



## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Trade name(s) :** Dura Paints Bitu Proof  
**Chemical name(s) :** Anionic modified bitumen emulsion.  
**Synonyms :** Asphalt; Petroleum residue; Binder containing filler and rubber latex suitable for emulsification.  
**Chemical formula :** Dura Paints Bitu Proof is a rubberised mineral-filled bitumen emulsion of a creamy consistency.  
**Registration numbers :** CAS : -  
 UN : 1999  
**Dura Paints cc :** 5 Wakefield Road; Founders View South; Edenvale; 1610; South Africa. Tel No: (011) 452-5221

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

#### CHEMICAL NATURE

Refer chemical formula above.

#### DANGEROUS COMPONENTS

In terms of the Hazardous Substances Act 1973 (Act 15 of 1973) bitumen which is the major fraction of Dura Paints Bitu Proof is declared to be hazardous in terms of Group 2 hazardous substances.

#### OTHER INFORMATION

Dura Paints Bitu Proof is prepared by mixing or milling bitumen, water, emulsifier chemicals, filler and rubber latex to ensure that performance criteria are met. This process does not affect the classification or handling information given elsewhere in the Material Data Sheet.

### 3. HAZARDS IDENTIFICATION

#### TO MAN

Dura Paints Bitu Proof will adhere to the skin. Prolonged exposure to Bitu Proof fumes above the recommended occupational exposure standard may cause irritation to the skin, eyes and upper respiratory tract.

#### TO ENVIRONMENT

Dura Paints Bitu Proof is not classified as dangerous under current SA and EC criteria. Fouling of shorelines and environment. Although Bitu Proof emulsions are biodegradable they can act as a waste pollutant. Bitu Proof 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 Bitu Proof emulsion leads to violent expansion and high potential for boil over.

#### 4. FIRST AID MEASURE

##### Symptoms and Effects

##### SYMPTOM AND EFFECTS

**Inhalation :** Vapors cause slight irritation of respiratory system if present in high concentrations. Excessive exposure to the filler (silica) could cause silicosis.

**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 Bitu Proof 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. Do not rub eye. If irritation persists seek medical advice.

**Product ingestion :** Vomiting should not be induced. If the patient is conscious let the patient drink 1 to 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

##### Eyes

Under medical supervision the eye may be rinsed with a weak acetic acid solution

##### 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 a medically-approved re-fattening agent.

#### 5. FIRE FIGHTING MEASURES

##### EXTINGUISHING MEDIA

##### Small and large fire

Bitu Proof emulsions contain approximately 40% water, thus fires are unlikely. In the event that all the water has evaporated off and the residual bitumen catches 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.



## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal protection :</b>	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.
<b>Small spillages :</b>	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
<b>Large spillages :</b>	Prevent the spill from spreading by construction trenches or barriers, with sand, earth or other containment material
<b>Environmental precautions :</b>	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.

## 7. HANDLING AND STORAGE

### HANDLING

Avoid skin contact with heated and ambient emulsion. Avoid breathing in fumes or vapors from emulsion. When handling product in drums, safety footwear should be worn and proper handling equipment. Do not eat, drink or smoke while product is being handled or used.

### HANDLING TEMPERATURE

Bitu Proof emulsion is applied at ambient temperature.

### STORAGE AND STORAGE CONDITIONS

Bitu Proof 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. Bitu Proof emulsions stored for excessive periods must be thoroughly circulated and drums well rolled prior to application.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### OCCUPATIONAL EXPOSURE STANDARDS

COMPONENT	LIMIT	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.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

### PERSONAL PROTECTION

#### Respiratory

Avoid excessive inhalation. Wear a fresh air mask

#### Hand

Heat and solvent resistant rubber or plastic gloves close fitting at the wrist and with arm protection.

#### Eye

Safety goggles and/or face shield

#### Skin

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

#### 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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Brown liquid at ambient temperature
<b>Odour :</b>	Wood resin
<b>pH :</b>	Anionic - Basic nature
<b>Boiling point/range :</b>	100°C (Contains 40% water)
<b>Melting point/range :</b>	-
<b>Flammable limits :</b>	Non-flammable - Contains 40% water
<b>Explosive properties :</b>	Potentially low
<b>Oxidising properties :</b>	-
<b>Density at 20°C, kg/l</b>	1,0 gm/cm <sup>3</sup> at 25°C
<b>Solubility - water :</b>	Highly soluble
<b>Solubility - solvents :</b>	Soluble
<b>Partition coefficient :</b>	-
<b>Relative vapor density :</b>	-
<b>Solids content, % :</b>	52 min
<b>Viscosity as a cone penetration value</b>	
<b>0,1 mm :</b>	350 +/- 50
<b>Relative Molecular Mass :</b>	Base bitumen - 2000 AMU

## 10. STABILITY AND REACTIVITY

### CONDITIONS TO AVOID

Bitu Proof emulsions are incompatible with bitumen and tar products. Bitu Proof emulsions are not compatible with cationic emulsions and polar acidic solutions.

### HAZARDOUS DECOMPOSITION PRODUCTS

None expected under normal use conditions.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY

**Oral :** Toxicological information has not been determined for Bitu Proof bitumen emulsions  
**Dermal inhalation :** Not considered to be an inhalation hazard under normal conditions of use

### CHRONIC TOXICITY

No effects and data found that supports the long-term toxicity of bitumen.

### IRRITATION

#### Skin

LD50 expected to be above 2000 mg/kg. Condensed vapors to be slightly irritant to the skin. Not expected to be a skin sensitizer

#### Eyes

Vapors from hot emulsion can be expected to be a slight irritant.

#### 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.

## 12. ECOLOGICAL INFORMATION

### ECOTOXICITY

Soluble in water  
 Practically non-toxic, LC/EC50 > 100 mg/l to aquatic organisms

### PERSISTENCE

#### Biodegradation

Not inherently biodegradable.

#### Bioaccumulation

Dura Paints Bitu Proof do not bio-accumulate.

#### Mobility

Bitu Proof 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.

## 13. DISPOSAL CONSIDERATIONS

### DISPOSAL METHODS

Waste product should not be allowed to contaminate soil or water. Waste arising from spillage or tank cleaning operations should be disposed of in accordance with prevailing regulations (Section 20(1) of the Environment Conservation Act) preferably by a recognised collector or contractor. The competence of the collector or contractor should be established beforehand

### CLASSIFICATION

Group 2 Chemical - Hazardous

### DISPOSAL OF PACKAGING

Bitu Proof emulsion packaging should be drained, bunged prior to being returned to the supplier. Do not remove or deface markings or labels presently on drum.

#### 14. TRANSPORT INFORMATION

UN no : 1999  
 Emergency action code : 2W  
 ADR/RID - class :  
 ADR/RID - item no :  
 ADR/RID - hazard identity no :  
 IMDG - shipping name :  
 IMDG - class :  
 IMDG - packaging group :  
 IMDG - marine pollutant : Yes  
 IMDG - EMS no :  
 IMDG - MFAG no :  
 IATA - shipping name :  
 IATA - class :  
 IATA - subsidiary risk(s) :  
 ADNR - class :  
 Tremcard no :

#### 15. REGULATORY INFORMATION

##### NATIONAL LEGISLATION

SABS 0229 - 1990 Code of practice for packaging of dangerous goods for road and rail transportation in S.A.

##### EEC HAZARD CLASSIFICATION

Not classified as dangerous under current EC criteria

##### RISK PHRASES

-

##### SAFETY PHRASES

-

#### 16. OTHER INFORMATION

##### APPLICATION FOR USE OF PRODUCT

For further information - Refer to Bitu Proof Technical Data Sheet

EEC annex 1 no :

MITI no :

FDA list no :

Listing - TCSA

Listing - ACOIN

Listing - Canadian DSL/NDSL :

Notification - EEC :

Notification - USA :

MSDS updated : June 1999

MSDS serial no :

Updated by : DE Sadler

##### REFERENCES

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)              | : | Filler MSDS  |
|                    | : | Rubber latex MSDS                                    |

END OF MSDS

**DISCLAIMER:** All information is given in good faith, but without guarantee in respect of accuracy and no responsibility is accepted for errors or omissions or the consequences thereof. For the current version of this MSDS please download from the Dura Paints website at [www.durapaints.co.za](http://www.durapaints.co.za).