



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

## 1. Identification of the Substance/Mixture and the Company/Undertaking

- 1.1 Product Identifier** M BOND/FLOWBOND ESB HARD. B **Revision Date:** 27/05/2015  
**Product Name:** M Bond/Flowbond ESB Hardener B **Supersedes Date:** New SDS
- 1.2 Relevant identified uses of the substance or mixture and uses advised against** Coatings and paints, thinners, paint removers. Hand-mixing with intimate contact and only PPE available. Wide dispersive indoor use resulting in inclusion into or onto a matrix. For use by appropriately trained applicators. Roller application or brushing. Low energy spreading of coatings. Advised against: Home DIY applications, because of the health hazards and training required.
- 1.3 Details of the supplier of the safety data sheet**
- Supplier:** Flowcrete UK Ltd.  
The Flooring Technology Centre  
Booth Lane  
Moston, Sandbach, Cheshire. UK  
CW11 3QF
- Tel: +44 (0)1270 753000  
Fax: +44 (0)1270 753333  
ehs.uk@flowcrete.com  
<http://www.flowcrete.co.uk>
- Datasheet Produced by:** ehs.uk@flowcrete.com
- 1.4 Emergency telephone number:** CHEMTREC +001 703 5273887 (Outside US)  
CHEMTREC 1-800-424-9300 (Inside US)

## 2. Hazard Identification

### 2.1 Classification of the substance or mixture

Classification according to Classification, Labeling & Packaging Regulation (EC) 1272/2008

#### HAZARD STATEMENTS

Acute Toxicity, Oral, category 4	H302
Skin Corrosion, category 1B	H314-1B
Skin Sensitizer, category 1	H317
STOT, repeated exposure, category 2	H373
Hazardous to the aquatic environment, Acute, category 1	H400
Hazardous to the aquatic environment, Chronic, category 2	H411

## 2.2 Label elements

### Symbol(s) of Product



### Signal Word

Danger

### Named Chemicals on Label

2,4,6-Tris(dimethylaminomethyl)phenol, Benzyl alcohol, Tetraethylenepentamine, Fatty acids, tall-oil, reaction products with tetraethylenepentamine, bis (dimethylaminomethyl) phenol, Formaldehyde, polymer with benzenamine, hydrogenated

#### HAZARD STATEMENTS

Acute Toxicity, Oral, category 4	H302	Harmful if swallowed.
Skin Corrosion, category 1B	H314-1B	Causes severe skin burns and eye damage.
Skin Sensitizer, category 1	H317	May cause an allergic skin reaction.
STOT, repeated exposure, category 2	H373	May cause damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment, Acute, category 1	H400	Very toxic to aquatic life.
Hazardous to the aquatic environment, Chronic, category 2	H411	Toxic to aquatic life with long lasting effects.

#### PRECAUTION PHRASES

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+352	IF ON SKIN: Wash with plenty of soap and water.
P303+361+353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P314	Get medical advice/attention if you feel unwell.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.
P391	Collect spillage.

## 2.3 Other hazards

No Information

### Results of PBT and vPvB assessment:

The product does not meet the criteria for PBT/VPvB in accordance with Annex XIII.

## 3. Composition/Information On Ingredients

### 3.2 Mixtures

#### Hazardous Ingredients

<u>CAS-No.</u>	<u>EINEC No.</u>	<u>Name According to EEC</u>	<u>%</u>
68953-36-6	273-201-6	Fatty acids, tall-oil, reaction products with tetraethylenepentamine	25-50
135108-88-2	603-894-6	Formaldehyde, polymer with benzenamine, hydrogenated	25-50
100-51-6	202-859-9	Benzyl alcohol	10-25
112-57-2	203-986-2	Tetraethylenepentamine	2.5-10
90-72-2	202-013-9	2,4,6-Tris(dimethylaminomethyl)phenol	2.5-10
71074-89-0	275-162-0	bis (dimethylaminomethyl) phenol	1.0-2.5

<u>CAS-No.</u>	<u>REACH Reg No.</u>	<u>CLP Symbols</u>	<u>CLP Hazard Statements</u>	<u>M-Factors</u>
135108-88-2	01-2119983522-33	GHS05-GHS07-GHS08	H302-314-317-373-412	

68953-36-6	01-2119487006-38	GHS05-GHS07-GHS09	H314-317-400-411
100-51-6	01-2119492630-38	GHS07	H302-319-332
112-57-2	01-2119487290-37	GHS05-GHS07-GHS09	H302-312-314-317-411
90-72-2	01-2119560597-27	GHS07	H302-315-319
71074-89-0		GHS05	H314

**Additional Information:** The text for CLP Hazard Statements shown above (if any) is given in Section 16.

## 4. First-aid Measures

### 4.1 Description of First Aid Measures

**GENERAL NOTES:** When symptoms persist or in all cases of doubt seek medical advice. Show this safety data sheet to the doctor in attendance. Risk of product entering the lungs on vomiting after ingestion. Remove contaminated clothing and shoes.

**AFTER INHALATION:** Keep respiratory tract clear. Remove person to fresh air. If signs/symptoms continue, get medical attention.

**AFTER SKIN CONTACT:** Use a mild soap if available. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

**AFTER EYE CONTACT:** Keep eye wide open while rinsing. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. If eye irritation persists, consult a specialist.

**AFTER INGESTION:** Gently wipe or rinse the inside of the mouth with water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If swallowed, seek medical advice immediately and show this container or label.

### Self protection of the first aider:

No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

No Information

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

No information available on clinical testing and medical monitoring. Specific toxicological information on substances, if available, can be found in section 11.

## 5. Fire-fighting Measures

### 5.1 Extinguishing Media:

Carbon Dioxide, Dry Chemical, Foam, Water Fog

**FOR SAFETY REASONS NOT TO BE USED:** Alcohol, Alcohol based solutions, any other media not listed above.

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

No Information

### 5.3 Advice for firefighters

Keep containers and surroundings cool with water spray. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire will produce dense black smoke containing hazardous combustion products (see section 10). In the event of fire, wear self-contained breathing apparatus.

## 6. Accidental Release Measures

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

Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak.

### 6.2 Environmental precautions

May cause long-term adverse effects in the aquatic environment. Do not allow material to contaminate ground water system. Prevent product from entering drains.

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

Prevent further leakage or spillage if safe to do so. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Refer to protective measures listed in sections 7 and 8.

### 6.4 Reference to other sections

**FURTHER INSTRUCTIONS:** Please refer to EU disposal requirements or country specific disposal requirements for this

material. See Section 13 for further information.

## 7. Handling and Storage

### 7.1 Precautions for safe handling

Wear personal protective equipment. Use only in well-ventilated areas. Do not breathe vapours or spray mist. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. In the case of sensitisation to any of the ingredients, it is inadvisable to work with the product. Handle in accordance with good industrial hygiene and safety practice. Keep working clothes separately. Keep away from food, drink and animal feedingstuffs. When using, do not eat, drink or smoke. Wash hands and face before breaks and immediately after handling the product.

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

**CONDITIONS TO AVOID:** Avoid temperatures above 40°C, direct sunlight and contact with sources of heat. Do not freeze.  
**STORAGE CONDITIONS:** Do not freeze. Store at room temperature in the original container. Keep locked up or in an area accessible only to qualified or authorised persons. Keep container closed when not in use. Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.

### 7.3 Specific end use(s)

Hardener B - Peran SL, Flowshield SL, Flowcoat TL, Flowcoat SF41 + Flowshield Quartz. Component of a resin flooring product. The mixing and application to be in accordance with the technical data sheets.

## 8. Exposure Controls/Personal Protection

### 8.1 Control parameters

#### Ingredients with Occupational Exposure Limits (UK WELS)

<u>Name</u>	<u>CAS-No.</u>	<u>LTEL ppm</u>	<u>STEL ppm</u>	<u>STEL mg/m3</u>	<u>LTEL mg/m3</u>	<u>OEL Note</u>
Fatty acids, tall-oil, reaction products with tetraethylenepentamine	68953-36-6					
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88- ~					
Benzyl alcohol	100-51-6					
Tetraethylenepentamine	112-57-2					
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2					
bis (dimethylaminomethyl) phenol	71074-89-0					

**FURTHER ADVICE:** Refer to the regulatory exposure limits for the workforce enforced in each country. Some components may not have been classified at the EU level under the dangerous substances and preparations regulation.

### 8.2 Exposure controls

#### Personal Protection

**RESPIRATORY PROTECTION:** In case of insufficient ventilation wear suitable respiratory equipment. Respirator with filter for organic vapor.

**EYE PROTECTION:** Eye wash bottle with pure water. Tightly fitting safety goggles. Face-shield.

**HAND PROTECTION:** Rubber or plastic gloves. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Long sleeved clothing. Remove and wash contaminated clothing before re-use.

**OTHER PROTECTIVE EQUIPMENT:** No Information

**ENGINEERING CONTROLS:** As a rule, at least 5 air changes per hour are recommended at the workplace. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation, especially in confined areas.

**Chemical Name:**

Benzyl alcohol

**EC No.:**

202-859-9

**CAS-No.:**

100-51-6

**DNELs - Derived no effect level**

Route of Exposure	Workers				Consumers			
	Acute effect local	Acute effects systemic	Chronic effects local	Chronic effects systemic	Acute effect local	Acute effects systemic	Chronic effects local	Chronic effects systemic
Oral	Not required					25 mg/kg bw/d		5 mg/kg bw/d
Inhalation		450 mg/m <sup>3</sup>		90 mg/m <sup>3</sup>		95.5 mg/m <sup>3</sup>		19.1 mg/m <sup>3</sup>
Dermal		47 mg/kg bw/d		9.5 mg/kg bw/d		28.5 mg/kg bw/d		5.7 mg/kg bw/d

**PNEC's - Predicted no effect concentration**

Environmental protection target	PNEC
Fresh water	1 mg/l
Fresh water sediments	5.27 mg/kg
Marine water	0.1 mg/l
Marine sediments	0.527 mg/kg
Food chain	
Microorganisms in sewage treatment	39 mg/l
soil (agricultural)	0.456 mg/kg
Air	

**9. Physical and Chemical Properties****9.1 Information on basic physical and chemical properties**

<b>Appearance:</b>	Amber
<b>Physical State</b>	Liquid
<b>Odor</b>	Amine like
<b>Odor threshold</b>	Not determined
<b>pH</b>	Alkaline
<b>Melting point / freezing point (°C)</b>	Not determined
<b>Boiling point/range (°C)</b>	205 - N.D.
<b>Flash Point, (°C)</b>	>100
<b>Evaporation rate</b>	Not determined
<b>Flammability (solid, gas)</b>	Not determined
<b>Upper/lower flammability or explosive limits</b>	999 - 999
<b>Vapour Pressure</b>	Not determined
<b>Vapour density</b>	Not determined
<b>Relative density</b>	ca. 0.95
<b>Solubility in / Miscibility with water</b>	Not determined
<b>Partition coefficient: n-octanol/water</b>	Not determined
<b>Auto-ignition temperature (°C)</b>	Not determined
<b>Decomposition temperature (°C)</b>	Not determined
<b>Viscosity</b>	Not determined
<b>Explosive properties</b>	Not determined
<b>Oxidising properties</b>	Not determined

**9.2 Other information**

VOC Content g/l: <80

This is a calculated maximum VOC content for the mixed ready to use product (to Directive 2004/42/EC).

## 10. Stability and Reactivity

**10.1 Reactivity**

No reactivity hazards known under normal storage and use conditions.

**10.2 Chemical stability**

No decomposition if stored and applied as directed. Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous polymerisation does not occur.

**10.4 Conditions to avoid**

Avoid temperatures above 40°C, direct sunlight and contact with sources of heat. Do not freeze.

**10.5 Incompatible materials**

Acids. Strong oxidizing agents.

**10.6 Hazardous decomposition products**

In case of fire hazardous decomposition products may be produced such as: Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke.

## 11. Toxicological Information

**11.1 Information on toxicological effects****Acute Toxicity:**

Oral LD50: No Information

Inhalation LC50: No Information

**Irritation:** Irritating to eyes and skin. Vapour/spray mist may irritate respiratory system and lungs.

**Corrosivity:** No information available.

**Sensitization:** Prolonged or repeated skin contact may result in allergic eczema.

**Repeated dose toxicity:** No information available.

**Carcinogenicity:** No information available.

**Mutagenicity:** No information available.

**Toxicity for reproduction:** No information available.

**STOT-single exposure:** No information available.

**STOT-repeated exposure:** No information available.

**Aspiration hazard:** No information available.

If no information is available above under Acute Toxicity then the acute effects of this product have not been tested. Data on individual components are tabulated below:

<u>CAS-No.</u>	<u>Name According to EEC</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Vapor LC50</u>
68953-36-6	Fatty acids, tall-oil, reaction products with tetraethylenepentamine	4750 mg/kg oral, rat		
135108-88-2	Formaldehyde, polymer with benzenamine, hydrogenated	367 mg/kg, oral, rat	>2000	

100-51-6 Benzyl alcohol

1620 mg/kg (rat)

2001 mg/kg (rabbit)

**Additional Information:**

Corrosive - causes irreversible eye damage. In the case of sensitisation to any of the ingredients, it is inadvisable to work with the product. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons.

## 12. Ecological Information

**12.1 Toxicity:**

EC50 48hr (Daphnia):	No information
IC50 72hr (Algae):	No information
LC50 96hr (fish):	No information

**12.2 Persistence and degradability:** No information**12.3 Bioaccumulative potential:** No information**12.4 Mobility in soil:** No information**12.5 Results of PBT and vPvB assessment:** The product does not meet the criteria for PBT/VPvB in accordance with Annex XIII.**12.6 Other adverse effects:** No information

<u>CAS-No.</u>	<u>Name According to EEC</u>	<u>EC50 48hr</u>	<u>IC50 72hr</u>	<u>LC50 96hr</u>
135108-88-2	Formaldehyde, polymer with benzenamine, hydrogenated	No information	No information	
68953-36-6	Fatty acids, tall-oil, reaction products with tetraethylenepentamine	No information	No information	
100-51-6	Benzyl alcohol	230 mg/l	770 mg/l (Pseudokirchneriella)	460 mg/l (Pimephales promelas)
112-57-2	Tetraethylenepentamine	No information	No information	
90-72-2	2,4,6-Tris(dimethylaminomethyl)phenol	No information	No information	
71074-89-0	bis (dimethylaminomethyl) phenol	No information	No information	

**Further Ecological Information**

Contains the following ingredients which are classified as water dangerous according to EEC directive No. 76/464/EEC in percentages > 1%.

<u>CAS-No.</u>	<u>Name According to EEC</u>
68953-36-6	Fatty acids, tall-oil, reaction products with tetraethylenepentamine
135108-88-2	Formaldehyde, polymer with benzenamine, hydrogenated
112-57-2	Tetraethylenepentamine

## 13. Disposal Considerations

**13.1 WASTE TREATMENT METHODS:** Dispose of as hazardous waste in compliance with local and national regulations. Container hazardous when empty. Empty containers should be taken to an approved waste handling site for recycling or disposal. The product should not be allowed to enter drains, water courses or the soil.

**European Waste Code:** 080111**Packaging Waste Code:** 150110

## 14. Transport Information

14.1	UN number	UN2735
14.2	UN proper shipping name	Amines, liquid, corrosive, N.O.S.
	Technical name	(Cycloaliphatic amine, Tetraethylenepentamine)
14.3	Transport hazard class(es)	8
	Subsidiary shipping hazard	No Information
14.4	Packing group	III
14.5	Environmental hazards	Marine Pollutant
14.6	Special precautions for user	Not applicable
	EmS-No.:	No Information
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code	Not applicable

## 15. Regulatory Information

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

#### National Regulations:

Denmark Product Registration Number:	No Information
Danish MAL Code:	00-5 (1993)
Sweden Product Registration Number:	No Information
Norway Product Registration Number:	No Information
WGK Class:	2

#### Chemical Safety Assessment:

15.2 No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## 16. Other Information

### Text for CLP Hazard Statements shown in Section 3 describing each ingredient:

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

#### Reasons for revision

This Safety Data Sheet (SDS) has been revised to meet the new EU CLP requirements. There have been both formatting and content changes based on the CLP classification (if applicable), please review each section of the SDS for specific changes.

#### List of References:

This Safety Data Sheet was compiled with data and information from the following sources:



The Ariel Regulatory Database provided by the 3E Corporation in Copenhagen, Denmark  
 ESIS (The European Chemical Substances Information System), provided by the European Commission  
 Joint Research Centre in Ispra, Italy  
 Annex VI of the EU Council Directive 67/548/EEC  
 Council Directive 67/548/EEC - Annex I or EU Council Directive 1999/45/EC  
 European Union (EU) Regulation No. 1272/2008 on the classification, labelling and packaging of  
 substances and mixtures (CLP Regulation)  
 EU Council Decision 2000/532/EC and its Annex entitled "List of Wastes"

## Acronym &amp; Abbreviation Key:

CLP	Classification, Labeling & Packaging Regulation
EC	European Commission
EU	European Union
US	United States
CAS	Chemical Abstract Service
EINECS	European Inventory of Existing Chemical Substances
REACH	Registration, Evaluation, Authorization of Chemicals Regulation
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
LTEL	Long term exposure limit
STEL	Short term exposure limit
OEL	Occupational exposure limit
ppm	Parts per million
mg/m <sup>3</sup>	Milligrams per cubic meter
TLV	Threshold Limit Value
ACGIH	American Conference of Governmental Industrial Hygienists
OSHA	Occupational Safety & Health Administration
PEL	Permissible Exposure Limits
VOC	Volatile organic compounds
g/l	Grams per liter
mg/kg	Milligrams per kilogram
N/A	Not applicable
LD50	Lethal dose at 50%
LC50	Lethal concentration at 50%
EC50	Half maximal effective concentration
IC50	Half maximal inhibitory concentration
PBT	Persistent bioaccumulative toxic chemical
vPvB	Very persistent and very bioaccumulative
EEC	European Economic Community
ADR	International Transport of Dangerous Goods by Road
RID	International Transport of Dangerous Goods by Rail
UN	United Nations
IMDG	International Maritime Dangerous Goods Code
IATA	International Air Transport Association
MARPOL	International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978
IBC	International Bulk Container

For further information, please contact: Technical Services Department

The information on this sheet corresponds to our present knowledge. It is not a specification and it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage, and use of the product. It is not applicable to unusual or non-standard uses of the product or where instructions and recommendations are not followed.