BELZONA 3211 Product Specification Sheet

1. PRODUCT NAME

Belzona® 3211 (Lagseal)
For seamless, flexible waterproofing and fire protection of all types of pipe insulation and cladding materials.

2. MANUFACTURER

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

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

3. PRODUCT DESCRIPTION

Designed for protection of all types of thermal insulation. A formulated water based styrene acrylic emulsion polymer incorporates a polymer bonded glass reinforcing sheet (**Belzona® 9321**). The seamless, flexible system is water and weather resistant but micro-porous allowing moisture from within the substrate to evaporate. It can be applied to damp as well as dry surfaces.

The material also offers fire resistance and conforms to the requirements for a Class 0 Surface for The Building Regulations 1991.

Applications
Protection of insulation on:

- Pipes
- Air conditioning ducting
- Valve boxes
- Flange covers
- Boilers
- Pressure vessels
- Bulk storage tanks
- Heat exchangers
- Tank base sealing
- Roof repair and protection

4. TECHNICAL DATA

A one component product.

Appearance	Thixotropic liquid
Color	White
Odor	Styrene acrylic
Viscosity	1.7 - 3.7 poise at 77°F (25°C)
Density	1.46 - 1.51 g/cm³
Solids	
by weight	72 - 76%
by volume	57 - 62%
Solvent	Water
Flash point	None

• Shelf Life:
When stored in unopened containers between 41°F (5°C) and 86°F (30°C), this material is expected to have a minimum 5 years shelf life. The product is able to withstand 5 freeze/thaw cycles between 15°F (-9°C) and 70°F (21°C) with no detrimental effect, thus, accidental freezing should not alter product performance.

• Usable Life:
At temperatures between 41°F (5°C) and 86°F (30°C) this material will have an indefinite usable life.

• Drying Time:
Drying times at 68°F (20°C) are shown in the chart below. Under cool or humid conditions, these times will be greatly extended. **Belzona® 3211** should not be applied when the temperature is below 41°F (5°C).

DRYING TIMES AT 68°F (20°C)

	1st Coat	2nd Coat
Touch dry	2 hours	1 hour
Hard dry for overcoating	4 hours	2 hours
Maximum overcoating time	3 days	3 days
Full hardness when chemical contact is anticipated	7 days	7 days

• Coverage Rates:
Apply the first coat of **Belzona® 3211** incorporating **Belzona® 9321** sheet to a dry film thickness of 10 mil (254 microns). Apply the second coat of **Belzona® 3211** to a dry film thickness of 6.0 mil (152 microns). Do not exceed the coverage rates given below.

5. PHYSICAL/MECHANICAL PROPERTIES

• Elongation at Break:
The elongation of the unreinforced system after 7 days cure at 68°F (20°C) when tested against BS 2782 or similar test method is typically 90%.

• Fire Resistance:

a) The fire propagation index when tested in accordance with BS 476 Part 6 is 2.8.
b) The material when tested in accordance with BS 476 Part 7 for surface spread of flame shall be Class 1 surface spread of flame.
c) When tested in accordance with ASTM E84 the system meets class A with a flame spread index less than 25 and smoke developed index less than 100.

• Oil Resistance:
The system is unaffected by immersion for 24 hours in light fuel oil at 122°F (50°C) and lubricating oil at 122°F (50°C).

• Tensile Strength:
The tensile strength of the unreinforced system after 7 days at 68°F (20°C) when tested against BS 2782 or similar test method is typically, 370 psi (2.5 N/mm²)

COVERAGE RATES OF BELZONA® 3211 (per kg)

Substrate	First Coat	Second Coat
New Calcium Silicate	15.1 sq.ft. (1.40 sq.m.)	27.4 sq.ft. (2.55 sq.m.)
Old Calcium Silicate	14.5 sq.ft. (1.35 sq.m.)	27.4 sq.ft. (2.55 sq.m.)
New Glass Fibre/Mineral Wool	12.1 sq.ft. (1.12 sq.m.)	27.4 sq.ft. (2.55 sq.m.)
Old Glass Fibre/Mineral Wool	8.6 sq.ft. (0.80 sq.m.)	25.8 sq.ft. (2.40 sq.m.)
New Foam Sectional (urethane)	16.4 sq.ft. (1.52 sq.m.)	27.4 sq.ft. (2.55 sq.m.)
Old Foam Sectional (urethane)	15.1 sq.ft. (1.40 sq.m.)	27.4 sq.ft. (2.55 sq.m.)

Publication No. 38-06-12

• ***Vapor Resistance:***
The vapor resistance of the reinforced system after 7 days cure at 68°F (20°C) is typically 10.0 MN/sg.

• ***Water Vapor Permeability:***
When tested in accordance with ASTM E-96, the water vapor permeability after 7 days cure at 68°F (20°C) is typically:

Unreinforced	2.748 Perms
Reinforced	2.199 Perms

6. SURFACE PREPARATION AND APPLICATION PROCEDURES

To ensure excellent adhesion, a primer coat of **Belzona® 3911** or **Belzona® 3921** may be required.

For proper technique, refer to the Instructions For Use Leaflet which is enclosed with each packaged product.

7. AVAILABILITY AND COST

Belzona® 3211 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.

11. APPROVALS/ ACCEPTANCES

GENERAL MOTORS

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.

Nothing in the foregoing statement shall exclude or limit any liability of Belzona to the extent such liability cannot by law be excluded or limited.

Copyright © 2012 Belzona International Limited. Belzona® is a registered trademark.

ISO 9001:2008
Q 09335
ISO 14001:2004
EMS 509612

Manufactured under an ISO 9000 Registered Quality Management System

BELZONA®
Repair • Protect • Improve

Printed in England Publication No. 38-06-12