapours may cause burns.,Heated bitumen will give off fumes.,Inhalation of fumes or vapours may cause respiratory irritation |
| Environment | : None. |
| Contaminants | : A potential risks may arise from the release of hydrogen sulfide, when the product is stored at high temperature. Hydrogen sulfide may accumulate in the tanks or other confined spaces, with danger to the workers that enter the spaces. In these cases overexposure to hydrogen sulfide may cause irritation to airways, nausea, dizziness, loss of consciousness and death.,Hydrogen sulphide may accumulate in the head space of storage tanks containing bitumen and can reach potentially hazardous concentrations. |

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.

This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixture

Composition/information on ingredients : Bitumen
Organic polymer (styrene-based)

Hazardous ingredients and/or with relevant occupational exposure limits : The substances identified as "air contaminants" are substances that are not ingredients or constituents, but can be released in special circumstances from the product. Their potential presence may be relevant for health (i.e. OEL), or other reasons.

| Name | Product identifier | % | Classification according to Directive 67/548/EEC |
|---|---|---|---|
| Asphalt [bitumen]<br>(Component) | (CAS No) 8052-42-4<br>(EC no) 232-490-9<br>(EC index no) N/A<br>(REACH-no) 01-2119480172-44 | 90 - 99 | Not classified |
| Hydrogen sulphide<br>(Air contaminant) | (CAS No) 7783-06-4<br>(EC no) 231-977-3<br>(EC index no) 016-001-00-4 | < 0,1 | F+; R12<br>T+; R26<br>N; R50 |

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [EU-GHS / CLP] |
|---|---|---|---|
| Asphalt [bitumen]<br>(Component) | (CAS No) 8052-42-4<br>(EC no) 232-490-9<br>(EC index no) N/A<br>(REACH-no) 01-2119480172-44 | 90 - 99 | Not classified |
| Hydrogen sulphide<br>(Air contaminant) | (CAS No) 7783-06-4<br>(EC no) 231-977-3<br>(EC index no) 016-001-00-4 | < 0,1 | Flam. Gas 1, H220<br>Press. Gas<br>Acute Tox. 2 (Inhalation), H330<br>Aquatic Acute 1, H400 |

Full text of R-, H- and EUH-phrases: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Seek medical attention in all cases of serious burns.

First-aid measures after inhalation : In case of disturbances owing to inhalation of vapours or mists, remove the victim from exposure; keep at rest; if necessary, seek medical attention. If casualty is unconscious and not breathing: ensure that there is no obstruction to breathing and give artificial respiration by trained personnel. If necessary, give external cardiac massage and obtain medical advice. If the casualty is breathing: Place in the recovery position. Administer oxygen if necessary. If there is any suspicion of inhalation of H2S (hydrogen sulphide), Rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures. Send patient to hospital. Immediately begin artificial respiration if breathing has ceased. Administer oxygen if necessary. Monitor breathing and pulse rate.

| | | |
|---|---|---|
| First-aid measures after skin contact | : | In case of contact with hot product, cool affected part with plenty of cold water, and cover with gauze or clean cloth. Call a doctor or bring to an hospital. Do not use salves or ointments, unless directed by doctor. Body hypothermia must be avoided. Do not put ice on the burn. DO NOT attempt to remove portions of clothing glued to burnt skin but cut round them. After cooling, do not attempt to remove the layer of bitumen adhering to the skin, as it is a sterile protection of the burn. The layer will fall off spontaneously from the skin after healing.<br>If necessary, the bitumen can be softened and removed with swabs soaked in vegetable oil or white mineral oil. Never use gasoline, kerosene or other solvents for washing of contaminated skin. In the case of a circumferential burn with adhesion of the bitumen, the adhering material should be split to prevent a tourniquet effect as it cools. |
| First-aid measures after eye contact | : | Rinse eyes thoroughly for at least 15 minutes. Keep eyelids well apart. If dust particles remain in the eye, do not rub the eye as mechanical abrasion due to the dust may damage the cornea. In case of eye contact with hot product, flood with water to dissipate heat. Immediately obtain specialist medical assessment and treatment for the casualty. |
| First-aid measures after ingestion | : | Not considered a likely route of exposure. Rinse mouth with water (only if the person is conscious). Do not give anything by mouth to an unconscious person. In case of spontaneous vomiting, keep head low, to avoid the risk of aspiration into the lungs. |

### 4.2. Most important symptoms and effects, both acute and delayed

| | | |
|---|---|---|
| Symptoms / injuries (general indications) | : | Contact with hot product or vapours may cause burns. |
| Symptoms/injuries after inhalation | : | None under normal conditions at ambient temperatures. Inhalation of fumes or oil mists produced at high temperatures may cause irritation of the respiratory tract. |
| Symptoms/injuries after skin contact | : | None under normal conditions at ambient temperatures. Contact with hot product may cause severe thermal burns. |
| Symptoms/injuries after eye contact | : | May cause slight irritation. Contact with hot product or vapours may cause burns. |
| Symptoms/injuries after ingestion | : | Few or no symptoms expected. |
| Symptoms/injuries upon intravenous administration | : | No information available. |
| Chronic symptoms | : | None to be reported, according to our present knowledge. |

### 4.3. Indication of any immediate medical attention and special treatment needed

Seek medical attention in all cases of serious burns.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | | |
|---|---|---|
| Suitable extinguishing media | : | Small-size fires: carbon dioxide, dry chemicals, foam, sand or earth. Large fires: foam or water fog (mist). These means should be used by trained personnel only. Other extinguishing gases (according to regulations). |
| Unsuitable extinguishing media | : | Do not use water jets. They could cause splattering, and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. |

### 5.2. Special hazards arising from the substance or mixture

| | | |
|---|---|---|
| Fire hazard | : | This product is combustible, but not classified as Flammable. The creation of flammable vapour mixtures takes place at temperatures which are higher than normal ambient levels. |
| Explosion hazard | : | In case of losses from pressurized circuits, the sprays may form mists. Take into account that in this case the lower explosion limit for mists is about 45 g/m³ of air. |

| | |
|---|---|
| Combustion products | : Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, NOx, H2S and SOx (harmful/toxic gases).,Oxygenated compounds (aldehydes, etc.) |

### 5.3. Advice for firefighters

| | |
|---|---|
| Precautionary measures fire | : Contact of hot product with water will result in a violent expansion as the water turns to steam. This may cause splashing of hot product, or damage to, or complete loss of the tank roof. |
| Firefighting instructions | : Shut off source of product, if possible. If possible, move containers and drums away from danger area. Spilled product which is not burning should be covered with sand or foam. Use water sprays to cool containers and surfaces exposed to the flames. If the fire cannot be controlled, evacuate area. |
| Special protective equipment for firefighters | : Personal protection equipment for firefighters (see also sect. 8). In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| Other information | : In case of fire, do not discharge residual product, waste materials and runoff water: collect separately and use a proper treatment. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| General measures | : Stop or contain leak at the source, if safe to do so. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares). Avoid direct contact with released material. Keep upwind. In case of large spillages, alert occupants in downwind areas. |

#### 6.1.1. For non-emergency personnel

| | |
|---|---|
| Protective equipment | : See Section 8. |
| Emergency procedures | : Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. In case of large spillages, alert occupants in downwind areas. In those cases when the presence of dangerous amounts of H2S in the leaked/spilled product is suspected or proved, additional or special actions may be warranted, including access restrictions, use of special protection equipment, procedures and personnel training. |

#### 6.1.2. For emergency responders

| | |
|---|---|
| Protective equipment | : Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and antistatic material. if necessary heat resistant and insulated. Work gloves (preferably gauntlets) providing adequate chemical resistance. Gloves made of PVA are not water-resistant, and are not suitable for emergency use. If contact with hot product is possible or anticipated, gloves should be heat-resistant and thermally insulated. Antistatic non-skid safety shoes or boots, chemical resistant, if necessary heat resistant and insulated. Work helmet. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection: A half or full-face respirator with filter(s) for organic vapours (and when applicable for H2S). A Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used. |
| Emergency procedures | : Notify local authorities according to relevant regulations. |

## 6.2. Environmental precautions

Prevent product from entering sewers, rivers or other bodies of water. Solidified product may clog drains and sewers.

## 6.3. Methods and material for containment and cleaning up

For containment : Leaks and spillages will consist of molten hot material with risk of severe burns. Protect drains from spills and prevent entry of molten material, since this may result in blockage on cooling. Soil. If necessary dike the product with dry earth, sand or similar non-combustible materials. Let hot product cool down naturally. If necessary, cautiously use water fog to help the cooling. Do not play direct jets of foam or water on the spilled molten product, as this may cause splattering. When inside buildings or confined spaces, ensure adequate ventilation. Collect solidified product with suitable means . (e.g. shovels). Collect recovered product and other materials in suitable tanks or containers for recovery or safe disposal. Dispose of in accordance with relevant local regulations. Water: molten product will cool down rapidly and become solid. Product which is denser than water will sink to the bottom, and usually no intervention will be feasible. If possible, collect the product and contaminated materials with mechanical means, and store/dispose of according to relevant regulations. Do not use solvents or dispersants, unless specifically advised by an expert, and, if required, approved by local authorities.

Other information : Recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken. Concentration of H2S in tank/container headspaces may reach hazardous values, especially in case of prolonged storage. This situation is especially relevant for those operations which involve direct exposure to the vapours in the interior. Spillages of limited amounts of product, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which will presumably limit the exposure to dangerous concentrations. As H2S has a density greater than ambient air, a possible exception may regard the build-up of dangerous concentrations in specific spots, like trenches, depressions or confined spaces. In all these circumstances, however, the correct actions should be assessed on a case-by-case basis. See also Section 16, "Other information".

## 6.4. Reference to other sections

See Section 8. See also Section 16, "Other information".

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

| | | |
|---|---|---|
| Precautions for safe handling | : | Ensure that all relevant regulations regarding handling and storage facilities of flammable products are followed. Avoid contact of hot product with water. Risk of splashing of hot material. During transfer and mixing operations, ensure that all equipment is correctly grounded. Avoid the build-up of electric charges. Do not breathe fumes from hot product. Use adequate personal protective equipment as needed. Do not use compressed air for filling, discharging, or handling operations. Keep away from heat/sparks/open flames/hot surfaces. Do not smoke. Do not use electrical equipment (mobile phones etc.) not approved for use, according to the risk rating of the area. Use and store only outdoors or in a well-ventilated area. Avoid release to the environment. The product may release Hydrogen Sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances. Before entering storage tanks and commencing any operation in a confined area (e.g. tunnels), carry out an adequate clean-up, and check the atmosphere for oxygen content, flammability, and the presence of sulphur compounds. See also Section 16, "Other information". |
| Handling temperature | : | 140 - 150 °C If direct heat is applied to improve material flow, use care to avoid localized overheating and possible product degradation and container overpressure. |
| Hygiene measures | : | Ensure that proper housekeeping measures are in place. Contaminated materials should not be allowed to accumulate in the workplaces and should never be kept inside the pockets. Avoid contact with skin. Do not breathe fume/ mist/ vapours. Do not eat and do not drink during use. Do not smoke. Keep away from food and beverages. Wash the hands thoroughly after handling. Do not clean hands with dirty or oil-soaked rags. Do not re-use clothes, if they are still contaminated. |

### 7.2. Conditions for safe storage, including any incompatibilities

| | | |
|---|---|---|
| Storage conditions | : | Store in dry, well ventilated area. Keep away from open flames, hot surfaces and sources of ignition. Do not smoke. |
| Incompatible products | : | Keep away from: strong oxidants. |
| Storage temperature | : | 160 - 170 °C Excessive heating above the maximum recommended handling and storage temperature may cause degradation of the substance and evolution of irritant vapours and fumes |
| Storage area | : | Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Storage installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations. Before entering storage tanks and commencing any operation in a confined area (e.g. tunnels), carry out an adequate clean-up, and check the atmosphere for oxygen content, flammability, and the presence of sulphur compounds. |
| Packages and containers: | : | If the product is supplied in containers: Keep only in the original container or in a suitable container for this kind of product. Hot product must never be filled into containers without first checking that the container is completely dry. Keep containers tightly closed and properly labelled. Store in a well-ventilated place. Empty containers may contain combustible product residues. Do not weld, solder, drill, cut or incinerate empty containers, unless they have been properly cleaned. |

Packaging materials : For containers, or container linings use materials specifically approved for use with this product. Recommended materials for containers, or container linings use mild steel, stainless steel. Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

### 7.3. Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| | | |
|---|---|---|
| **Asphalt [bitumen] (8052-42-4)** | | |
| Belgium | Limit value (mg/m³) | 5 mg/m³ Asphalt [bitumen] fume |
| Italy - Portugal - USA ACGIH | ACGIH TLV®-TWA (mg/m³) | 0,5 mg/m³ Asphalt [bitumen] fume (benzene-soluble aerosol fraction) |
| USA NIOSH | NIOSH REL (STEL) (mg/m³) | 0,5 mg/m³ Asphalt [bitumen] fume (benzene-soluble aerosol fraction) |
| Spain | VLA-ED (mg/m³) | 0,5 mg/m³ Asphalt [bitumen] fume (benzene-soluble aerosol fraction) |
| Switzerland | VME (mg/m³) | 10 mg/m³ Asphalt [bitumen] fume (benzene-soluble aerosol fraction) |
| Denmark | Grænseværdi (langvarig) (mg/m³) | 1 mg/m³ Asphalt [bitumen] fume |
| Denmark | Grænseværdi (kortvarig) (mg/m³) | 2 mg/m³ Asphalt [bitumen] fume |
| Poland | NDS (mg/m³) | 5 mg/m³ Asphalt [bitumen] fume |
| Poland | NDSP (mg/m³) | 10 mg/m³ Asphalt [bitumen] fume |
| **Hydrogen sulphide (7783-06-4)** | | |
| EU | IOELV TWA (ppm) | 5 ppm (air contaminants) (Dir 2009/161/CE) |
| EU | IOELV STEL (ppm) | 10 ppm (air contaminants) (Dir 2009/161/CE) |
| Austria | MAK (ppm) | 10 ppm (air contaminants) |
| Austria | MAK Short time value (ppm) | 10 ppm (air contaminants) |
| Belgium | Limit value (ppm) | 10 ppm (air contaminants) |
| Belgium | Short time value (ppm) | 15 ppm (air contaminants) |
| France | VLE (ppm) | 5 ppm (air contaminants) |
| France | VME (ppm) | 10 ppm (air contaminants) |
| Germany | TRGS 900 Occupational exposure limit value (ppm) | 5 ppm (air contaminants) |
| Germany | TRGS 900 Limitation of exposure peaks (ppm) | 10 ppm (air contaminants) |
| Italy - Portugal - USA ACGIH | ACGIH TLV®-TWA (ppm) | 1 ppm (air contaminants) |
| Italy - Portugal - USA ACGIH | ACGIH TLV®-STEL (ppm) | 5 ppm (air contaminants) |
| Italy | OEL TWA (ppm) | 5 ppm (air contaminants) |
| Italy | OEL STEL (ppm) | 10 ppm (air contaminants) |
| USA NIOSH | NIOSH REL (STEL) (mg/m³) | 10 mg/m³ (air contaminants) |
| USA OSHA | OSHA PEL (STEL) (mg/m³) | 20 mg/m³ (air contaminants) |
| Spain | VLA-ED (ppm) | 1 ppm (air contaminants) |
| Spain | VLA-EC (ppm) | 5 ppm (air contaminants) |

| **Asphalt [bitumen] (8052-42-4)** | | |
|---|---|---|
| Switzerland | VLE (ppm) | 10 ppm (air contaminants) |
| Switzerland | VME (ppm) | 5 ppm (air contaminants) |
| The Netherlands | MAC TGG 8h (mg/m³) | 2,3 mg/m³ (air contaminants) |
| United Kingdom | WEL TWA (ppm) | 5 ppm (air contaminants) |
| United Kingdom | WEL STEL (ppm) | 10 ppm (air contaminants) |
| Denmark | Grænseværdi (langvarig) (ppm) | 10 ppm (air contaminants) |
| Denmark | Grænseværdi (kortvarig) (ppm) | 20 ppm (air contaminants) |
| Hungary | CK-érték | 14 mg/m³ (air contaminants) |
| Hungary | MK-érték | 14 mg/m³ (air contaminants) |
| Poland | NDS (mg/m³) | 10 mg/m³ (air contaminants) |
| Poland | NDSCh (mg/m³) | 20 mg/m³ (air contaminants) |
| Sweden | Nivågränsvärde (NVG) (ppm) | 10 ppm (air contaminants) |
| Sweden | kortidsvärde (KTV) (ppm) | 15 ppm (air contaminants) |
| Canada (Quebec) | VECD (ppm) | 10 ppm (air contaminants) |
| Canada (Quebec) | VEMP (ppm) | 15 ppm (air contaminants) |

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| DNEL/DMEL (Workers) | |
| Long-term - local effects, inhalation | 2,9 mg/m³ (DNEL, 8h) (Asphalt [bitumen] fume) |
| DNEL/DMEL (General population) | |
| Long-term - local effects, inhalation | 0,6 mg/m³ (DNEL, 24h) (Asphalt [bitumen] fume) |

Monitoring methods : Monitoring procedures should be chosen according to the indications set by national authorities or labour contracts.,Refer to relevant legislation and in any case to the good practice of industrial hygiene.

Additional information : Note: The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accord with specific guidance within the European REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a governmental regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

### 8.2. Exposure controls

Appropriate engineering controls : Minimize exposure to mists/vapours/aerosol. Where hot product is handled in confined spaces, effective local ventilation must be provided. Before entering storage tanks and commencing any operation in a confined area, carry out an adequate clean-up, and check the atmosphere for oxygen content, flammability, and the presence of sulphur compounds. See also Section 16, "Other information".

| | |
|---|---|
| Personal protective equipment (for industrial or professional use) | : Face shield. Gloves. Protective clothing. Safety glasses. Safety shoes or boots. Dust/aerosol mask. |

| | |
|---|---|
| Hand protection | : When there is a risk of contact with the skin, use hydrocarbon-resistant, felt-lined gloves. Materials that are presumably adequate: nitrile (NBR) or PVC with a protection index > 5 (permeation time > 240 mins). If contact with hot product is possible or anticipated, gloves should be heat-resistant and thermally insulated. Use gloves respecting all the conditions and within the limits set by the manufacturer. Replace gloves immediately in case of cuts, holes or other signs of damages or degradation. If necessary, refer to the EN 374 standard. Personal hygiene is a key element for an effective hand care. Gloves must be worn only with clean hands. After wearing gloves, hands must be carefully washed and dried. |
| Eye protection | : Face shield. |
| Skin and body protection | : Wear protective clothing for operations with hot material: heat resistant coveralls (with trousers legs over boots and sleeves over cuffs of gloves), heat resistant heavy duty antiskid boots (e. g. leather) (EN 943-13034-14605), chemical resistant. Work helmet with neck cloth. Coveralls should be changed at the end of the work shift and cleaned as necessary to avoid transfer of product to clothes or underwear. |
| Respiratory protection | : Independently from other possible actions (technical modifications, operating procedures, and other means to limit the exposure of workers), personal protection equipment can be used according to necessity. Open or well ventilated spaces: in presence of oil mists and if the product is handled without adequate containment means: use full or half-face masks with filter for mists/aerosols. In case there is a significant presence of vapours (e.g. through handling at high temperature), use full or half-face masks with a filter for organic vapours, and H2S where applicable. (EN 136/140/145). Approved respiratory protection equipment shall be used in spaces where hydrogen sulphide may accumulate: full face mask with cartridge/filter type "B" (grey for inorganic vapours including H2S) or self-contained breathing apparatus (SCBA). (EN 136/140/145). Closed or confined areas (e.g. tank interiors): the use of protection measures for airways (masks or self-contained breathing apparatus), must be assessed according to the specific activity, as well as level and duration of predicted exposure. (EN 136/140/145). If exposure levels cannot be determined or estimated with adequate confidence, or an oxygen deficiency is possible, only SCBA's should be used. |
| Thermal hazard protection | : If contact with hot product is possible or anticipated, gloves should be heat-resistant and thermally insulated. |
| Environmental exposure controls | : Do not discharge the product into the environment. Storage areas/installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. |
| Consumer exposure controls | : Not applicable. |

### 8.3. Hygiene measures

| | |
|---|---|
| General protective and hygienic measures | : Avoid contact with skin and eyes,Do not breathe vapours or mists.,Do not clean hands with dirty or oil-soaked rags.,Do not keep dirty rags in the overall pockets.,Do not drink, eat or smoke with dirty hands.,Wash hands with water and mild soap, do not use solvents or other irritant products which have a defatting effect on the skin.,Do not re-use clothes, if they are still contaminated. |

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | |
|---|---|
| Physical state | : Solid |
| Appearance | : Solid. |
| Molecular mass | : Not applicable (UVCB) |
| Colour | : Dark brown to off-black. |
| Odour | : Petroleum-like. Hot/molten product. |
| Odour threshold | : 0,15 ppm Hydrogen sulfide |
| pH | : Not applicable |
| Relative evaporation rate (butylacetate=1) | : Negligible. |
| Melting point | : ≥ 25 °C (Softening point: EN 1427) |
| Freezing point | : No data available |
| Boiling point | : ≥ 250 °C (EN 15199-2 / IP 507) |
| Flash point | : ≥ 250 °C (ASTM D 93) |
| Self ignition temperature | : ≥ 300 °C (ASTM E 659) |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapour pressure | : ≤ 0,1 hPa (20 °C) (CONCAWE, 1992) (calculated value) |
| Relative vapour density at 20 °C | : No data available |
| Relative density | : 990 - 1100 (25 °C - EN ISO 3838) |
| Relative gas density | : > 1 |
| Solubility | : Water: Immiscible and insoluble |
| Log Pow | : Not applicable for mixtures |
| Log Kow | : No data available |
| Viscosity, kinematic | : ≥ 1000 mm²/s (60 °C - EN 12595) |
| Viscosity, dynamic | : No data available |
| Explosive properties | : None. |
| Oxidising properties | : None. |
| Explosive limits | : ≥ 45 g/m³ (mineral oil mists) |

### 9.2. Other information

VOC content : = 0 % (EU, CH)

*The above data are typical values and do not constitute a specification.*

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

This substance does not offer any further hazard for reactivity, except what is reported in the following paragraphs.

### 10.2. Chemical stability

Stable product, according to its intrinsic properties.

### 10.3. Possibility of hazardous reactions

Contact with strong oxidizers (peroxides, chromates, etc.) may cause a fire hazard. A mixture with nitrates or other strong oxidisers (e.g. chlorates, perchlorates, liquid oxygen) may create an explosive mass. Sensitivity to heat, friction or shock cannot be assessed in advance.

### 10.4. Conditions to avoid

Excessive heating above the maximum recommended handling and storage temperature may cause degradation of the substance and evolution of irritant vapours, fumes and H2S. On heating, may partially decompose, releasing combustible gases. Contact of hot product with water will result in a violent expansion as the water turns to steam.

### 10.5. Incompatible materials

Strong oxidants. Self-heating leading to auto ignition at the surfaces of porous or fibrous materials impregnated with oils or bitumen, can occur at temperatures as low as 100°C. Oil and bitumen contamination of thermal insulation materials and the accumulation of oily rags or similar material near hot surfaces, should therefore be avoided, and lagging should be replaced where necessary by a non- absorbent type of insulation.

### 10.6. Hazardous decomposition products

The product may release Hydrogen Sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue and unintentional releases should be made to help determine controls appropriate to local circumstances. Hydrogen sulfide may accumulate in the tanks or other confined spaces, with danger to the workers that enter the spaces. In these cases overexposure to hydrogen sulfide may cause irritation to airways, nausea, dizziness, loss of consciousness and death.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)
(according to composition)

| **eni ELIFLEX AM (N/A)** | |
|---|---|
| LD50 oral rat | ≥ 5000 mg/kg bodyweight (Calculated data). This evaluation is based on the real characteristics of the components and their combination, taking into account the information provided by the suppliers. |
| LD50 dermal rabbit | ≥ 5000 mg/kg bodyweight (Calculated data). This evaluation is based on the real characteristics of the components and their combination, taking into account the information provided by the suppliers. |

| **eni ELIFLEX AM (N/A)** | |
|---|---|
| LC50 inhalation rat (mg/l) | ≥ 5 mg/l/4h (Calculated data). This evaluation is based on the real characteristics of the components and their combination, taking into account the information provided by the suppliers. |

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| LD50 oral rat | ≥ 5000 mg/kg bodyweight (OECD 401) (API, 1982) |
| LD50 dermal rabbit | ≥ 2000 mg/kg bodyweight (OECD 402) (API, 1982) |
| LC50 inhalation rat (mg/l) | ≥ 94,4 mg/m³ (Asphalt [bitumen] fume) (OECD 403 - Fraunhofer Institute, 2000) |
| **Hydrogen sulphide (7783-06-4)** | |
| ATE (gases) | 100,000 ppmV/4h |
| ATE (vapours) | 0,500 mg/l/4h |
| ATE (dust,mist) | 0,050 mg/l/4h |

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met)
(according to composition)
pH: Not applicable

Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)
(according to composition)
pH: Not applicable

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
(according to composition)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
(according to composition)
This product does not contain any significant amounts of substances classified as mutagenic by the EU (in any case < 0.1 % wt)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
(according to composition)
None of the components of this product are listed as carcinogen by NTP, IARC, OSHA, EU or others.

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| NOAEL (chronic,oral, animal/male,2 years) | 103,9 mg/m³ (OECD 451) (NOAEC, Read-across: Oxidized asphalt [oxidized bitumen] fume condensate - Fraunhofer Institute, 2006) |

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
(according to composition)
This product does not contain any significant amounts of substances classified as Toxic for Reproduction by the EU (in any case < 0.1 % wt)

Specific target organ toxicity (single exposure) : Not classified (Based on available data, the classification criteria are not met)
(according to composition)

Specific target organ toxicity (repeated exposure) : Not classified (Based on available data, the classification criteria are not met)
(according to composition)

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| Additional information | NOAEC, Chronic, rat, local : = 10,4 mg/m³ (104 weeks, (OECD 451)) |

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| Aspiration hazard | : Not classified (Based on available data, the classification criteria are not met)<br>Solid |
| Potential Adverse human health effects and symptoms | : None expected at ambient temperature. |
| Other information | : None. |

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : According to the components, and by comparison with other products of the same type and composition, it is expected that this product has a toxicity for aquatic organisms > 100 mg/l, and must not be regarded as dangerous to the environment. An uncontrolled release to the environment may nevertheless produce a contamination of different environmental compartments (soil, underground, surface water bodies, aquifers). Handle according to general working hygiene practices to avoid pollution and release into the environment.

Ecology - air : This product has a low vapour pressure. A significant exposure may happen only if the product is used at high temperature, or in case of sprays and mists.

Ecology - water : The substance is not soluble in water.

| **eni ELIFLEX AM (N/A)** | |
|---|---|
| LC50 fish 1 | ≥ 100 mg/l (Calculated data). |
| EC50 Daphnia 1 | ≥ 100 mg/l (Calculated data). |
| ErC50 (algae) | ≥ 100 mg/l (Calculated data). |
| NOEC (chronic) | ≥ 1000 mg/l (NOEL / 28 d) (QSAR, Oncorhynchus mykiss, Redman et al, 2010) |

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| LC50 fish 1 | ≥ 1000 mg/l (LL 50 / 96 h) (QSAR, Oncorhynchus mykiss, Redman et al, 2010) |
| LC50 fish 2 | ≥ 1000 mg/l (LL 50 / 28 d) (QSAR, Oncorhynchus mykiss, Redman et al, 2010) |
| NOEC (chronic) | ≥ 1000 mg/l (NOEL / 28 d) (QSAR, Oncorhynchus mykiss, Redman et al, 2010) |

### 12.2. Persistence and degradability

| **eni ELIFLEX AM (N/A)** | |
|---|---|
| Persistence and degradability | The most significant constituents of the product should be considered as "inherently biodegradable", but not "readily biodegradable", and they may be moderately persistent, particularly in anaerobic conditions. |

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| Persistence and degradability | The most significant constituents of the product should be considered as "inherently biodegradable", but not "readily biodegradable", and they may be moderately persistent, particularly in anaerobic conditions. |

### 12.3. Bioaccumulative potential

| **eni ELIFLEX AM (N/A)** | |
|---|---|
| Log Pow | Not applicable for mixtures |

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

| **eni ELIFLEX AM (N/A)** | |
|---|---|
| This substance/mixture does not meet the PBT criteria of REACH, annex XIII. | |
| This substance/mixture does not meet the vPvB criteria of REACH, annex XIII. | |
| Results of PBT-vPvB assessment | The product should be considered as "Persistent" in the environment, according to the REACH Annex XIII criteria (part 1, point 1.1) |

| **Asphalt [bitumen] (8052-42-4)** | |
|---|---|
| This substance/mixture does not meet the PBT criteria of REACH, annex XIII. | |
| This substance/mixture does not meet the vPvB criteria of REACH, annex XIII. | |
| Results of PBT-vPvB assessment | The product should be considered as "Persistent" in the environment, according to the REACH Annex XIII criteria (part 1, point 1.1) |

### 12.6. Other adverse effects

Other adverse effects : None.

Other information : This product has no specific properties for inhibition of bacterial activity. In any case, wastewater containing this product should be treated in plants that are suited for the specific purpose.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Do not dispose of the product, either new or used, by discharging into sewers, tunnels, lakes or water courses. Deliver to a qualified official collector.

Sewage disposal recommendations : Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Dispose of in a safe manner in accordance with local/national regulations.

Waste disposal recommendations : European Waste Catalogue code(s) (Decision 2001/118/CE): 05 01 17 (Bitumen). This EWC code is only a general indication, and takes into account the original composition of the product and its intended use. The user has the responsibility of choosing the right EWC code, considering the actual use of the product, alterations and contaminations.

Additional information : Empty containers may contain combustible product residues. Do not cut, weld, drill, burn or incinerate empty containers or drums, unless they have been cleaned, and declared safe.

Ecology - waste materials : The product as it is does not contain halogenated substances.

## SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

### 14.1. UN number

UN-No : 3257

### 14.2. UN proper shipping name

Proper Shipping Name : ELEVATED TEMPERATURE LIQUID, N.O.S.

Transport document description : UN 3257 ELEVATED TEMPERATURE LIQUID, N.O.S. (Bitumen), 9, III, (D)

### 14.3. Transport hazard class(es)

Class (UN) : 9

Subsidiary risk (IMDG) : --

Subsidiary risk (IATA) : --
Hazard labels (UN) : 9


## 14.4. Packing group

Packing group (UN) : III

## 14.5. Environmental hazards

Other information : No supplementary information available.

## 14.6. Special precautions for user

Special transport precautions : This product is classified as dangerous goods (UN 3257; 9, III, E) ONLY IF IT IS SHIPPED AT A TEMPERATURE HIGHER THAN 100 °C.

If the temperature is lower, the product is NOT considered dangerous goods for transportation.

### 14.6.1. Overland transport

Transport regulations (ADR) : Subject to the provisions only when temperature > 100 °C
Transport regulations (RID) : Subject to the provisions only when temperature > 100 °C
Hazard identification number (Kemler No.) : 99
Classification code : M9
Orange plates :


Tunnel restriction code : D
Limited quantities (ADR) :
Excepted quantities (ADR) : E0
EAC code : 2Y

### 14.6.2. Transport by sea

Transport regulations (IMDG) : Subject to the provisions only when temperature > 100 °C
Transport regulations (ADNR) : Subject to the provisions only when temperature > 100 °C
EmS-No. (1) : F-A, S-P

### 14.6.3. Air transport

Transport regulations (IATA) : Forbidden
Instruction "cargo" (ICAO) : Forbidden
Instruction "passenger" (ICAO) : Forbidden
Instruction "passenger" - Limited quantities (ICAO) : Forbidden

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IBC code : IBC01.

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions

No ingredients are included in the REACH Candidate list (> 0,1 % m/m).

Contains no REACH Annex XIV substances.

| | | |
|---|---|---|
| Relevant EU Legislation | : | Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). (et sequens).<br>Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (et sequens).<br>Directives 89/391/CEE, 89/654/CEE, 89/655/CEE, 89/656/CEE, 90/269/CEE, 90/270/CEE, 90/394/CEE, 90/679/CEE, 93/88/CEE, 95/63/CE, 97/42/CE, 98/24/CE, 99/38/CE, 99/92/CE, 2001/45/CE, 2003/10/CE, 2003/18/CE (Health and safety on the workplace)<br>Directive 98/24/EC (protection of the health and safety of workers from the risks related to chemical agents at work).<br>Directive 92/85/CE (measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding)<br>Directives 96/82/CE, 2003/105/CE and 2012/18/CE (Control of major-accident hazards involving dangerous substances)<br>Directive 2004/42/CE (Limitation of emissions of Volatile Organic Compounds)<br>Labelling according to directives 67/548/EEC and 1999/45/EC |
| VOC content | : | = 0 % (EU, CH) |
| EURAL code (EWC) | : | 05 01 17 |

#### 15.1.2. National regulations

| | | |
|---|---|---|
| Water hazard class (WGK) (D) | : | nwg - non-hazardous to water |
| WGK remark | : | No water pollutant (Classification in compliance withVerwaltungsvorschrift wassergefährdender Stoffe (VwVwS)) |
| Storage class (LGK) (D) | : | LGK 13 - Non-flammable solids in non-flammable packages |
| VbF class (D) | : | Not applicable. |
| Regional legislation | : | National adoption of EU Directives concerning health and safety on the workplace. National laws on classification and labeling of dangerous substances/preparations (Adoption of Directive 67/548/CE and subsequent Adaptations to Technical Progress - ATP, and Directive 1999/45/CE). National adoption of EU Directives concerning control of major-accident hazards involving dangerous substances (96/82/CE - 2003/105/CE). Relevant national laws on prevention of water pollution. Relevant national laws on protection of the health of pregnant workers (National adoption of Dir. 92/85/EEC). National adoption of Directives 75/439/CEE - 87/101/CEE concerning disposal of used oils. |

### 15.2. Chemical safety assessment

| **For the following substances of this mixture a chemical safety assessment has been carried out** |
|---|
| Asphalt [bitumen] |

## SECTION 16: Other information

Indication of changes : Modification according to Regulation (EC) nr. 1907/2006 and nr. 453/2010.

Data sources : This Safety Data Sheet is based on the real characteristics of the components and their combination, taking into account the information provided by the suppliers.

Abbreviations and acronyms : Complete text of the phrases H and R quoted in this Safety Data Sheet. These phrases are reported here for information only, and MAY NOT correspond to the classification of the product. None.

N/A = Not applicable.
N/D = Not available
ACGIH = American Conference of Governmental Industrial Hygienists
API = American Petroleum Institute
CSR = Chemical Safety Report
DNEL = Derived No Effect Level
DMEL = Derived Minimum Effect Level
EC50 = Effective Concentration, 50%
EL50 = Effective Loading, 50 %
EPA = Environmental Protection Agency
IC50 = Inhibition Concentration, 50%
LC50 = Lethal Concentration, 50%
LD50 = Lethal Dose, 50%
LL50 = Lethal Loading, 50%
LOAEL = Low Observed Adverse Effects Level
NOEL = No Observed Effects Level
NOAEL = No Observed Adverse Effects Level
OECD = Organization for Economic Cooperation and Development
PNEC = Predicted No-Effect Concentration
PBT = Persistent, Bioaccumulative, Toxic
STOT = Single Target Organ Toxicity
(STOT) RE = (Single Target Organ Toxicity) Repeated exposure
(STOT) SE = (Single Target Organ Toxicity) Single exposure
TLV®TWA = Threshold Limit Value® – Time-Weighted Average
TLV®STEL = Threshold Limit Value® – Short Term Exposure Limit
UVCB = Substance of Unknown or Variable composition, Complex reaction products or Biological materials
vPvB = very Persistent, very Bioaccumulative
WAF = Water Accommodated Fraction.

Training advice : Provide adequate training to professional operators for the use of PPEs, according to the information contained in this Safety Data Sheet.

Other information : Do not use the product for any purposes that have not been advised by the manufacturer. In that case, the user could be exposed to unpredictable risks. ----. If there is any suspicion of inhalation of H2S (hydrogen sulphide), Rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures. Send patient to hospital. Immediately begin artificial respiration if breathing has ceased. Administer oxygen if necessary.

Full text of R-, H- and EUH-phrases: these phrases are reported here for information only, and MAY NOT correspond to the classification of the product.:

| | |
|---|---|
| Acute Tox. 2 (Inhalation) | Acute toxicity (inhal.), Category 2 |
| Aquatic Acute 1 | Hazardous to the aquatic environment — AcuteHazard, Category 1 |
| Flam. Gas 1 | Flammable gases, Category 1 |
| Press. Gas | Gases under pressure |
| H220 | Extremely flammable gas |

| | |
|---|---|
| H330 | Fatal if inhaled |
| H400 | Very toxic to aquatic life |
| R12 | Extremely flammable |
| R26 | Very toxic by inhalation |
| R50 | Very toxic to aquatic organisms |
| F+ | Extremely flammable |
| N | Dangerous for the environment |
| T+ | Highly toxic |

SDS EU ( Annex II) GENERAL

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*