

# Safety Data Sheet



## Anionic Bitumen emulsions (SS 60)

Version 3.01

Revision Date 08.11.2013

### 1. Identification of the substance/mixture and of the company/undertaking

<b>Trade name</b>	Anionic Bitumen Emulsions (SS 60)
<b>Synonyms</b>	Anionic Bitumen Emulsions (SS 60), Anionic stable grade, Tosas tack, Slurry seal, Petroleum residue
<b>Use</b>	Raw material for adhesives and binders, raw material for stabilizers
<b>Company</b>	Tosas (PTY) Limited 12 Commercial Road Wadeville Germiston, 1422 Republic of South Africa

**Information (Product safety)** Telephone: +27 11 323 2000 Fax: +27 11 902 2755  
E-mail address: [Info@tosas.co.za](mailto:Info@tosas.co.za)

**Emergency telephone number** Tosas Gauteng S.A  
Telephone: +27 11 323 2000 Fax: +27 11 902 2755

Namibia	+00 264 672 21942
Botswana	+00 267 391 4957
S.A Bloemfontein	+27 (51) 435-0214
S.A Vryburg	+27 (53) 927-2209
S.A Worcester	+27 (23) 342-0609
S.A. Gauteng Spartan	+27 (11) 974-1971

### 2. Hazards identification

#### Identification of the risks

The product does not need to be labeled in accordance with EC directives or respective national laws.

#### To man

Hot emulsion will adhere to the skin. Prolonged exposure to emulsion fumes above the recommended occupational exposure standard may cause irritation to the skin, eyes and upper respiratory tract

#### To Environment

Emulsions are not classified as dangerous under current S.A. and EC criteria. Fouling of shorelines and environment. Although emulsions are biodegradable they can act as a waste pollutant. Emulsions have a high solubility in water thus they should be kept away from natural sources, e.g. dams, streams, etc.

#### Safety Hazards

Not classified as flammable but will burn once the water phase has evaporated off. Contact of hot bitumen with emulsion leads to violent expansion and high potential for boil over

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### 3. Composition/information on ingredients

**Bitumen 70/100 Contents: 60 %W/W CAS-No. 8052-42-4 Index-No. EC-No. 232-490-9**

**Water**

**Contents: 40 %W/W**

**CAS-No. 7732-18-5**

**Index-No.**

**EC-No. 231-791-2**

For the full text of the R-phrases mentioned in this Section, see Section 16.

#### Chemical nature

Mixture of heavy hydrocarbons, high molecular weight organic compounds which are obtained from processing residue streams from the refining of Petroleum crude oils

#### Other information

Emulsions are prepared by mixing or milling bitumen, water and emulsifier chemicals to ensure that performance criteria are met. This process does not affect the classification or handling information given elsewhere in the Material Data Sheet

### 4. First aid measures

#### SYMPTOM AND EFFECTS

**Inhalation :** Vapors cause slight irritation of respiratory system if present in high concentrations

**Eye :** Symptoms may include pain, tears, swelling, redness and blurred vision

**Ingestion :** Grade 1 : LD50 = 5 - 15 g/kg

**Skin :** Slight burns may result from contact with hot emulsion. Cold emulsion may cause skin irritation which could cause dermatitis

**Product inhalation :** Remove to fresh air. If breathing has stopped, apply respiration and seek immediate medical assistance. If breathing, but unconscious, place in the recovery position and seek immediate medical assistance. If heartbeat is absent, give external cardiac compression and seek immediate medical assistance

**Product in eye :** Rinse eye immediately with large amounts of cold water for at least ten (10) minutes. Keep eye closed. Patient not to rub eye. If irritation persist, seek medical advice

**Product ingestion :** Vomiting should not be induced. If the patient is conscious let the patient drink 1 - 2 glasses of water or milk. Protect the airway if vomiting begins. If rapid recovery does not occur, immediately obtain medical assistance

**Product on skin :** The affected areas should be immediately immersed in or flushed with large amounts of cold water. Speed is crucial, because if the emulsion has not been broken; it may be washed off. Prompt medical advice should be sought

#### ADVICE TO PHYSICIANS

Under medical supervision the eye may be rinsed with :

Anionic emulsion : Weak acetic acid solution

Cationic emulsion : Weak bicarbonate solution

#### Eyes

**Skin** Under doctors supervision the bitumen may be removed from the skin by swabbing with medicinally approved vegetable oil or liberal amounts of warm medicinal paraffin. This should be followed by washing with soap and water and the application of the medically-approved re-fatting agent

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### 5. Firefighting measures

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#### EXTINGUISHING MEDIA

##### Small and large fire

Emulsions contain approximately 40% of water, thus fires are unlikely. In the event that all the water has evaporated off and the residual bitumen caught alight, then sand or earth can be used to extinguish small fires. Large fires can be extinguished with dry chemical powder, carbon dioxide (CO<sub>2</sub>). Water may be used to cool down surrounding area, exposed surfaces and to protect personnel

#### HAZARDS

Combustion is likely to give rise to a potentially dangerous complex mixture of gases and airborne particulars, including carbon monoxide, oxides of Sulphur and unidentified organic and inorganic compounds. Vapors may travel to ignition sources and flash back

#### PROTECTIVE EQUIPMENT

Proper protective equipment including self-contained breathing apparatus and eye protection must be worn when dealing with fires, especially fires in confined spaces

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### 6. Accidental release measures

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- Personal protection:** If possible, wait until product has cooled down. Evacuate the area of all non-essential personnel. Remove ignition sources if possible. Shut off leaks if possible, without personal risk. Protective clothing should be worn
- Small spillages:** Use sand, fire retardant-treated saw dust, diatomaceous earth, etc. to absorb or contain the spill. Contaminated material should be collected and placed in suitable, clearly marked containers for disposal or reclamation in accordance with local laws and regulations
- Large spillages:** Prevent the spill from spreading by construction trenches or barriers, with sand, earth or other containment material
- Environmental:** Precautions: Prevent from spreading or entering into drains, ditches or rivers by using the methods detailed under spillage. Prevent further leakage or spillage if safe to do so

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### 7. Handling and storage

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#### **Handling**

**Safe handling advice** *Emulsions are commonly handled below 55°C Avoid skin contact with heated and ambient emulsion Avoid breathing in fumes or vapors from emulsion.*

**Advice on protection against fire and explosion** *Keep away from heat and sources of ignition.*

**Storage** *Emulsions are stored at ambient temperatures. Precautions must be taken to prevent the ingress of water and/or dirt into the product. Different types and grades may not be mixed. Emulsions stored for excessive periods must be thoroughly circulated and drums well rolled prior to application*

**Requirements for storage areas and containers** *Emulsions stored for excessive periods must be thoroughly circulated and drums well rolled prior to application. Precautions must be taken to prevent the ingress of water and/or dirt into the product. Place cylinders away from working area and exhaust hood.*

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### 8. Exposure controls/personal protection

#### Components with workplace control parameters

#### OCCUPATIONAL EXPOSURE STANDARDS

COMPONENT	LIMIT	TYPE	REFERENCE
Bitumen fume	5 mg/m <sup>3</sup>	TWA*	ACGIH*
H <sub>2</sub> S	14 mg/m <sup>3</sup>	TWA*	ACGIH*
H <sub>2</sub> S	21 mg/m <sup>3</sup>	STEL*	ACGIH*

**ACGIH\*** Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Industrial Hygienists, Cincinnati, Ohio current edition.

**TWA\*** Time Weighted Average.

The time weighted average concentration for a normal 8 hour working day and 40 hour work week.

**STEL\*** Short-term exposure levels. The concentration to which workers can be exposed continuously for a short period of time without suffering from 1) irritation; 2) chronic or irreversible tissue damage; and 3) narcosis of sufficient degree to increase the likelihood of accidental injury; impair damage, narcosis of sufficient degree to increase the likelihood of accidental injury; impair self-rescue or materially reduce work efficiency and provided that the daily TWA is not exceeded

#### ENGINEERING CONTROL MEASURES

Use engineering controls to keep airborne concentrations below the exposure limits. Locate emergency equipment at well-marked and clearly identified stations in case emergency escape is necessary

#### Personal protective equipment

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Hand protection** Gloves suitable for permanent contact:  
Material: butyl-rubber  
Break through time: 4 h  
Material thickness: 0.5 mm

**Eye protection** Safety glasses

**Hygiene measures** Wash overalls and undergarments regularly. Dispose of soiled gloves. Wash hands before eating, drinking and if one smokes. Do not eat, drink or smoke while product is being handled

**Protective measures** **Skin**  
Protective clothing comprising of safety shoes or boots, cotton acid resistant overalls, close fitting at neck and wrist

### 9. Physical and chemical properties

<b>State of matter</b>	Liquid; at 20 °C; 1,013 hPa
<b>Color</b>	Brown
<b>Odor</b>	Woody
<b>pH</b>	11.2 - 11.8; 25 °C
<b>Softening point</b>	42 - 51 °C; ASTM D36
<b>Boiling point/boiling range</b>	100 °C
<b>Flash point</b>	Not applicable
<b>Density</b>	1.0 g/cm <sup>3</sup>

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### 10. Stability and reactivity

**Materials to avoid**

Oxidizing agents, Strong acids, Alkali metals, Halogens. Anionic emulsions are not compatible with cationic emulsions and polar acidic solutions.

Emulsions are incompatible with tar products. Anionic emulsions are not compatible with Cationic emulsions and polar alkaline solutions  
None expected under normal use conditions

**Hazardous decomposition products**

**Thermal decomposition**     *Stable under recommended storage conditions.*

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### 11. Toxicological information

**Further information**

**Respiratory**

Slight irritation of respiratory system in high concentrations. The effect is temporary

**CARCINOGENICITY**

There is no evidence that bitumen emulsions are carcinogenic to humans. Repeated and prolonged exposure to bitumen emulsions can result in skin and eye irritations and allergic responses in some individuals

**MUTAGENICITY**

No history or data to support mutagenicity

**REPRODUCTIVE HAZARDS**

No data available

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### 12. Ecological information

**Eco toxicity effects**

*Soluble in water*

*Practically non-toxic, LC/EC50 > 100 mg/l to aquatic organisms*

**Biodegradation**

*None inherently biodegradable*

**Bioaccumulation**

*Emulsions do not bio-accumulate*

**Mobility**

*Emulsions are liquid at ambient temperatures, thus must be considered mobile. Once the water has evaporated off, they become a solid reverting to the bitumen state*

**Further information**     *This product has no known eco-toxicological effects.*

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### 13. Disposal considerations

**Product**

*Dispose of in accordance with local regulations. Can be recycled*

**Contaminated packaging**

*Store containers and offer for recycling of material when in accordance with the local regulations. Do not remove the label.*

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### 14. Transport information

**Further information**                      *Not classified as dangerous in the meaning of transport regulations.*

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### 15. Regulatory information

**Additional advice**                      *The product does not need to be labeled in accordance with EC directives or respective national laws.*

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### 16. Other information

*Full text of R-phrases referred to under sections 2 and 3*

R43    *May cause sensitization by skin contact.*

*All reasonable efforts were exercised to compile this SDS. The SDS provides information regarding the health, safety and environmental hazards, at the date of issue, to facilitate the safe receipt, use and handling of the product in the workplace. Since TOSAS and its subsidiaries cannot anticipate or control all conditions under which the product may be handled, used and received in the workplace, it remains the obligation of each user, receiver or handler to, prior to usage, review this SDS in the context within which the product will be received, handled or used in the workplace. The user, handler or receiver must ensure that the necessary mitigating measures are in place as regards health and safety. This does not substitute the need or requirement for any relevant risk assessments to be conducted. It further remains the responsibility of the receiver, handler or user to communicate such information to all relevant parties that may be involved in the receipt, use or handling of the product.*

*Although all reasonable efforts were exercised in the compilation of this SDS, TOSAS does not expressly warrant the accuracy or assume any liability for the incompleteness of the information contained herein or any advice given. The product is sold and risk passes in accordance with the specific terms and conditions of sale.*

Useful references include the following:

- |       |                     |   |            |  |
|-------|---------------------|---|------------|--|
| (i)   | Concave Report      | : | 85/57      | Review of bitumen carcinogenicity                |
|       |                     | : | 7/82       | Health aspects of bitumen                        |
|       |                     | : | 6/84       | Review of bitumen fume exposure and measurement  |
| (ii)  | SABITA              | : |            | HSE Guidelines for bitumen and coal tar products |
| (iii) | IARC working groups | : | 1985, 1987 |  |
|       |                     | : |            | IARC monographs – 103                            |

*The MSDS was created by: Lambert, Johannes (J)*

*The MSDS was approved by: Muller, Johan (J)*