BELZONA 2221 Product Specification Sheet

1. PRODUCT NAME

Belzona® 2221
(MP Fluid Elastomer)
The fluid grade multi-purpose system for repairing horizontal expansion joints, resurfacing, and casting applications.

2. MANUFACTURER

Belzona Inc.,
2000 N.W. 88th Court
Miami, Florida 33172

Belzona Polymerics Ltd.,
Claro Road, Harrogate,
HG1 4DS, England

3. PRODUCT DESCRIPTION

A two-component, fluid consistency material based on blends of low, medium, and high molecular weight reactive polymers. Once combined, the base and solidifier form a tough, but flexible, elastomeric repair compound. This material is designed for applications where a pourable or brushable grade of elastomer is advantageous.

Applications
Multi-purpose rubber repair.
Horizontal expansion joints.
Casting flexible molds.
Diaphragms.
Casting gaskets.
Protecting exposed threads.

4. TECHNICAL DATA

Base Component

Appearance	Black viscous liquid
Density	1.05 g/cm³

Solidifier Component

Appearance	White colored paste
Density	1.42 g/cm³

Mixing Ratio

Mixing Ratio by Weight (Base : Solidifier)	2.3 : 1
Mixing Ratio by Volume (Base : Solidifier)	3 : 1

• ***Shelf Life:***
Separate base and solidifier components shall have a shelf life of at least 3 years when stored between 32°F (0°C) and 86°F (30°C).

• ***Working Life:***
The usable life will vary according to temperature. At 77°F (25°C) use all mixed material within 15 minutes.

• ***Cure Time:***
Will be reduced for thicker sections and extended for thinner applications. At a thickness of approximately 0.10 in. (0.25cm), allow to solidify for the times shown in the chart below before subjecting it to the conditions indicated.

• ***Volume Capacity:***
Each 750 gram unit of mixed material contains 40.28 in³ (660 cm³).

• ***Coverage Rate:***
At 15 mils (375 microns) thickness, each 750 gm unit will cover 18.5 sq.ft. (1.75 sq.m.)

5. PHYSICAL / MECHANICAL PROPERTIES

Determined after 7 days cure at 77°F (25°C).

• ***Adhesion:***
Typical adhesion values achieved when the material is used in conjunction with the designated surface conditions are;

Mild steel	ASTM D429 150 pli (2678 kgs/m)
Copper	ASTM D429 150 pli (2678 kgs/m)
Aluminum	ASTM D429 80 pli (1428 kgs/m)
Concrete	Elcometer Pulloff Test 900 psi (63.3 kgs/cm²)*
GRP	ASTM D413 60 pli (1071 kgs/m)
Natural rubber	ASTM D413 14 pli (250 kgs/m)*
Polychloroprene	ASTM D413 47 pli (839 kgs/m)*
PVC	ASTM D413 18 pli (321 kgs/m)*
Styrene-butadiene	ASTM D413 38 pli (678 kgs/m)*
Polyurethane	ASTM D413 80 pli (1428 kgs/m)*

** Cohesive failure in the substrate material.*

CURE TIMES

TEMPERATURE	41°F (5°C)	50°F (10°C)	59°F (15°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)
Movement or use involving no loading or immersion	10 hrs	6 hrs	4 hrs	2 hrs	1½ hrs	1 hr
Light loading	18 hrs	12 hrs	6 hrs	4 hrs	3 hrs	2 hrs
Full mechanical loading	3 days	2 days	1½ days	1 day	18 hrs	16 hrs
Immersion in chemicals	10 days	7 days	5 days	3 days	2 days	1 day

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• ***Chemical Resistance:***
Once fully cured, the material will demonstrate excellent resistance to the following chemicals;

ACIDS i.e.
carbonic acid
10% hydrochloric acid
stearic acid
tartaric acid

ALKALIS i.e.
barium hydroxide
calcium hydroxide
lime water
magnesium hydroxide

OTHER CHEMICALS i.e.
grease
mercury
oil/water mixture
emulsion paint
distilled water
sea water
wax emulsion
fertilizer solution
starch
silicone oil
inorganic salts

** For a more detailed description of chemical resistance properties, refer to Product Data E506.*

• ***Electrical Properties:***
Dielectric Strength:
Tested to ASTM D149 is typically 380 volts/mil (15,200 volts/mm).

Dielectric Constant:
Tested to ASTM D150 is typically 6 at a frequency of 1KHz.

Dissipation Factor:
Tested to ASTM D150 is typically 0.015 at a frequency of 1KHz.

Volume Resistivity:
Tested to ASTM D257 is typically 2.65×10^{13} ohm cm.

Surface Resistivity:
Tested to ASTM D257 is typically 2.5×10^{12} ohms.

• ***Elongation:***
Tested in accordance with ASTM D412 (Die C) is typically 700%.

• ***Expansion Joint Applications:***
Material is tested against ASTM C-719 "Adhesion and Cohesion of Elastomeric Joint Sealant" and qualified as a Class 25, Type M, Grade N sealant (± 25% movement).

• ***Heat Resistance:***
For many typical applications the product is suitable for operation in the temperature range -40°F to 150°F (-40°C to 65°C).

• ***Shore A Hardness:***
Tested in accordance with ASTM D2240 is typically 65.

• ***Tear Strength:***
Tested in accordance with ASTM D624 is typically 230 pli.

• ***Tensile Strength:***
Tested in accordance with ASTM D412 (Die C) is typically 1800 psi (126.5 kgs/cm²).

6. SURFACE PREPARATION AND APPLICATION PROCEDURES

To ensure adhesion, the substrate must be treated with **Belzona® 2911** (Elastomer QD Conditioner) or **Belzona® 2921** (Elastomer GP Conditioner) prior to application of **Belzona® 2221.** For proper technique, refer to the Belzona® Instructions For Use Leaflet which is enclosed with each packaged product.

7. AVAILABILITY AND COST

Belzona® 2221 is available from a network of Belzona® Distributors throughout the world for prompt delivery to the application site. For information, consult the Belzona® Distributor in your area.

8. WARRANTY

Belzona® guarantees this product will meet the performance claims stated herein when material is stored and used as instructed in the Instructions For Use Leaflet. Belzona® further guarantees that all its products are carefully manufactured to ensure the highest quality possible and tested strictly in accordance with universally recognized standards (ASTM, ANSI, BS, DIN, etc.). Since Belzona® has no control over the use of the product described herein, no warranty for any application can be given.

9. TECHNICAL SERVICES

Complete technical assistance is available and includes fully trained Technical Consultants, technical service personnel and fully staffed research, development and quality control laboratories.

10. HEALTH AND SAFETY

Prior to using this material, please consult the relevant Material Safety Data Sheets.

The technical data contained herein is based on the results of long term tests carried out in our laboratories and to the best of our knowledge is true and accurate on the date of publication. It is however subject to change without prior notice and the user should contact Belzona to verify the technical data is correct before specifying or ordering. No guarantee of accuracy is given or implied. We assume no responsibility for rates of coverage, performance or injury resulting from use. Liability, if any, is limited to the replacement of products. No other warranty or guarantee of any kind is made by Belzona, express or implied, whether statutory, by operation of law or otherwise, including merchantability or fitness for a particular purpose.

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