SAFETY DATA SHEET
BELZONA® 5233 SOLIDIFIER

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

1.1. Product identifier

Product name BELZONA® 5233 SOLIDIFIER

Product number SN2894

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

Identified uses Waterborne top coat in a flooring system. May be used in the resurfacing of a concrete floor and many other applications. For industrial use only.

Uses advised against The product should not be used for purposes other than those recommended in the appropriate Instructions For Use (IFU) leaflet.

1.3. Details of the supplier of the safety data sheet

Supplier
Belzona Polymerics Limited
Claro Road
Harrogate
HG1 4DS
United Kingdom
+44 1423 567641
sds@belzona.com

Manufacturer
Belzona Inc.
14300 NW 60th Ave.
Miami Lakes
FL 33014
USA
1-305-594-4994
sds@belzona.com

1.4. Emergency telephone number

Emergency telephone ChemTel: +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H332 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Not Classified

2.2. Label elements

Hazard pictograms

Signal word Warning

BELZONA® 5233 SOLIDIFIER

Hazard statements	H317 May cause an allergic skin reaction. H332 Harmful if inhaled. H335 May cause respiratory irritation.
Precautionary statements	P280 Wear protective clothing, gloves, eye and face protection. P261 Avoid breathing vapours. P333+P313 If skin irritation or rash occurs: Get medical attention. P362+P364 Take off contaminated clothing and wash it before reuse. P304+P312 IF INHALED: Call a POISON CENTER/ doctor if you feel unwell. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
Contains	ALIPHATIC POLYISOCYANATE, HYDROPHILIC ALIPHATIC POLYISOCYANATE BASED ON HEXAMETHYLENE DIISOCYANATE, HEXAMETHYLENE DIISOCYANATE

2.3. Other hazards

Based on information received from our suppliers no PBT or vPvB substances are intentionally added to this product.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ALIPHATIC POLYISOCYANATE **60-100%**

CAS number: 28182-81-2 EC number: 500-060-2

Classification
Acute Tox. 4 - H332
Skin Sens. 1 - H317
STOT SE 3 - H335

HYDROPHILIC ALIPHATIC POLYISOCYANATE BASED ON HEXAMETHYLENE DIISOCYANATE **10-25%**

CAS number: 666723-27-9 EC number: 500-060-2

Classification
Acute Tox. 3 - H331
Skin Sens. 1 - H317
STOT SE 3 - H335

HEXAMETHYLENE DIISOCYANATE **<0.5%**

CAS number: 822-06-0 EC number: 212-485-8

Classification
Acute Tox. 4 - H302
Acute Tox. 1 - H330
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
Resp. Sens. 1 - H334
Skin Sens. 1 - H317
STOT SE 3 - H335

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air. Keep the patient warm and at rest. Give nothing by mouth.

Ingestion If accidentally swallowed obtain immediate medical attention. Keep at rest. Rinse mouth with plenty of water. Do NOT induce vomiting.

Skin contact Remove contaminated clothing. Wash skin thoroughly with soap and water or use a proprietary skin cleaner. Do NOT use solvents or thinners. If irritation or inflammation persists, seek medical attention.

Eye contact Contact lenses should be removed. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart, and seek medical advice.

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

Inhalation Respiratory exposure may cause acute irritation and/or sensitisation of the respiratory system, resulting in asthmatic symptoms, wheezing and a tightness of the chest. Repeated exposure may lead to permanent respiratory disability. Harmful if inhaled.

Ingestion Inadvertent ingestion may result in the following effects: sore throat, abdominal pain, drowsiness, nausea, vomiting and diarrhoea.

Skin contact May cause skin irritation. Prolonged or repeated contact with the skin or mucous membrane may result in irritant symptoms such as redness, blistering or dermatitis. Onset of symptoms may be delayed. May cause allergic skin reaction.

Eye contact May cause eye irritation.

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

Notes for the doctor None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Use: sand, foam, carbon dioxide, chemical powder or water fog for larger fires. Do NOT use water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO_2). Carbon monoxide (CO). Oxides of nitrogen. Hydrogen cyanide (HCN). Isocyanates.

5.3. Advice for firefighters

Protective actions during firefighting Fire will produce dense black smoke containing hazardous products of combustion. Exposure to decomposition products may be a hazard to health. Appropriate self-contained breathing apparatus may be required. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or watercourses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions No action shall be taken without appropriate training or involving any personal risk. Exclude non-essential personnel. Exclude sources of ignition and ventilate the area. Keep up-wind of spill to avoid breathing vapours. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions Prevent spills from entering drains or sewers. If the product enters drains or sewers in large quantities, the local Water Company should be contacted immediately; in the case of contamination of streams, rivers or lakes, the appropriate National regulating agency.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Contain and collect spillages with non-combustible absorbent materials e.g. sand, earth, vermiculite, diatomaceous earth and place in a suitable labelled container. The contaminated area should be cleaned up immediately with a suitable decontaminant e.g. Sodium Carbonate (5 parts) / Water (95 parts). Add the same decontaminant to any residues and allow to stand for several days in a non-sealed container until no further reaction occurs. Once this stage is reached, close the container and dispose of in accordance with the waste regulations.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13. For information on National regulating agencies refer to Section 16.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions GENERAL Keep the container tightly closed when not in use. Vapours may collect in the container headspace during transit or prolonged storage. Do not breathe vapour when opening the container. Where possible open containers and mix components in a well ventilated place away from the application area. Avoid skin and eye contact. Smoking, eating and drinking should be prohibited in areas of storage and use. For personal protection see Section 8. Always keep in containers made of the same material as the supply container. Good housekeeping methods and regular safe removal of waste materials should be observed. FIRE/EXPLOSION This product is combustible. Exclude sources of heat, sparks and open flame. Good housekeeping standards and regular safe removal of waste materials will minimise the risks of spontaneous combustion and other fire hazards. Ensure emergency equipment (for fires, spills, leaks, etc.) is readily available. SPECIAL Although hexamethylene diisocyanate is practically non-volatile at ambient temperatures, isocyanate vapours may be lifted into the atmosphere as the solvent evaporates. All applications involving isocyanates should be carried out at the lowest temperature possible to minimise the creation of vapours. Do not breathe vapours.

Advice on general occupational hygiene Wash at the end of each work shift and before eating, smoking and using the toilet. Ensure eye wash facilities (fountain, bottle, vials, etc.) are readily available. Do not put contaminated articles or equipment e.g. spatulas, applicators, brushes, cloths etc., into pockets. Where necessary, contaminated work clothing and shoes should be removed to prevent cross contamination of surfaces and the risk of inadvertent skin contact and ingestion.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Observe the label precautions. Store between 5 °C and 30 °C unless otherwise stated in a dry, well ventilated place away from sources of heat, ignition and direct sunlight. No smoking. Prevent unauthorised access. ENVIRONMENTAL STORAGE PRECAUTIONS Spillage, incorrect storage of chemicals or waste materials or unsuitable disposal activities can result in pollutants seeping through the soil, causing serious harm to groundwater- which is a vital source of drinking water. All wastes, especially liquid wastes, must be securely stored on site in designated areas that are isolated from surface drains and bunded to contain any spillages.

7.3. Specific end use(s)

Specific end use(s) Application by brush. Application by roller. Mix with Base component before use. Please refer to the relevant Belzona® Instructions For Use for further information.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

HEXAMETHYLENE DIISOCYANATE

Long-term exposure limit (8-hour TWA): WEL 0,02 mg/m³
Short-term exposure limit (15-minute): WEL 0,07 mg/m³
Sen
as NCO
WEL = Workplace Exposure Limit
Sen = Capable of causing occupational asthma.

Ingredient comments

OEL's are taken from the current version of EH40 except those that are marked 'SUP' which are assigned by the supplier of the substance. All reasonable precautions should be taken to reduce exposure to isocyanates to the lowest level possible by means other than the use of Respiratory Protective Equipment (RPE). Suitable RPE may then be used as a last resort to ensure that the level of exposure is reduced so far as is reasonably practicable below the WEL. Exposure to chemicals that are respiratory sensitisers or have been shown to cause occupational asthma must be controlled to as low a level as is reasonably practicable.

8.2. Exposure controls

Appropriate engineering controls

Use in well ventilated areas or provide adequate mechanical ventilation. If these are not sufficient to maintain concentrations of vapours below the relevant occupational exposure limits, suitable respiratory protective equipment should be worn (see 'Respiratory protection' below).

Eye/face protection

It is recommended that eye protection, for example safety spectacles or goggles are worn at all times during the handling and use of this material. Eye protection should be selected in accordance with EN 166 Personal eye protection.

Hand protection

Hand protection should be selected in accordance with EN 374 Protective gloves against chemicals. The breakthrough time of the gloves selected should exceed the expected use period. Where this is not possible gloves should be changed in good time, and in any case before the breakthrough time is exceeded. If any doubt exists, advice should be sought from glove suppliers on appropriate types. Barrier creams may help to protect exposed areas of skin but are not substitutes for full physical protection. They should not be applied once exposure has occurred. SPECIFIC RECOMMENDATIONS Wear protective gloves made of the following material: Neoprene. Nitrile rubber. STANDARD APPLICATIONS Medium-heavy weight gauntlet type gloves that provide wrist protection are suitable.

Other skin and body protection

STANDARD APPLICATIONS Synthetic polyethylene coveralls such as the Tyvek PRO-TECH® or equivalent coveralls manufactured to EN 13034 Type 6, Protective clothing against liquid chemicals. Grossly contaminated clothing should be removed and the skin washed with soap and water or a proprietary skin cleaner.

Respiratory protection

It is essential that the concentration of the contaminant(s) in the application environment does not exceed the applicable Occupational Exposure Limit(s) (OELs) multiplied by the Assigned Protection Factor (APF) quoted for the respiratory protective equipment selected. STANDARD APPLICATIONS Where necessary, it is recommended that respiratory protective equipment that complies with EN 14387 with a full face visor should be worn in combination with a low boiling point organic vapours and high efficiency dust filter (AXP3). It is essential that the facepiece is correctly fitted and the filter is changed in accordance with the manufacturer's instructions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Clear liquid.

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Colour	Colourless to pale yellow.
Odour	Slight.
Odour threshold	Not available.
pH	Not available.
Melting point	Not available.
Initial boiling point and range	Decomposes.
Flash point	185°C / 365°F Method: Closed cup.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	> 1
Relative density	1.17 @ 22°C/72°F
Solubility(ies)	Insoluble in water. Reacts with water to liberate carbon dioxide gas.
Partition coefficient	Not available.
Auto-ignition temperature	445°C/833°F
Decomposition Temperature	181°C/357.8°F
Viscosity	900 cPs @ 22°C/72°F
Explosive properties	Not applicable.
Oxidising properties	Not applicable.

9.2. Other information

Other information	This section contains typical values for Health, Safety and Environmental guidance only and is not intended to represent a technical specification for the product.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	See the other subsections of this section for further details.

10.2. Chemical stability

Stability	Stable under recommended storage and handling conditions (see Section 7).

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No hazardous reactions expected when stored and handled as recommended.

10.4. Conditions to avoid

Conditions to avoid	Avoid inadvertent contamination with water/moisture. Avoid freezing.

10.5. Incompatible materials

Materials to avoid Keep away from oxidising agents and strongly alkaline and strongly acidic materials. Uncontrolled exothermic reactions occur with amines and alcohols. The product reacts slowly with water resulting in evolution of carbon dioxide. In closed containers, pressure build up could result in distortion, blowing and in extreme cases bursting of the container.

10.6. Hazardous decomposition products

Hazardous decomposition products Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects Toxicity data for the product (ATEmix) is calculated based on available information on the individual component hazard data. This is in accordance with the methods prescribed in EC 1272/2008.

Acute toxicity - oral

Notes (oral LD_{50}) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD_{50}) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC_{50}) ATE >1 mg/l, Dust/Mist, Harmful if inhaled.

Skin corrosion/irritation

Skin corrosion/irritation Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitisation

Respiratory sensitisation Based on the properties of the isocyanate content of this product, respiratory exposure may cause acute irritation and/or sensitisation of the respiratory system, resulting in asthmatic symptoms, wheezing and a tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to airborne concentrations of isocyanates well below the occupational exposure limit. Repeated exposure may lead to permanent respiratory disability.

Skin sensitisation

Skin sensitisation Sensitising to skin.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Genotoxicity - in vivo Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

IARC carcinogenicity Not listed.

NTP carcinogenicity Not listed.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Based on available data the classification criteria are not met.

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Specific target organ toxicity - single exposure

STOT - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

Route of exposure Inhalation Ingestion. Skin and/or eye contact

Medical considerations Skin contact constitutes a pronounced hazard. Persons with a history of skin sensitisation problems should only be employed in processes in which this product is used under appropriate medical supervision. Animal studies have shown that skin contact with isocyanates may cause respiratory sensitisation.

Toxicological information on ingredients.

ALIPHATIC POLYISOCYANATE

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l) 0.39

Species Rat

Notes (inhalation LC_{50}) Toxicological studies of a comparable product. The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

HYDROPHILIC ALIPHATIC POLYISOCYANATE BASED ON HEXAMETHYLENE DIISOCYANATE

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l) 0.158

Species Rat

Notes (inhalation LC_{50}) Toxicological studies of a comparable product. The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

HEXAMETHYLENE DIISOCYANATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg) 959.0

Species Rat

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} vapours mg/l)	0.124
Species	Rat

SECTION 12: Ecological information

Ecotoxicity There is no data on the product itself. The following information is provided on the basis of the individual component data available.

12.1. Toxicity

Toxicity Based on the individual component data, the products LC50/EC50/IC50 are expected to be greater than 100 mg/l in most sensitive species.

12.2. Persistence and degradability

Persistence and degradability Based on the individual component data, the product is not expected to be rapidly biodegradable according to OECD/EC guidelines.

12.3. Bioaccumulative potential

Bioaccumulative potential There is no data on the product itself.

Partition coefficient Not available.

12.4. Mobility in soil

Mobility There is no data available on the product itself.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment Based on information received from our suppliers no PBT or vPvB substances are intentionally added to this product.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Controlled wastes include non-hazardous industrial and hazardous chemical wastes. All controlled wastes should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act. In addition, hazardous chemical wastes should be disposed of in accordance with the Hazardous Waste Regulations. When in doubt, using information provided in this safety data sheet, advice should be obtained from the National regulating agency whether the Hazardous Waste Regulations apply. Refer to information sources listed in Section 16. COMPONENT DISPOSAL TRANSIT PACKAGING: shrink or stretch wrap, boxes and fittings that have not been contaminated with product should be re-used or recycled. UNREACTED PRODUCT and empty uncleaned containers should be disposed of as hazardous chemical waste. REACTED PRODUCT, contaminated mixing boards, spatulas, applicators, brushes, nominally empty containers and mixing bowls- once fully cured- should be disposed of as non-hazardous waste.

Waste class List of Waste (LoW) code: 08 05 01* *Hazardous waste pursuant to Directive 91/689/EEC. The LoW code quoted in this section is a general entry. LoW codes should be assigned based on the end use of the product. Where a more specific code is available it should be used in preference to the code given above. Where in doubt refer to the List of Wastes, your local licensed waste contractor or the National regulating agency. Refer to information sources listed in Section 16.

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SECTION 14: Transport information

General Not classified for transport under current National and International Regulations. Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of accident or spillage.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not carried in bulk.

SECTION 15: Regulatory information

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

National regulations The provisions of the Health and Safety at Work Act and the Control of Substances Hazardous to Health Regulations with amendments apply to the use of this product at work. This product may add to the calculation for determining whether a site is within scope of the Control of Major Accident Hazards Regulations.

EU legislation 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 (as amended).
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), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. In accordance with Regulation (EC) No 453/2010.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

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General information	The information contained within this safety data sheet does not constitute the users own assessment of workplace risks as required by other health and safety legislation. As the specific conditions of use of the product are outside the supplier's control, the user is responsible for ensuring that the requirements of relevant National legislation are complied with. The information contained within this safety data sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.
Classification procedures according to Regulation (EC) 1272/2008	Where there is no test data available for the mixture, the classification has been determined based on the individual component hazard data in accordance with EC 1272/2008.
Training advice	For further information please contact your supplier, Belzona consultant or Belzona direct.
Revision comments	This is the first issue. Please observe the REVISION DATE. Should you be reading a safety data sheet that is more than 24 months old or have concerns over its validity, please contact your local Belzona consultant or Belzona direct (sds@belzona.com) and the most current information will be sent to you.
Revision date	03/03/2017
Revision	1.0
SDS number	41136
Hazard statements in full	H302 Harmful if swallowed. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H330 Fatal if inhaled. H331 Toxic if inhaled. H332 Harmful if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation.