

Revision 1 Date Issued: 14/03/2003

1. Identification of the substance/preparation and company**Product Name:** **Base A for the Flowshield LXP range****Includes:-** **Flowshield LXP, LXP HD, LXP HD AS, LXP LV,
LXP Scratchcoat****Application:** Polyol component of a polyurethane topping. Mixed material is applied by serrated trowel.**Note:** This data sheet applies to the colours listed below.
If the colour is not listed it may contain some Lead Chromate, please contact Flowcrete for further details.

| | | | |
|----------|----------------|-----------------------|--------------------------|
| BEIGE | CLIPPER BLUE | PANTONE 280 | RAL 7001 |
| BLACK | COUNTY CREAM | PANTONE COOL GREY 11 | RAL 7032 |
| BS 00A01 | D-5040-R10B | PASTEL GREEN | SAHARA YELLOW |
| BS 06C33 | DARK GREY | RAL 1013 (RESTRICTED) | Special Esprit (RAL7038) |
| BS 12B21 | ESPRIT | RAL 1015 | SR97242 RAL 7035 |
| BS 16D45 | GOOSEWING GREY | RAL 5002 | TILE RED |
| BS 18B25 | HF MUSTARD | RAL 5013 | |
| BUFF | MID GREY | RAL 5015 | |
| BURGUNDY | NEUTRAL | RAL 5017 | |

Manufacturer:

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2. Composition/information on constituents

Contains polyol resin, various pigments, thixotropic agents, surfactants and additives.

3. Hazards Identification

May cause transient irritation of the eyes.

When the base is mixed with the hardener an exothermic reaction starts (i.e. heat is generated).

If the mix is not applied within 20 - 30 minutes some smoking may occur.

4. First Aid measures**Inhalation** : Remove from exposure – unlikely to occur because of the low volatility of the product.**Skin contact** : Wash with soap and plenty of water or a suitable skin cleanser as soon as possible.**Eye Contact** : Hold eyelids apart and immediately flush with plenty of water for at least 15 minutes.
If irritation persists, seek medical advice.**Ingestion** : Wash out mouth with water. If any has been swallowed, seek medical advice.**5. Fire-fighting measures****Suitable extinguishing media** : Water spray, carbon dioxide (CO₂), foam, dry powder.**Un-Suitable extinguishing media** : High volume water jet**Special exposure hazards** : Burning produces carbon oxides.**Special protective equipment** : Wear self-contained breathing apparatus and protective suit.

6. Accidental release measures

- Personal precautions** : Use personal protective equipment as detailed in Section 8.
Ensure adequate ventilation.
- Environmental precautions** : Prevent entry into drains, sewers and water courses.
- Methods for cleaning up** : Soak up with inert absorbent material or contain and remove by best available means.
Collect in suitable containers for disposal in accordance with Section 13

7. Handling and storage

- Handling** : Ensure adequate ventilation. Use personal protective equipment as detailed in Section 8.
Handle and open container with care. Avoid skin and eye contact.
- Storage** : Store in a dry, cool, well-ventilated place at 5 - 25 °C. Keep container tightly closed.

8. Exposure controls/personal protection

There are no components with occupational exposure limits.

Engineering measures to reduce exposure : No specific ventilation requirement noted.

Personal protective equipment :

- Respiratory protection** : Not required.
- Eye protection** : Goggles or face shield.
- Hand protection** : Impervious gloves
- Skin and body protection** : Overalls.
- Protective measures** : Use of the basic principles of Industrial Hygiene will enable this material to be used safely.

9. Physical and chemical properties

- | | | | |
|----------------------|---------------------------|--------------------------|-------------|
| Appearance | : Liquid, colour on label | Relative Density | : ~1.5 |
| Odour | : Almost odourless | Water solubility | : Insoluble |
| Boiling Point | : No data | Water miscibility | : none |
| Flashpoint | : >100 °C | | |

10. Stability and reactivity

- Conditions to avoid** : None known.
- Materials to avoid** : None known.
- Hazardous decomposition products** : Thermal decomposition - carbon oxides.

11. Toxicological information

- Acute oral toxicity** : Polyol, LD₅₀ oral (rat) : >5000 mg/kg
- Eye irritation** : May cause transient irritation.
- Skin Irritation** : Unlikely to irritate on brief or occasional exposure.
- Sensitisation** : No sensitisation effects known.
- Long term toxicity** : Low volatility makes inhalation unlikely at typical UK ambient temperatures.
Low order of acute toxicity. Ingestion may cause irritation of the mouth, throat and digestive tract.

12. Ecological information

| | | |
|--|---|--|
| Ecotoxicity | : | Polyol: Brachydanio rerio LC ₀ : > 100 mg/ Daphnia LC ₀ : > 100 mg/ |
| Mobility | : | Insoluble in water. |
| Persistence and degradability | : | Not readily degradable. |
| Bioaccumulative potential | : | Not expected to be bioaccumulative. |
| Additional ecological information | : | Do not allow to escape into waterways, waste water or soil. |

13. Disposal considerations

| | | |
|--|---|--|
| Unused Product/waste from cleaning etc. | : | Dispose of in accordance with local and national regulations. Do not empty into drains, sewers or water courses. EC Waste Catalogue (EWC) code: 08 01 12 Waste products from the Manufacture, Formulation, Supply and Use (MFSU) of paint and varnish. Waste paints and varnish other than those mentioned in 08 01 11. |
| Contaminated packaging | : | <u>If the container has been used for mixing with the Hardener</u> , can be landfilled in accordance with local regulations. Remove/invalidate the warning label. <u>If the container has not been used for mixing with the Hardener</u> , treat as for unused product. After cleaning, empty containers can be landfilled in accordance with local regulations. Remove/invalidate the warning label. |

14. Transport information

Not classified as hazardous for transport.

15. Regulatory information

| | |
|---|---|
| Classification according to EEC directive: | Not classified |
| Labelling: | |
| S-phrases | : |
| S36/37/39 | : Wear suitable protective clothing, gloves and eye/face protection. |
| EC Directives: | Dangerous Substances Directive, 67/548/EEC & adaptations. Dangerous Preparations Directive, 1999/45/EC. Safety Data Sheets Directive, 91/155/EEC and adaptations. |
| Statutory Instruments: | Chemicals (Hazard Information & Packaging for Supply) Regs 2002. Control of Substances Hazardous to Health Regs 1999. Environmental Protection (Duty of Care) Regs. 1991. |
| Codes of Practice | Waste Management. The Duty of Care. Approved classification and labelling guide (Fifth edition). L131. The compilation of safety data sheets (Third edition). |
| Guidance Notes | Occupational Exposure Limits EH40 CHIP for Everyone HSG(108) |

16. Other Information

This safety data sheet has been prepared in accordance with CHIP3. The text in each section has changed and the section order/ headings is in line with the requirements of CHIP3.

The provision of Safety data sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals, Hazard Information and Packaging Regulations). This is in addition to the Health and Safety at Work Act 1974.

Users of our products should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (COSHH).

This data sheet does not replace the obligation of the user to provide their own assessment of workplace risk as required by other Health & Safety legislation.

Training Advice

Applicators need to be trained in:-
Handling and hygiene associated with use of industrial chemicals.
Correct mixing and application of the product.
Correct cleaning and disposal methods.

Notes

Do not use organic solvents for skin cleansing, it will lead to defatting of the skin, skin irritation and/or dermatitis.
Some solvents can be absorbed through the skin.
Beware of cross contamination where different products are in use in the same location.
Take into account the Manual Handling regulations when dealing with the mixed product.

Restrictions on Use

The product is intended for use by appropriately trained applicators in industrial situations.
It is not suitable for use in home DIY applications, especially because of its hazardous nature and the protective measures required.

The material has been designed for application by roller, serrated trowel and/or squeegee - it is not recommended this material be sprayed. The isocyanates in the hardener are respiratory sensitisers and the engineering requirements to allow spraying would have to include total exclusion of all none spraying personnel and prevention of all overspray/vapour/fumes from escaping. It would not be acceptable from a safety viewpoint to allow any escape of the material because even small concentrations can cause asthma like attacks in sensitised persons. In effect spraying can only be undertaken in a spray booth with appropriate water wash facilities for exhaust air.

This safety data sheet is based on our present knowledge and experience and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.

Revision 1 Date Issued: 14/03/2003

1. Identification of the substance/preparation and company

Product Name: **Hardener B for the Flowshield LXP range, all colours**
Includes:- Flowshield LXP, LXP HD, LXP HD AS, LXP LV,
LXP Scratchcoat

Application: Polyisocyanate hardener component of a polyurethane topping.
Mixed product is applied by serrated trowel.
Polyisocyanate based on diphenylmethane diisocyanate.

Manufacturer:

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E-mail: technical@flowcrete.co.uk Website: <http://www.flowcrete.com>

2. Composition/information on constituents

| Chemical Name | EINECS No. | CAS No. | % by weight | Symbols and Risk Phrases |
|--|------------|-----------|-------------|---------------------------|
| 4,4'-diphenylmethane-diisocyanate isomers and homologues | - | 9016-87-9 | >25 | Xn; R20; R36/37/38;R42/43 |

See section 16 Additional information, for full text regarding symbols and Risk phrases.

3. Hazards Identification

Harmful by inhalation. This hazard is most likely to arise when materials are heated, sprayed, used in a confined unventilated space or if correct handling procedures are not followed.

Irritating to eyes, respiratory system and skin. In mild cases the affected person may experience slight irritation of the eyes, nose and throat, possibly combined with dryness of the throat. In more severe cases the person may suffer acute bronchial irritation and difficulty in breathing.

May cause sensitisation by inhalation and skin contact. Repeated and /or prolonged exposure may cause an allergic reaction/sensitisation. Once sensitised, an individual may produce an allergic reaction every time they are in contact with isocyanates. Individuals who have developed sensitivity may experience wheezing, tightness of the chest and shortness of breath. A hyper-reactive response to even minimal concentrations of isocyanate may develop in sensitised persons.

When the base is mixed with the hardener an exothermic reaction starts (i.e. heat is generated).
If the mix is not applied within 20 - 30 minutes some smoking may occur.

4. First Aid measures

- Inhalation** : Remove affected person from exposure, keep them warm and at rest. Obtain medical attention. Delayed appearance of the complaints (difficulty in breathing, coughing, asthma) are possible following severe exposure.
- Skin contact** : Wash with soap and plenty of water or a suitable skin cleanser as soon as possible. If irritation persists, seek medical advice.
- Eye Contact** : Hold eyelids apart and carefully and thoroughly flush with plenty of water for at least 15 minutes. Seek medical advice.
- Ingestion** : If the person is conscious, wash out mouth with water. Do not swallow mouth wash. Seek medical advice.

5. Fire-fighting measures

- Suitable extinguishing media** : Carbon dioxide (CO₂), foam, dry powder. Water spray should be used for larger fires.
- Un-Suitable extinguishing media** : High volume water jet.
- Special exposure hazards** : Burning produces carbon oxides, hydrogen cyanide, nitrogen oxides and isocyanate vapour.
- Special protective equipment** : Wear self-contained breathing apparatus and protective suit.
- Additional information** : Do not allow contaminated extinguishing water to enter the soil, drains, sewers or water courses.

6. Accidental release measures

- Personal precautions** : Use personal protective equipment as detailed in Section 8.
Ensure adequate ventilation.
If a major spillage (an area greater than 2 square metres), clear the area of non-essential personnel.
- Environmental precautions** : Prevent further leakage or spillage and prevent entry into drains, sewers and water courses. The reaction with water produces carbon dioxide and insoluble material which could cause the drains to block. If any enters drains, flush away with copious amounts of water.
- It is an offence to discharge effluent down the drain without prior consent from the appropriate authority. Check where the drain chosen for disposal goes. If it goes to a watercourse, check that disposal of the spillage will comply with the Environmental Agency or SEPA consent. If it goes to the sewer, check the consent issued by the sewerage authority.
- If washing the spillage to drain will breach a consent condition, dispose of in another way. Make sure the disposal site is licensed to accept this type of waste.
- Methods for cleaning up** : Soak up with inert absorbent material (e.g. sand, sawdust) wetted out with water to expedite the process.
Leave the material to react with the water for 30 minutes.
Shovel into suitable open-top containers, do not close container for at least 24 hours (because of evolution of carbon dioxide) and keep damp in a safe, well ventilated area.
Dispose in accordance with Section 13.
Wash the area with plenty of water.

7. Handling and storage

- Handling** : Ensure adequate ventilation or provide exhaust ventilation in work area.
- If sprayed (not recommended), exhaust ventilation is required and all other personnel to be excluded from area. In all areas where isocyanate aerosols and/or vapour concentrations are produced, exhaust ventilation must be provided in such a way that the MEL (see section 8) is not exceeded. The air should be drawn away from the personnel handling the product.
- Use personal protective equipment as detailed in Section 8.
Handle and open container with care. Avoid skin and eye contact.
- Storage** : Store in a dry, cool, well-ventilated place. Keep container tightly closed.
Do not allow to freeze as some crystallisation will occur.
Maintain store between temperatures 10 - 35 °C.

8. Exposure controls/personal protection

Maximum Exposure Limit (MEL) : Isocyanates, all (expressed as –NCO)
0.02 mg/m³ 8 hour Time Weighted Average (TWA)
0.07 mg/m³ 15 minute Short Term Exposure Limit (STEL)

Engineering measures to reduce exposure : Ensure adequate ventilation, especially in confined areas.
If sprayed, exhaust ventilation is required.

Personal protective equipment :

Respiratory protection : Required in insufficiently ventilated working areas (especially during mixing and always if sprayed). An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter respirator.
In the case of hypersensitivity of the respiratory tract (e.g. asthmatics and those who suffer from chronic bronchitis) it is inadvisable to work with the product.

Eye protection : Goggles or full face shield.

Hand protection : Impermeable gloves (nitrile butadiene rubber [NBR], Butyl rubber [IIR], Fluorinated rubber [FKM], polyvinyl chloride [PVC], polychloroprene [CR]) .
Isocyanates can harden gloves and increase the risk of their splitting.
Check regularly for degradation and replace as necessary.

Skin and body protection : Protective suit and heavy duty work shoes.

Protective measures : Handle in accordance with good industrial hygiene and safety practice.
Wash hands before breaks and immediately after handling the product.
When using do not eat, drink or smoke.

9. Physical and chemical properties

| | | | |
|-----------------|---|----------------------|---|
| Appearance | : Dark brown coloured liquid. | Relative Density | : ~1.23 at 25 °C |
| Odour | : Earthy, musty | Water solubility | : Insoluble, reacts to produce carbon dioxide and polyurea solid. |
| Boiling Point | : > 300 °C, decomposes/polymerises | Ignition temperature | : >400 °C |
| Flashpoint | : > 180 °C | Explosion limits | : Not applicable |
| Vapour pressure | : <0.001 Pa at 25 °C (100 Pa = 1 mbar) | | |

10. Stability and reactivity

Material is stable when stored and handled correctly.

When the base is mixed with the hardener an exothermic reaction starts (i.e. heat is generated).

If the mix is not applied within 20 – 30 minutes some smoking may occur.

Conditions to avoid : Avoid high temperatures. Do not allow to freeze.

Materials to avoid : Exothermic reaction with amines, alcohols.
Reacts with water forming carbon dioxide and polyurea solid.

Hazardous decomposition products : No hazardous decomposition products when stored and handled correctly.
Thermal decomposition – polymerises at >300 °C with evolution of carbon dioxide.

11. Toxicological information

- Acute oral toxicity** : LD₅₀ Oral (rat) : >5,000 mg/kg
- Inhalation** : LC₅₀ inhalation (rat) ca. 490 mg as aerosol/m³, 4 hrs exposure.
Concentration of saturated vapour: 0.09 mg/m³ at 25 °C
- Irritation** : Over exposure, especially when spraying without the necessary precautions, entails the risk of concentration dependant irritating effects on eyes, nose, throat and respiratory tract.
In mild cases the affected person may experience slight irritation of the eyes, nose and throat, possibly combined with dryness of the throat. In more severe cases the person may suffer acute bronchial irritation and difficulty in breathing.
- Skin** : Prolonged contact with the skin may cause tanning and irritant effects.
LD₅₀ Dermal (rabbit) > 9,000 mg/kg
- Sensitisation** : Repeated and /or prolonged exposure, especially at levels above the MEL, may cause an allergic reaction/respiratory sensitisation. Once sensitised, an individual may produce an allergic reaction every time they are in contact with isocyanates. Individuals who have developed sensitivity may experience wheezing, tightness of the chest and shortness of breath. A hyper-reactive response to even minimal concentrations of isocyanate may develop in sensitised persons.
The onset of respiratory symptoms (difficulty in breathing, coughing, asthma) may be delayed for several hours after exposure.
Repeated and/or prolonged skin contact may cause skin sensitisation.
Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates.
- Long term toxicity** : Animal testing has shown no long term adverse effects at or below the MEL.
Chronic pulmonary irritation observed at high concentrations. There are reports that chronic exposure by inhalation may result in decreases in lung function.
- Carcinogenicity** : It is currently proposed that the classification for diphenylmethane diisocyanate be changed to carcinogenic, category 3, when it is in the form of respirable aerosol e.g. when sprayed.
- Mutagenicity** : There is no substantial evidence of mutagenic potential.
- Reproductive toxicity** : No birth defects seen in animal (rat) studies.
Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother.
Fetotoxicity was not observed at doses that were not maternally toxic.

12. Ecological information

- Ecotoxicity** : Observed ecotoxicity to fish, bacteria and invertebrates is low/very low and to worms and plants is very low.
Brachydanio rerio LC₀ : > 1000 mg/l 96 hour test
Daphnia EC₅₀ : > 1000 mg/l 24 hour test
Acute bacteria toxicity EC₅₀ : > 100 mg/l 3 hour test
Tested on activated sludge micro-organisms.
- Mobility** : Reacts with water to produce carbon dioxide and polyurea solid.
- Persistence and degradability** : The polyurea produced on contact with water is insoluble, inert and non-biodegradable.
In air the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related isocyanates.
- Bioaccumulative potential** : Not expected to be bioaccumulative.
In a pond study with gross contamination, there was no evidence of bioaccumulation.
- Additional ecological information** : It is unlikely that significant environmental exposure in the air or water will arise.

13. Disposal considerations

- Unused Product/waste from cleaning etc.** : Dispose of in accordance with local and national regulations. Do not empty into drains, sewers or water courses. May be incinerated in a suitable facility provided local regulations are observed.
EC Waste Catalogue (EWC) code: 08 05 01 [Waste products from the Manufacture, Formulation, Supply and Use (MFSU) of paint and varnish. Waste isocyanates.]
- Contaminated packaging** : Fill used containers with water and a little detergent, allow to stand for at least 24 hours. Dispose of as non-hazardous waste in accordance with local and national regulations after removing/invalidating the warning label.
- Untreated contaminated packaging to be disposed of as for unused product.

14. Transport information

Not classified as hazardous for transport.

Other information:

Not dangerous cargo. Irritating to skin and mucous membranes. Avoid temperatures below 0 °C. Avoid heat above +50 °C. Keep dry. Keep away from foodstuffs, acids and alkalis.

15. Regulatory information

Classification according to EEC directive:

Symbols:



Harmful

R-phrases

- R20** : Harmful by inhalation.
R36/37/38 : Irritating to eyes, respiratory system and skin.
R42/43 : May cause sensitisation by inhalation and skin contact.

S-phrases :

- S23** : Do not breathe vapour/spray.
S38 : In case of insufficient ventilation, wear suitable respiratory equipment.
S45 : In case of accident or if you feel unwell, seek medical advice immediately (show this label where possible).
S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.
S60 : This material and its container must be disposed of as hazardous waste.

Special provisions statement : Contains isocyanates. See information supplied by the manufacturer.

Hazardous component(s) which must be listed on the label : Diphenyl methane diisocyanate, isomers and homologues

EC Directives: Dangerous Substances Directive, 67/548/EEC & adaptations.
Dangerous Preparations Directive, 1999/45/EC.
Safety Data Sheets Directive, 91/155/EEC and adaptations.

Statutory Instruments: Chemicals (Hazard Information & Packaging for Supply) Regs 2002.
Control of Substances Hazardous to Health Regs 1999.
Environmental Protection (Duty of Care) Regs. 1991.

Codes of Practice Waste Management. The Duty of Care.
Approved classification and labelling guide (Fifth edition). L131.
The compilation of safety data sheets (Third edition).

Guidance Notes Occupational Exposure Limits EH40
CHIP for Everyone HSG(108)

16. Other Information

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The provision of Safety data sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals, Hazard Information and Packaging Regulations). This is in addition to the Health and Safety at Work Act 1974.

Users of our products should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (COSHH).

This data sheet does not replace the obligation of the user to provide their own assessment of workplace risk as required by other Health & Safety legislation.

EC Directive relating to the classification, packaging and labelling of dangerous substances and preparations – Classification(s) and Risk (R) phrase(s) referred to in this document:-

Xn : Harmful

R20 : Harmful by inhalation.
R36/37/38 : Irritating to eyes, respiratory system and skin.
R42/43 : May cause sensitisation by inhalation and skin contact.

The European Committee of Paint, Printing Ink and Artist's Colours Manufacturers' Associations (CEPE) provides the following information on coatings containing isocyanates:-

"Ready-to-use paints containing isocyanates may have an irritant effect on mucous membranes – especially on breathing organs – and cause hypersensitivity reactions. Inhalation of vapour or spray mist may cause sensitisation. When handling paints containing isocyanates all precautions required for solvent-containing paints must be followed. Vapour and spray mist in particular should not be inhaled. Persons who are allergic, asthmatic or prone to respiratory ailments should not work with isocyanate-containing paints."

Training Advice

Applicators need to be trained in:-
Handling and hygiene associated with use of industrial chemicals.
Correct mixing and application of the product.
Correct cleaning and disposal methods.

Restrictions on Use

The product is intended for use by appropriately trained applicators in industrial situations. It is not suitable for use in home DIY applications, especially because of its hazardous nature and the protective measures required.

Notes

Do not use organic solvents for skin cleansing, it will lead to defatting of the skin, skin irritation and/or dermatitis.
Some solvents can be absorbed through the skin.
Take into account the Manual Handling regulations when dealing with the mixed product.
Beware of cross contamination where different products are in use in the same location.

This safety data sheet is based on our present knowledge and experience and is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.