FLEXITUFF® DM-8
Direct to Prepared Metal Polyurea Elastomer

FEATURES
• EXCELLENT ABRASION RESISTANCE
• FAST CURE
• CAN BE APPLIED DIRECT TO CORRECTLY PREPARED STEEL
• 100% SOLIDS – LOW VOC

USES
FLEXITUFF® DM-8 is a two component polyurea elastomer formulated for protection against abrasion and corrosion. FLEXITUFF® DM-8 offers a seamless finish that absorbs impact and is extremely difficult to tear.

FLEXITUFF® DM-8 is designed specifically for use directly onto correctly prepared steel without the use of a primer. FLEXITUFF® DM-8 cures almost immediately on contact with the surface.

FLEXITUFF® DM-8 applications include its use as a highly resilient lining for hopper cars, conveyers, tanks, slurry systems and various equipment parts that are subject to abrasion in mining and process industries. It is also suitable for use in sewagerage and waste treatment plants on walls and rake arm assemblies in settling tanks, clarifiers and filters.

SPECIFICATIONS
AS/NZ 4020:2005 - suitable for use with potable water when cured with Part B Hardener. Refer to your Dulux Protective Coatings Consultant for details.

RESISTANCE GUIDE

WEATHERABILITY
Will discolour when exposed to sunlight. Colour change will not detract from the protective properties of the coating.

SOLVENTS
Poor, not recommended for areas subject to splash and spillage of aromatic hydrocarbon solvents, esters, ketones or alcohols

HEAT RESISTANCE
Up to 120°C dry heat

WATER
Excellent resistance to immersion in fresh and salt water

SALTS
Unaffected by splash and spillage of neutral and alkaline salt solutions

ALKALIS
Suitable for splash and spillage of strong alkalis

ACIDS
Suitable for splash and spillage of mild inorganic acids

ABRASION
Excellent abrasion resistance

TYPICAL PROPERTIES AND APPLICATION DATA

CLASSIFICATION
Pure polyurea elastomer coating

APPLICATION CONDITIONS
<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Temp.</td>
<td>5°C 50°C</td>
</tr>
<tr>
<td>Substrate Temp.</td>
<td>2°C 50°C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>85%</td>
</tr>
</tbody>
</table>

COATING THICKNESS (MICRONS)

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet film per coat (μm)</td>
<td>1,000</td>
<td>&gt;10,000</td>
</tr>
<tr>
<td>Dry film per coat (μm)</td>
<td>1,000</td>
<td>&gt;10,000</td>
</tr>
</tbody>
</table>

SUITABLE SUBSTRATES
Suitably prepared steel. Suitably primed aluminium or concrete

SUITABLE PRIMERS
Durepon® P14 and Luxepoxy® Sealer

TOPOATS
Not applicable

APPLICATION METHODS
Heated plural component airless spray

SPREADING RATE
0.5 square metres per litre equals 2,000 μm dry film thickness

NOTE: Practical spreading rates will vary depending on such factors as application method, ambient conditions, surface porosity and roughness.

DRYING CHARACTERISTICS AT 2,000 μm DRY FILM THICKNESS

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Humidity</th>
<th>Touch</th>
<th>Handle*</th>
<th>Full Cure**</th>
</tr>
</thead>
<tbody>
<tr>
<td>25°C</td>
<td>50%</td>
<td>30-60 Seconds</td>
<td>1 Hour</td>
<td>24 Hours</td>
</tr>
</tbody>
</table>

OVERCOAT

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Page 3</td>
<td>See Page 3</td>
</tr>
</tbody>
</table>

These figures are a guide only, as ventilation, film thickness, humidity, thinning and other factors will influence the rate of drying.

* The product can be quite brittle in the first 15-30 minutes after application and should not be subject to impact, abrasion, elongation or other mechanic movement during this period.

** At this time the product can be put into service, however it will continue to cure and will reach full performance in 7 – 10 days.
This is a guide only and not to be used as a specification. Your specific project needs must be discussed with a Dulux Protective Coatings Consultant.

**SURFACE PREPARATION**

Specifiers should follow the surface preparation guidelines from the data sheet for the primer or first coat selected. The surface must be clean, sound and free from moisture, grease, oil, dirt, rust, loose paint, and other contaminants and abraded to provide a suitable key for the coating system. If application of the second coat has exceeded the recoat window of the first coat (refer to data sheet) then the entire surface MUST be abraded.

**When applied direct to steel:** Round off all rough welds, sharp edges and remove weld spatter. Remove grease, oil and other contaminants in accordance with AS1627.1. Degrease with Gamlen CA 1 (a free-rinsing, alkaline detergent) according to the manufacturer’s written instructions and all safety warnings. Abrasive blast clean to a minimum of AS1627.4 Class 3 with a blast profile of 75 – 100 microns.

**Immersed steel:** Abrasive blast clean to AS1627.4 Class 3 with a blast profile of 75 – 100 microns. Remove all dust by brushing or vacuum cleaning.

**APPLICATION**

This coating is designed for application through heated, plural component, high pressure airless spray equipment capable of supplying material at the spray gun at a minimum of 2000 psi spray pressure and material temperature of 55-60°C. It has been successfully sprayed through Graco Reactor machine using a Fusion spray gun.

**EQUIPMENT**

- **DRUM HEATERS:** Flexible 1000W adjustable band heaters can be used to condition materials in drums to the optimum temperature.
- **TRANSFER SYSTEM:** The proportioner should be supplied by a transfer pump such as a Graco 2:1 Piston Pump.
- **PROPORTIONING PUMP:** A plural (1:1) proportioning pump, such as a Graco Reactor E-XP2 or A-XP2, capable of developing a minimum of 2000 psi pressure.
- **MATERIALS OR PRIMARY HEATERS:** Material heaters are necessary in the system to reduce and maintain material viscosities at optimum levels. These primary heaters are usually mounted on the proportioner and are connected in line after the proportioning pump. These heaters should be capable of raising the temperature of the material 30°C at the flow rate during normal application. They should be rated to withstand the maximum pressures the system can develop. These heaters are more effective if they are controlled accurately by a thermostat incorporated into the heater.
- **HEATED HOSE ASSEMBLY:** Nylon lined hoses for each component rated for the proportioning pumps maximum pressure are used to transfer the material under pressure from the pump to the spray gun. These hoses should be heated and controlled thermostatically by temperature controls at the proportioner. The hose heat should be capable of maintaining the material temperature set by the primary heaters to the spray gun. The hose assembly is usually insulated with flexible pipe insulation and the airline necessary for the operation of the spray gun is incorporated into the package. These hoses are usually 10mm (3/8”) I.D. with the air feed hose to the gun being 6mm (1/4”) hose. A short section of hose assembly (3-15) of 6mm (1/4”) hose is usually attached to the gun end of the hose to aid in the maneuvering of the spray gun in application. This assembly should also be heated. The Graco HP Reactor Heated Hose should be suitable.
- **SPRAY GUN:** Plural component spray gun utilising impingement mixing and a mechanical purge. Further, the spray gun should be designed to spray coatings with a flat spray pattern and be rated for the proportioning pumps maximum pressure. Suitable guns are the Graco Fusion Gun AP or MP.
- **MATERIAL PROTECTION:** Moisture vapour entering the drum through the small bunghole, which is normally used as a vent, can cause unwanted blowing or microcellular structure in the spray film. The nitrogen gas purge system slightly pressures the container and prevents air from entering the container. As a secondary method, a desiccant drier system will be designed to spray coatings with a flat spray pattern and be rated for the proportioning pumps maximum pressure. Suitable guns are the Graco Fusion Gun AP or MP.
- **OTHER EQUIPMENT:** Agitators of 1/2 HP or greater, such as a Graco Twistork Agitator, should be available and used for the Part B to thoroughly mix the material prior to any application. The agitator should be designed for the container in which it will be used.

**AIRLESS SPRAY**

- **PRE-CONDITIONING:** The materials should be maintained prior to any application at an optimum temperature of 24-27°C. This may mean heating the material in the drum if the surrounding ambient temperature is much below 24°C. This will allow the pre-heaters to reach and maintain the proper application temperatures of the materials.
- **THINNING:** Absolutely no solvent should be allowed to come in contact with or be added to 100% solids coatings. Viscosity can be reduced by increasing temperature.
**FLEXITUFF® DM-8**

**SETTING UP TO SPRAY/START UP PROCEDURES**

For new equipment, individual components should be connected as previously described. Be sure to lubricate all pumps as per manufacturer’s instructions. Use plasticiser for the wet cups. Check and clean all fluid filters, air traps and filters. Check electrical system to insure proper power requirements are satisfied and there is complete continuity in all circuits.

For existing equipment thoroughly clean the system including the line filters. Flush the system and fill (using transfer pumps) with inert plasticiser such as DPGDB (Dipropylene Glycol Dibenzoate, eg Benzoflex 988) or DIOP (Di-Iso-Octyl Phthalate, eg Palatiniol AH) and test by slowly bringing the unit up to full pressure and heat. For new equipment decide which side will contain the isocyanate component and which side will contain the polyol. Mark all isocyanate pumps, inlets, outlets, heaters, hose fittings, and gun inlets "A side”. Mark all polyamine pumps, inlets, outlets, hose fittings, and gun inlets “B side”. Retain this identification and use only as indicated to avoid cross contamination.

Turn on the heaters and bring the system up to temperature then purge the system of plasticiser (using the transfer pumps) with the coating material. This may result in the loss of 1-2 litres of each component.

Fully pressure the system and test spray to ensure proper operation. Always spray off the project first to check proper operation and cure of materials. Observe the material and film; make additional or final equipment adjustments, then proceed with the project.

**SPRAYING**

Using a 50% overlap to insure an evenly coated surface. Spray continuously as much as possible and minimise triggering the gun. Wherever there is even a small change in pressure, spray pattern, colour or consistency of the material, the sprayer should stop immediately and troubleshoot the equipment.

Filters should be checked periodically for any build-up of material. If the whip hose is unheated, the material inside the whip will cool down during periods when not spraying, and therefore will be below the temperature required to yield a satisfactory coating. Spray away from the project until this material is cleared and the warmer material sprays properly. The temperature of the material near the gun can be checked by inserting a small thermometer in the hose jacket along the hoses. Generally the material temperature is higher by 3-6°C than the reading on the thermometer.

**SHUTTING DOWN THE PLURAL COMPONENT EQUIPMENT**

If you are simply shutting down for a short period such as overnight, the material may be left in the system under pressure so as not to waste materials:

1. Shut off the transfer pumps and proportioner and turn off the heaters (disconnect air and power supply).
2. Depressurise the system so that a maximum of 1000 PSI remains on the fluid system.
3. Shut off all in-line valves at proportioner and gun.
4. Remove, disassemble, and thoroughly clean the spray gun and store.
5. Nitrogen purge and blanket any partially filled coating containers and seal tightly.
6. You may leave the transfer pumps wetted out in their respective materials.

If all the material was used then the transfer pumps should be wiped clean and placed in a sufficient amount of plasticiser to cover the lower portion of the pump.

If you anticipate not using the equipment for more than two or three days, then the material should be flushed from the entire system. In this case, a different set of procedures is followed:

1. Turn off the heaters, hose heat, and any drum heaters.
2. Remove the transfer pumps from their respective materials and wipe them clean. Place them in separate pails of the plasticiser to be used to flush the system.
3. Thoroughly flush the entire system with appropriate plasticiser. The transfer pumps alone should be able to flush the system. The proportioner can be used with caution to assist in the flushing process.
4. Recycle clean plasticiser through the entire system until no colour or evidence of material is left.
5. Remove and clean filters, reassemble.
6. Insure that the entire system is pressurised to 200-500 psi with plasticiser upon final shut down.
7. Shut off all air and power supplies.
8. Plug or cap any open inlets or outlets.
9. Clean gun and tip thoroughly and store.
10. Nitrogen purge and seal any partially filled material containers and store at room temperature indoors.

Caution: Prior to introducing any 100% solids coating, plasticiser such as DPGDB (Dipropylene Glycol Dibenzoate, eg Benzoflex 988) or DIOP (Di-Iso-Octyl Phthalate, eg Palatiniol AH) must be used to flush the system. The system must be free of solvent to avoid any potential foaming of the coating resulting from the reaction of solvent with the solventless coating.

**PRECAUTIONS**

Flexituff® DM-8 is an industrial product designed for use by experienced Protective Coating applicators. Where conditions may require variation from the recommendations on this Product Data Sheet contact your nearest Dulux® Representative for advice prior to painting. Do not apply in conditions outside the parameters stated in this document without the written consent of Dulux® Australia. The rate of cure is dependent upon temperature. Do not apply at temperatures below 1°C. Do not apply at relative humidity above 85% or when the surface is less than 3°C above the dewpoint. The coating MUST be fully cured prior to being placed under immersion conditions.

Flexituff® DM-8 MUST NOT be thinned. Prior to introducing Flexituff® DM-8, plasticiser such as DPGDB (Dipropylene Glycol Dibenzoate, eg Benzoflex 988) or DIOP (Di-Iso-Octyl Phthalate, eg Palatiniol AH) must be used to flush the system. The system must be free of solvent to avoid any potential foaming of the coating resulting from the reaction of solvent with Flexituff® DM-8.

The resin has a nominal storage life of 6 months at a recommended temperature of 20-25°C. The isocyanate should be kept properly closed and stored indoors in a well-ventilated area under normal factory conditions. Storage at 20-25°C also provides a convenient viscosity for handling. Storage at low temperatures (below 10°C) is not recommended because it may lead to crystallisation; therefore protect this material from frost. Storage temperatures above about 50°C are not recommended since they can accelerate the formation of insoluble solids and increase the viscosity on extended storage. If crystallisation does occur, the heat the material to 70-80°C to melt it and thoroughly agitate before use to ensure homogeneity. Drum heaters may be used with the heat setting at low. The material should be agitated to uniformly distribute the heat. Do not heat the material above 80°C.

Under the recommended storage conditions and in properly sealed containers, the isocyanate has a nominal storage life of 6 months. If either component is opened and partially used, it should be purged with nitrogen or desiccated air and resealed or refilled into smaller containers to their maximum volume.
FLEXITUFF® DM-8

CLEAN UP
Glysol DPM may be used for general clean up of equipment and hoses. Allow unit to cool before cleaning.

OVERCOATING
The minimum applied thickness of Flexituff® DM-8 is 1mm for the initial coat and 0.5mm for subsequent coats provided that the product is still setting up and warm (within 10 minutes). If the product is left to cool and is within 24 hours of application, a wash with MEK is required and the minimum thickness that can be applied is 1mm. Once the product has been left longer than 24 hours the surface must be abraded with 60 grit paper and the minimum thickness that can be applied is 1mm.

SAFETY PRECAUTIONS
Read Data Sheet, SAFETY DATA SHEET and any precautions on container labels. SAFETY DATA SHEET is available from Customer Service (13 23 77) or www.duluxprotectivecoatings.com.au

STORAGE
Store as required for a flammable liquid Class 3 in a bunded area under cover. Store in well-ventilated area away from sources of heat or ignition. Keep containers closed at all times.

HANDLING
As with any chemical, ingestion, inhalation and prolonged or repeated skin contact should be avoided by good occupational work practice. Eye protection approved to AS1337 should be worn where there is a risk of splashes entering the eyes. Always wash hands before smoking, eating, drinking or using the toilet.

USING
Use with good ventilation and avoid inhalation of spray mists and fumes. If risk of inhalation of spray mists exists, wear combined organic vapour/particulate respirator. When spraying, users must comply with their respective State Spray Painting Regulations.

FLAMMABILITY
This product is flammable. All sources of ignition must be eliminated in, or near the working area. DO NOT SMOKE. Fire fight with foam, CO2 or dry chemical powder. On burning will emit toxic fumes.

WELDING
Avoid inhalation of fumes if welding surfaces coated with this paint. Grind off coating before welding.

TEST RESULTS

<table>
<thead>
<tr>
<th>TEST</th>
<th>TEST METHOD</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>ASTM D412-92</td>
<td>22.5 MPa</td>
</tr>
<tr>
<td>Elongation @ 24°C</td>
<td>ASTM D412-92</td>
<td>165%</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>ASTM D624-86</td>
<td>120 N/mm</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D2240-91</td>
<td>62 Shore D</td>
</tr>
<tr>
<td>Abrasion Resistance</td>
<td>ASTM D4060</td>
<td>160mg, H18 wheel, 1,000 rev, 1,000g</td>
</tr>
<tr>
<td>Cathodic Disbondment</td>
<td>ASTM G8-96 (2003)</td>
<td>Cathodic disbonded radius 0 mm (28 days)</td>
</tr>
</tbody>
</table>

COMPANY INFORMATION

Dulux Protective Coatings a division of DuluxGroup (Australia) Pty Ltd
1956 Dandenong Road, Clayton 3168
A.B.N. 67 000 049 427

DuluxGroup (New Zealand) Pty Ltd
150 Hutt Park Road, Lower Hutt, NZ
A.B.N. 55 133 404 118

Any advice, recommendation, information, assistance or service provided by Dulux Australia in relation to goods manufactured by it or their use and application is given in good faith and is believed by Dulux to be appropriate and reliable. However, any advice, recommendation, information, assistance or service provided by Dulux is provided without liability or responsibility PROVIDED THAT the foregoing shall not exclude, limit, restrict or modify the right entitlements and remedies conferred upon any person or the liabilities imposed upon Dulux by any condition or warranty implied by Commonwealth, State or Territory Act or ordinance void or prohibiting such exclusion limitation or modification. Products can be expected to perform as indicated in this sheet so long as applications and application procedures are as recommended. Specific advice should be sought from Dulux for application in highly corrosive areas and for large projects to ensure proper performance.