

# Emer-Seal 200

**High joint movement accommodation, two component, polyurethane joint sealant for water retaining structures**

## USES

Sealing movement and static joints in water retaining structures, especially in applications likely to be subjected to biological degradation such as:

- Sludge digestion tanks
- Sewerage and water treatment plants
- Filtration and aeration tanks
- Water reservoirs
- Marine installations
- Also suitable for most building applications

## ADVANTAGES

- Resistant to bacteriological attack
- Slump resistant - suitable for wide joints
- Abrasion resistant
- Excellent adhesion to primed substrates
- High joint movement accommodation
- Two component - fast, even cure rate
- Long track record in demanding environments

## STANDARDS COMPLIANCE

Emer-Seal 200 complies with the following standards:

AS 4020 - Products for use in contact with potable water.

Performance requirements of AS 1527-1974 on concrete substrates.

Emer-Seal 200 is listed by Sydney Water Board as "Authorised for use in contact with potable water" - authorisation number 94/00107.

## DESCRIPTION

Emer-Seal 200 is a two part, gun grade, non-slump elastomeric polyurethane sealant specially formulated for sealing joints in all water retaining structures. It is highly resistant to biodegradation by both aerobic and anaerobic bacteria, which makes Emer-Seal 200 particularly well suited to sewage treatment and storage plants.

A fast cure version, Emer-Seal 200FC, is also available for applications in low temperatures or when "out of service" time is critical. Details of typical cure times at various temperatures are available on request from the Technical Services Department.

## TECHNICAL SUPPORT

Parchem offers a comprehensive range of high performance, high quality construction products. In addition, Parchem offers a technical support package to specifiers, end-users and contractors, as well as on-site technical assistance.

## DESIGN CRITERIA

Emer-Seal 200 may be applied to joints between 10 mm and 50 mm wide. To minimise stresses imposed on the joint sealant, all moving joints should be designed to an optimum width to depth ratio of 2:1. This ratio is subject to these overriding minimum sealant depths:

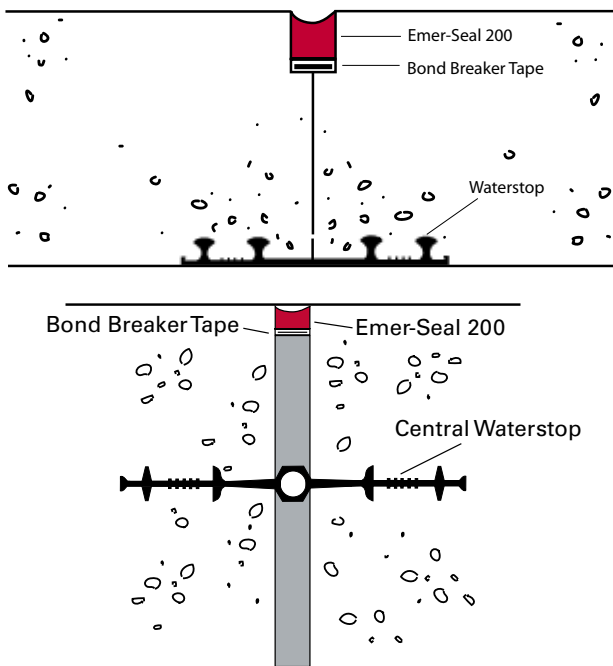
- 6 mm minimum sealant depth at any point
- 6 mm minimum bonding depth against metals, glass and other non-porous surfaces, providing that joint faces are in good condition.
- 12 mm minimum bonding depth against masonry or other porous surfaces, or any non-porous surfaces where joint faces are in poor condition.
- 20 mm minimum sealant depth where sealant is subject to hydrostatic pressure or traffic.

## MOVEMENT ACCOMMODATION FACTOR (MAF)

Joints expected to withstand repeated or cyclical movement or extremes of heat, chemical attack or physical abuse should be designed and spaced so that total joint movement under tension and compression does not exceed +/- 30% (total 60%) of the joint width at time of sealing. The total movement in shear should not exceed 50% of joint width at time of sealing in these joints.

## BOND BREAKERS AND JOINT FILLERS

Joints subject to hydrostatic pressure must have the sealant supported by a sound, rigid Parchem joint backing material and must incorporate a suitable Fosroc Supercast waterstop. Do not use backing materials which will bleed oils, solvents or bitumen. A bond breaker (e.g self adhesive polyethylene tape) must be used to prevent adhesion of Emer-Seal 200 to back of joint or to joint fillers and thus allow optimum sealant performance. (See application example over page for uses of backing materials).



Examples of a sealed joints in water-excluding structures

## Priming

Priming is essential on all surfaces to assure a sound bond between substrate and sealant and ensure that optimum movement capability and ageing characteristics are realised. (See site instructions for details).

## PROPERTIES

Data quoted is typical for this product but does not constitute a specification.

### FORM:

**Emer-Seal 200:** 2 part compound in paste form

**Emer-Seal 200FC:** 2 part compound in paste form

**Pot life (working life) at 23°C:** 2 hours (standard grade)  
1 hour (fast cure grade)

### Cure time at 23°C:

Standard grade -  
Initial cure: 24 hours  
Full cure: 14 days

Fast cure grade -  
Initial cure: 12 hours  
Full cure: 3 days

**Colour:** Grey

**Specific gravity:** Approximately 1.3

**Solids content:** 100%

**Application temperature:** 5°C - 50° for standard grade  
5°C - 30° for fast cure grade

**Service temperature:** Minus 40°C - 80°C

**Water immersion:** Must be fully cured before immersion. Unaffected by water immersion after curing

**Hardness Shore A:** Typically 25

**Movement accommodation factor:** Maximum 60% for butt joints ( +/- 30% )

**Flammability:** Burns, but does not readily support combustion. Note that toxic fumes may be generated if product is burned

**Chemical resistance:** Resistant to dilute acids and alkalis to occasional spillage and aliphatic solvents (Avgas, petrol etc.) Not resistant to aromatic or oxygenated solvents

## SPECIFICATION CLAUSES

"Where so designated on the drawing, joints are to be sealed with Emer-Seal 200 two part polyurethane sealant, manufactured by Parchem. Joint preparation, sealant mixing and application must be in strict accordance with the manufacturer's instructions"

## APPLICATIONS INSTRUCTIONS

### JOINT PREPARATION

Ensure that joint dimensions are as specified, and that anticipated joint movement is within the capability of the Movement Accommodation Factor of Emer-Seal 200. Concrete should have been allowed to cure for at least 28 days.

Remove all dirt, dust, laitance and loose material by vigorous wire brushing. Remove all rust, scale and protective coating from metal surfaces, and clean off any oil or grease using Parchem Solvent. Joint faces must be sound, flat and free of surface irregularities and completely dry, clean and frost free. Any joint faces which do not meet these requirements may require forming of a fresh joint surface by saw cutting or refacing with a suitable epoxy mortar. For a particularly neat finish, cover the face edges of the joint with masking tape before priming. Prime joint as detailed below, inserting bond breaker and/or backing material when appropriate.

### PRIMING MASONRY SURFACES

Use Primer 13. This is a two part epoxy surface primer with exceptionally good hydrolytic stability which ensures good adhesion of Emer-Seal 200 to the substrate under prolonged submerged conditions. Allow primer to become touch dry (but not longer than 8 hours drying time) before application of Emer-Seal 200. Mix and apply an even coat of primer onto the bonding faces of concrete and other masonry surfaces.

### PRIMING METALLIC SURFACES

Use Primer 4 on stainless steel. Consult the Technical Services Department for treatment of ferrous metals. Apply primer and allow to dry for a minimum of one hour but not longer than eight hours prior to application of Emer-Seal 200.

### SPECIAL NOTES ON PRIMING ANY SURFACETYPE

Primed areas not sealed within eight hours of primer application must be re-cleaned and reprimed.

It is essential to ensure that the back of the joint is not contaminated with primer.

Any primed area contaminated prior to sealing by any foreign material will require thorough cleaning and repriming.

### MIXING

To facilitate proper mixing in cold weather, it is recommended that Emer-Seal 200 be stored for at least 12 hours at approximately 20°C prior to mixing. Thorough even mixing is essential to ensure proper cure. Mix only entire units to ensure correct proportions. During mixing ensure entire contents are fully mixed, paying particular

attention to the sides and bottom of the tin. Avoid air entrapment caused by bringing the blade too close to the surface. Transfer all of Curing Compound into the Base tin. Hold the tin firmly and mix thoroughly using the recommended mixing paddle fitted into a heavy duty, low speed drill (300-500 rpm) until sealant colour is uniform and streak free. For 6 litre packs use Mixing Paddle 315 MSAE (PC: 770163), Mix for 3 minutes then scrape down sides of tin. Mix for a further 3 minutes, total mixing time should be a minimum of 6 minutes. Incorrect mixing can adversely affect cure and final properties.

### GUN LOADING

Ensure that the surface of the sealant is reasonably concave to prevent air pockets. Place the relevant follower plate on top of the sealant and load by direct filling of a Parchem G-Gun or into empty cartridges.

### APPLICATION

Hold the nozzle against the joint, and gun sealant firmly into the joint extruding the bead in front of the gun to minimise voids. Wipe the nozzle occasionally to ensure a clean extrusion.

### TOOLING

To gain adequate surface contact between sealant and substrate and to eliminate air voids, tool sealant to a smooth finish with a slightly convex trowel. Remove masking tape if used.

### CLEANING

Clean up uncured material and equipment immediately after use using Parchem Solvent. Do not use solvents on skin. Wash hands thoroughly with industrial cleaner.

### LIMITATIONS

Not recommended for post-tensioned joints, or for use in highly chlorinated water such as in swimming pools. For advice on sealing such structures, contact Parchem's technical department. Do not apply Emer-Seal 200 to any material containing mobile bitumen, nor allow bitumen to contact Emer-Seal 200. If likely to be in contact with other organic materials not specifically designed to be used with Emer-Seal 200, Parchem recommend initial testing to ensure compatibility.

## ESTIMATING

### SUPPLY

**Emer-Seal 200:** 6 litre units  
(Base and Curing Compound supplied in correct proportions. Complete units to be mixed to ensure correct curing)

**Primer 13:** 250 ml units  
(Base and Hardener, supplied in the correct proportions Complete units must be mixed to ensure correct curing)

**Primer 4:** 250 ml units

**Parchem Solvent:** 4 and 20 litre drums

### QUANTITIES

The table below gives some typical values:

Joint Size		Usage	
Width	Depth	Two litre units / m	Metres of joint /2L unit
24	12	0.140	7.1
20	20	0.200	5.0
30	15	0.225	4.4
30	20	0.300	3.3
40	20	0.400	2.5
50	25	0.625	1.6

### PRIMER QUANTITIES

250 ml of Primer 13 for about 6 litres of Emer-Seal 200

250ml of Primer 4 for about 50 litres of Emer-Seal 200

A simple formula can be used to calculate number of two litre units of Emer-Seal 200 required to seal a joint of known dimensions:

$$N = L \times W \times D$$

N = number of litres  
L = length of joint, in metres  
W = width of joint, in metres  
D = depth of joint, in millimetres

e.g L = 10 m  
W = 0.02 m  
D = 10 mm  
N = 10 x 0.02 x 10 = 2 L

Exact quantities required will vary according to substrate condition.

## STORAGE

Shelf life 3 months when stored in unopened original containers in dry conditions, between 5°C and 30°C.

## ADDITIONAL INFORMATION

Parchem provides a wide range of complementary products which include:

- concrete repair – cementitious and epoxy
- grouts and anchors – cementitious and epoxy
- waterproofing membranes – liquid applied, cementitious and bituminous sheet membranes
- waterstops – pvc and swellable
- joint sealants – building, civil and chemical resistant
- industrial flooring systems – cementitious and epoxy
- architectural coatings
- filler boards – swellable cork, bituminous and backing rod
- ancillary products

For further information on any of the above, please consult with your local Parchem sales office.

## IMPORTANT NOTICE

A Material Safety Data Sheet (MSDS) and Technical Data Sheet (TDS) are available from the Parchem website or upon request from the nearest Parchem sales office. Read the MSDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

## PRODUCT DISCLAIMER

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.