

BUILDING PRODUCT QUALITY PLAN

BPQP SMSV1

Swellseal® MS / TotalSeal

May 2018

For New Zealand and Australia

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BUILDING PRODUCT TECHNICAL AND INSTALLATION MANUAL

Summary of Findings:

#	ISSUE / COMMENT	MINOR MAJOR CRITICAL	CAR #	DATE OK

Name of reviewer: _____

Signature: _____

Date: _____

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COMPANY BPQP POLICY STATEMENT

Neoferma Australia's Quality Policy statement:

The BPQP is designed to ensure that the very best result is achieved in the delivery and installation of the Swellseal® MS system. Management of quality and risk management, covering both the distribution and application of our Swellseal® MS system products are critical for New Zealand, Australia and the Pacific Islands; therefore, adherence to the BPQP Manual is paramount. Quality has to be at the forefront of the process; from the manufacture of the product, to the importation, delivery, and finally installation of the product. Throughout this process we must ensure adherence to strict guidelines to ensure that best practices are observed and implemented to ensure the Swellseal® MS system products delivered and installed are the best possible and will perform as the product warranty issued states.

Non-adherence to the manual could mean the quality is not there for the total process and that exposed risk of product or application failure will result.

We are committed to enforcing this plan and we will not accept any deviation from it. We are also committed to constantly reviewing the BPQP to continue to improve our delivery to the end user.

Neoferma Australia Pty Ltd

Introduction

Neoferma Australia Pty Ltd was formed in 2001 for the purposes of supply of quality construction waterproofing materials through sales to Applicators in Australia, Middle East, and NZ . Since 2001 we have established a niche construction expertise in below water table basement tanking, involving a system approach utilising bentonite-based materials, now called the Swellseal® MS system.

We have applied for CodeMark Certification for these products from the Building Element Assessment Laboratory (BEAL) to carry out a certification of our products. The Certificate of Conformity will demonstrate to Councils, clients and our applicators that the products covered by the appraisal, when installed to our technical manual, will comply with the relevant clauses of the New Zealand Building and the Australian Building Codes.

Neoferma Australia Pty Ltd
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Reference Documents

1. New Zealand Building Act 2004 and Amendments
2. Building Regulations and Building Code for New Zealand & NCC for Australia
3. Compliance documents supplied by:
 - The Department of Building and Housing
 - The Australian Building Codes Board.
4. BEAL's standard for a Building Product Quality Plan
5. Technical information supplied by Neoferma Australia Pty Ltd
6. Data sheets for Swellseal® MS / TotalSeal System – Appendix A
7. Trade literature supplied by Neoferma Australia Pty Ltd
8. Neoferma Australia Pty Ltd Products Installer Training Manual
9. BEAL CodeMark Document:

This and all other relevant records are kept in a lever arch folder marked BEAL BPQP, plus on our server under BEAL BPQP and back up electronic copies via the icloud with our IT support supplier.

Products covered by this BPQP

	Product	Scope of Use
1	The Swellseal® MS System	<p>The Swellseal® MS / Totalseal waterproofing system is designed and engineered for use under reinforced structural concrete slabs of 150mm thick or greater and where the substrate has been compacted to 85% modified proctor density.</p> <p>For external waterproof tanking membrane to in-situ concrete, precast concrete and concrete masonry basement constructions subject to hydrostatic pressures of up to 2 bar (20 metres); and a damp-proof membrane (DPM) to slab-on-ground and basement constructions.</p> <p>Refer to Neoferma Australia Pty Ltd</p>
		Limitations
2	The Swellseal® MS System	<p>The effectiveness of Swellseal® MS / Totalseal is dependent upon the membrane being both compacted and confined.</p> <p>Swellseal® MS / Totalseal is not designed for un-confined above ground waterproofing applications or over lightweight insulating concrete or “Besser” type blocks.</p> <p>Swellseal® MS / Totalseal is not designed for being fully immersed in excessively ponding water before the geotextile membrane is covered with concrete.</p> <p>/ Totalseal is not an expansion joint filler or sealant.</p> <p>For warranty requirements a manufacturer’s representative should approve the wall surface(s) prior to installing Swellseal® MS / Totalseal.</p>

Product Quality & Performance

Swellseal® MS has been developed by Neoferma Australia after many years practical experience of commercial construction and of waterproofing membranes and is manufactured to very strict ISO 9001 criteria and has passed CodeMark audits. As a result; with the installation methodology adhered to, the results provide for successful projects.

The SwellSeal® MS System is based on natural sodium bentonite contained within two layers of geosynthetic fabric with a HDPE liner on one face and has a minimum thickness of 6 mm. The system is used as a damp-proofing or waterproofing membrane below ground to protect basements and other underground structures against water penetration and water vapour transmission from the ground.

The products, applied by a registered, approved applicator, will be warranted subject to country of use for between 5 and 50 years, warranty term conditions of inspection and review of submitted material(s) and job specific. Swellseal® MS products can withstand UV light conditions and is unaffected by temperature, with an indefinite shelf life if stored in dry conditions. An added benefit of this product is its ability to self-heal in usage. Small punctures of a maximum 5mm will self-heal when the bentonite swells when in contact with water.

Neoferma Swellseal® MS membrane products are designed to be simple to apply, once correctly applied robust against normal weather conditions, durable and will perform as detailed in our Features and Benefits schedule.

KEY RISKS IDENTIFIED

1. Product Importation:

- Manufacturing production to be in sufficient time to meet project programs
- The Manufacturers are meeting their MQP requirements
- Batch and date numbers are displayed. These are labelled on the rolls of product, checked against inwards goods documentation showing details, also confirming batch tests completed and meets the required standards.
- Documentation is received in time from the manufacturer for customs
- Test results of all batches sent from manufacturer to Neoferma Australia

2. Distribution in New Zealand and Australia:

- Written purchase order is required by email to Neoferma Australia Pty Ltd
- Distributor / Applicator account is current
- Order acknowledgement is confirmed back by email quoting delivery timeframe, terms and value being invoiced
- Product dates and batch numbers are checked and recorded
- Applicator has acceptable storage for product, protected from excessive rain or ground water
- Applicator has ability to unload product when delivered

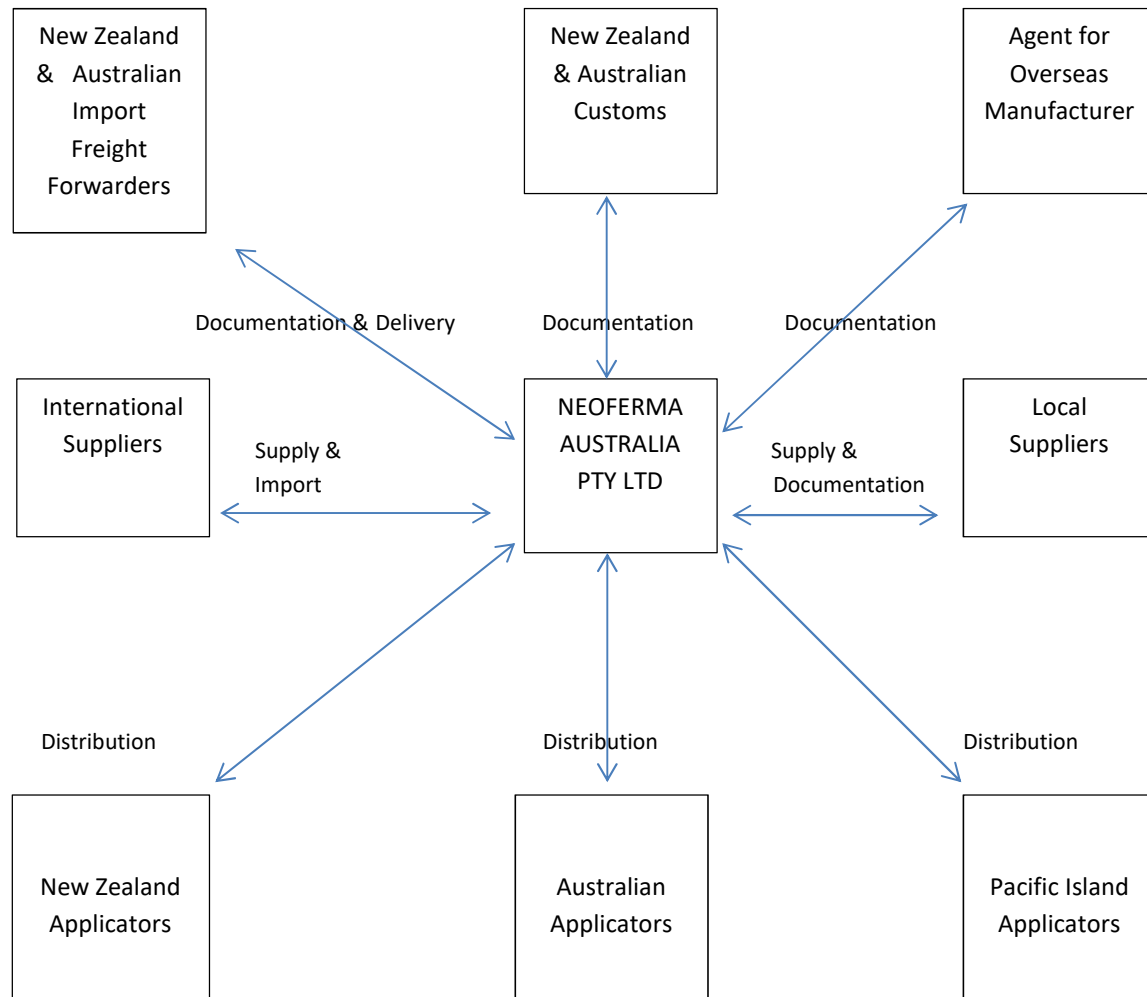
3. Application:

- Neoferma Australia Pty Ltd are advised of Job scope of works and product specification, where necessary.
- Site water has been evaluated to determine quality
- All soil substrates must be compacted to a minimum 85% Modified Proctor, as confirmed or certified by the Site / or Consulting Engineer), where there is no blinder slab.
- All membrane laps adequately sealed with seaming paste
- Membrane is correctly compacted and confined
- Warranty dependent upon provision of pre-start up photos and installation photos, (Refer pg13 and 14.)
- Post application inspection sign off completed by the Applicator and or Independent Inspectors

4. Quality Assurance:

The Business Manager is responsible for ensuring all relevant risks are monitored, managed and corrected. The QA Manager completes a report once this review is undertaken. This also forms part of the internal audit process.

FLOW CHART OF – IMPORTATION & DISTRIBUTION



CHECK SHEET REQUIREMENTS

Importation of Product by Neoferma:

1. Confirm product requirement
2. Raise written order and process paperwork
3. Review all documentation from supplier and / or agent
4. Alert freight forwarders to order; reference track shipping and customs clearance
5. Check invoice for batch and date of manufacture of product
6. Arrange delivery from port for containers
7. Arrange unloading of container and return of empty container
8. Confirm quantity and batch numbers delivered are as invoiced

Distribution of Product:

1. Written order to be received
2. Order checked for:
 - Account is current
 - Applicator has required storage facilities or goods going direct to site
3. Product available and current
4. Order acknowledgement sent with ETA date, any relevant tracking information
 - a. Confirm client pick up or delivery
 - b. Confirm site conditions and unloading capability
5. Batch and date of manufacture is recorded on file
6. Commercial invoice issued according to terms with the Applicator (account or cash sale.)

These records are kept in a ring binder marked **“Import & Distribution Documentation”** in Neoferma offices.

Product Components Specifications & Descriptions

Products supplied by Neoferma Australia Pty Ltd:

1. Swellseal® MS HP
2. TotalSeal HP
3. Swellseal® MS LP
4. TotalSeal LP
5. SwellSeal Bentonite Granules
6. SwellSeal Seaming Paste
7. SwellSeal Detail Paste

For Product Specifications please refer to Manufacturer Technical Data Sheets that are held on file or Appendix A in this document.

Features and Benefits

1. Swellseal® MS / TotalSeal Bentonite membranes are VOC free.
2. The system requires no priming or protection boards
3. The system bonds to poured concrete to form an integral seal to prevent water ingress.
4. The system is self-healing
5. Infinite life in service
6. The system goes directly over substrates that are free from rubble or site rubbish. i.e. Mud/cement blinders, road base, compacted sand or soil; Shotcrete surfaces, steel-sheet pile, CSM walls, secant piles.
7. The polypropylene geotextiles containing the bentonite are very robust and resistant to normal site activities.
8. Swellseal® MS / TotalSeal has a product warranty of up to 50 years, dependent upon inspection and testing requirements being fulfilled and the country specified. (Refer to page 13).
9. Neoferma Australia has a very strict quality control criteria; including photos and installation details before, during and after the application.

INSPECTION AND TESTING REQUIREMENTS

To qualify for the Neoferma Swellseal® MS / TotalSeal Warranty the following are required, **IN SEQUENCE**, for each job:

1. Submit completed Warranty Request/Pre-Job Survey form with required “before” job photos
2. Pre-Job conference with the Swellseal® MS / TotalSeal Distributor before product application
3. Completed and signed off ITP Checklist Substrate acceptance form
4. Submit Completion of Work form with required “during” and “after” job photos to correspond with area and position of before photos.
5. Payment to Distributor for all materials in full, before warranty is issued.

Swellseal® MS / TotalSeal Membrane Warranty may be issued after all submitted materials are reviewed. Failure to provide the above requirements, **IN SEQUENCE**, voids the ability to obtain anything other than a statutory product warranty.

PHOTO REQUIREMENTS

BEFORE works commence, area to be tanked showing substrate preparation:

OVERVIEW 3 minimum, at least of the following each:

- walls
- ground slab
- penetrations / ground anchors
- pits

DETAIL: 3 minimum, include the following, installation at:

- wall transition
- construction joints slab / wall details
- laps

AREAS OF CONCERN: 2 minimum of each area of concern

INSTALLATION: 1 each to accompany

- Site Report of area(s) worked together with marked up drawings
- Pre-Concrete pour membrane and laps
- Hydrated membrane at concrete pour stage

IMPORTANT

- Each job must be individually reviewed by Neoferma or the Distributor's technical representative **PRIOR** to quoting
- Any Pre-Job materials submitted after the start of a job will not be accepted. ("Start" of a job implies any and all work applying to a job to be warrantied, including substrate surface preparation.
- Neoferma Australia does not guarantee a warranty will be issued for every submitted request. Warranty eligibility will be determined after the review of all required submitted materials.
- All invoices due to Neoferma Australia must be paid in full before a warranty will be issued.
- Approved applicator training requirement to be provided by NZ Distributor in New Zealand and Neoferma in Australia
- All installations are in accordance with the specific Details provided by Neoferma.

**WARRANTY REQUEST/
PRE-JOB SURVEY FORM**

GENERAL PROJECT INFORMATION

AUTHORISED APPLICATOR

Company Name: _____ Contact: _____

Contact Name: _____ Contact Ph.: _____

Street Address: _____ Email: _____

Company Phone: _____

PROJECT ID & LOCATION **BUILDING CONSENT NO:** _____

Building Name: _____

Street Address: _____ Legal Description _____

City: _____

Building Use: _____

BUILDING OWNER

Owner Name: _____ Contact: _____

Street Address: _____ Contact Ph. _____

City: _____ Fax: _____

Owner Phone: _____ Email: _____

**WARRANTY REQUEST /
PRE – JOB SURVEY FORM**

ARCHITECT / ENGINEER

Name: _____ Phone: _____

MAIN CONTRACTOR

Name _____ Contact: _____

Street Address: _____ Contact Ph. : _____

City: _____ Email: _____

PRE-JOB PHOTOS: TO BE EMAILED TO NEOFERMA DISTRIBUTOR OR ATTACHED TO THIS FORM.

NOTES

**WARRANTY REQUEST
PRE- JOB SURVEY FORM**

Total M2 to warrant: _____ Job start date : _____

MEMBRANE WARRANTY DESIRED☐ 5 YR ☐ 10 YR ☐ 15 YR ☐ 20 YR ☐ 50 YR**PRODUCTS TO BE USED****Type and Quantity estimate to be noted:****PROJECT INFORMATION****Substrate type:**☐ Compacted sub-soil ☐ Sand Road base ☐ Mud blinding slab**Construction Type: Walls**☐ Concrete ☐ Steel sheet piles ☐ CSM piles ☐ Secant ☐ Pre cast Panel
☐ Permanent formwork**Waterproofing:**☐ Below Grade ☐ Below water table ☐ Wall ☐ Panel System
☐ Slab only ☐ Slab plus walls ☐ Fully tanked
☐ Pits ☐ Tanks ☐ Other _____**Site Water information:**☐ Hydraulic Engineers/Site Geotech report ☐ Water sample (prior to dewatering)

PRODUCT WARRANTY

Waterproofing Job No _____ Warranty No: _____

Warranty Commencement date _____ Warranty Period _____
(Date of completion: Of Membrane System Installed)

Building Owner _____

Building Address _____

Qualified Applicator _____

Company _____

Address _____

Phone No _____

Email _____

Details of the Swellseal® MS System installed:

Area of Application (e.g. Lift pit, slab, walls, tanks: m2)

Products:	Insert / delete as per project	Qty installed
	Swellseal® MS / HP Bentonite Membrane	Xxx m2
	SwellSeal Granules	
	Bentorub Bentonite Waterstop with wire cages	
	Bentoject Bentonite Waterstop with wire cages	
	X-Seal 600 Hydrophilic Mastic	
	SwellSeal Seaming Paste	
	Neoferma Detail paste	

NZBC: 50year Durability requirement ☐

Warranty period: Walls only:15 years ☐ Footings only: 15years ☐
Underslab only 15 years: ☐ Lift pits only: 15 years ☐
Full encapsulation: 20years ☐

Neoferma Australia Pty Ltd, warrants that the Membrane system will, subject to the terms set out below, retain its waterproofing for the Warranty period provided the Membrane system has been installed by an approved Qualified Neoferma Australia Pty Ltd applicator and in accordance with Neoferma Australia Pty Ltd current specifications at the time of installation.

This warranty covers only materials supplied by Neoferma Australia Pty Ltd as the membrane system, which includes the membrane and all accessories provided materials were new and unused at the time of installation and have not been altered or disturbed thereafter.

CONDITIONS OF WARRANTY

In this warranty the following words and expressions shall have the meanings below ascribed to them:

“NEOFERMA” – NEOFERMA AUSTRALIA PTY LTD; ABN: 72 094 461 042

“Claimant” - any party making or seeking to make a claim under the Warranty herein

“normal conditions” - such conditions for the use of the Product as may be recommended or specified in any literature issued by or on behalf of NEOFERMA in respect of the Product by an authorised applicator

“the Period” - means the period of time commencing on the date of purchase of the Product and expiring on the day (apply term - years) immediately thereafter

“the Product” - means the materials constituted in the Swellseal® MS System

“the Swellseal® MS system” - means the waterproofing system described as detailed here:

1. NEOFERMA as manufacturer warrants that for the duration of the Period the Product will be free from material defects when installed as specified.
2. In the event of a claim under this Warranty, NEOFERMA’s liability in any case shall be expressly limited at the election of NEOFERMA only to either one of the following: -
 - 2.1 The replacement of such part or whole of the Product as is not in accordance with the Warranty and in the form originally purchased from NEOFERMA, or
 - 2.2 Payment of a sum of money equivalent to the original purchase price of such part or whole of the Product as is not in accordance with the Warranty.
3. It shall be a condition precedent of any liability under this Warranty that any claims shall be in writing and received by NEOFERMA not later than 42 days from the date when a breach of this Warranty was or should have been reasonably apparent to the Claimant.
4. Any claim not made as required by paragraph 4 shall be deemed waived and shall not thereafter be enforceable in any way against NEOFERMA.
5. For the avoidance of doubt, NEOFERMA shall have no liability whatsoever or howsoever under this Warranty or at all in respect of any damage or defect caused to the Product by the acts or defaults of any third party installing contractor, its employees and/or agents.
6. This Warranty shall not include any damage or defect caused to the Product by negligent or deliberate acts whether of the Claimant or any other third party.
7. This Warranty is in lieu of and excludes all other warranties whether express or implied, statutory or otherwise and it does not offer any rights other than those expressly set out above.
8. This document shall be read and construed in accordance with Australian Law.

For Neoferma Australia Pty Ltd

Date

PRODUCT FAILURE/RECALL

1. Isolate immediately
2. Obtain batch numbers and date of manufacture
3. Take sample, courier to supplier
4. Advise supplier in writing
5. Take any other action deemed necessary at that time
6. Record all matters in the BEAL BPQP folder
7. Report to BEAL of any Product failure or recall.

COMPLAINTS REGISTER

A record of complaints will be held on file in our head office in Burleigh. This record shall include at least the following:

- Date of the complaint
- Address and contact details of complainant
- Site address of complaint if different from above
- Action taken
- Result of action taken

When a complaint is received, immediate action will be taken and shall include

- Immediate contact of applicator involved
- Review of Pre-Job application
- Review of pre-job, during and post job photos
- Review of all other documentation relating to the specific job
- Site visit
- Corrections taken where necessary

This area is critical and must be handled promptly and to the satisfaction of the client.

Any non-conformance or a product or key component shall be reported immediately to BEAL who shall then determine whether an urgent audit or review if the BPQP and Appraisal is required.

APPROVED SUPPLIER CRITERIA

1. Swellseal® MS / TotalSeal products are supplied by Neoferma Australia Pty Ltd. and must have in place a BPQP that meets the CodeMark standard and is approved by BEAL. The supplier is subject to audits and must have in place an MQP and BPQP that is strictly adhered to.
2. Suppliers of ancillary products to Neoferma Australia Pty Ltd must have in place the following to be acceptable to purchase from
 - A Quality Management System that is approved by Neoferma Australia Pty Ltd and have a copy of that held on file
 - Trading terms that are acceptable to Neoferma Australia Pty Ltd

TRAINING OF PERSONNEL

Installer/Applicators

- All applicators are trained and approved and have completed training complying with our BPQP procedures, especially the use of the Checklists described in the Technical Manual and or in the Building Product Quality Plan.
- A Training Manual describes the training and application of these BPQP procedures.
- A record of each trained and approved applicator will be kept in our Training Register. This register is maintained on our server, plus paper copy filed in a Lever Arch Folder marked Training in our offices.
- A registration number will be issued for each trained applicator and a certificate will be issued. Each certificate will be valid for a period of 2 years. Refresher training will be required before a certificate renewal.

All staff members are trained in the following areas:

1. Safe work practices
2. Product training and have passed the training program
3. Application of these BPQP procedures and all checklists

BPQP Management and Audit Responsibilities

Management:

Overall responsibility for ensuring that this BPQP is implemented is the Managing Director of Neoferma Australia Pty Ltd

A Neoferma Australia Pty Ltd person at Neoferma Australia Pty Ltd head office will be responsible for carrying out periodic internal audits of this BPQP document and attachments.

Each Applicator shall be responsible for the onsite application of this BPQP as it applies to their work and shall be responsible for having periodic reviews of their documentation and diary note that are related to the BPQP. In addition, each Neoferma Australia Pty Ltd approved applicator will complete for each installation the Neoferma Australia Pty Ltd **CHECKLIST** and provide photos of the various stages of the install as required in the pre-job through post job warranty requirements.

Audit Requirements:

- This BPQP will be reviewed at least once per year at head office by the management;
- This BPQP of each Neoferma Australia Pty Ltd approved Installer will be audited at least every year by Neoferma Australia Pty Ltd;
- Use will be made of the checklist at the back of the BEAL Auditing Services Ltd Standard Document;
- Records of each audit completed will be filed in the BPQP file in each applicators folder under tab Neoferma Australia Pty Ltd, BPQP
- A copy of each audit record shall be forwarded to the MD as soon as practical.
- Where there is non-conformance found, a note for the reason shall be written into the checklist.
- Where the non-conformance is seen to be important, then a meeting with the relevant management people shall be held as soon as practical to:
 - a. determine the importance of the non-conformance;
 - b. determine who shall be responsible for correcting the non-conformance;
 - c. determine if there needs to be a correction or addition to the BPQP documents;
 - d. Record when the non-conformance was dealt with and the names of any other parties that may have been involved in achieving the corrective action. These notes should be filed in a manner that enables them to be easily found in the event that there is a repeat of the non-conformance.

BEAL will conduct its own audit of Neoferma as set out in the Codemark scheme rules and subject to this BPQP.

APPENDIX: A

SWELLSEAL® MS TotalSeal – Parts Technical Specifications

GENERAL DESCRIPTION

Swellseal® MS / TotalSeal is a highly effective waterproofing membrane ideal for below-grade vertical and horizontal foundation surfaces.

Swellseal® MS / TotalSeal uses the high swelling and self-sealing properties of Sodium Bentonite to form a monolithic, low permeability membrane to protect the structure from water. Installation is fast and easy, requiring no primers or special tools. Swellseal® MS / TotalSeal can be installed in virtually any weather, including freezing temperatures and damp conditions.

TYPICAL USE

Typical applications include backfilled concrete walls, under structural slabs, tunnels, earth-covered roofs, and property line construction. Property line construction applications include metal sheet piling, soldier pile and lagging, and concrete caisson construction. Swellseal® MS / TotalSeal can be installed directly over a properly prepared soil substrate without a working mud slab. Additionally, Swellseal® MS / TotalSeal can be installed on freshly poured concrete walls as soon as the forms are removed.

PACKAGING

Swellseal® MS / TotalSeal HP is available in rolls 1.65 m x 15 m / 249.5 kg.



SWELLSEAL MS / HP 5500GCL with PE Bonded Liner Data Sheet

SWELLSEAL Multi System / **High Pressure** (MS / HP) is a waterproofing membrane comprising of a Geosynthetic Clay Liner (GCL) composite made from high quality polypropylene geotextiles and a premium grade sodium bentonite granules. SWELLSEAL is fully fibre-reinforced by fully needle-punching across the full length and width of the product. SWELLSEAL MS HP has a two hundred micron HDPE sheet backing bonded to the geotextile. This product is designed for use in situations requiring protection against contaminated or saline water. SwellSeal MS / HP has more bentonite granules per m². Designed and formulated in Australia; Manufactured in China to Australian specification.

	Item		Value	Test Method
1	Non woven geotextile cover layer (g/m2)		210	ASTM D5261
2	Bentonite layer (g/m2)		5500	ASTM D-5993
3	Woven geotextile layer (g/m2)		110	ASTM D5261
4	PE Membrane thickness, (mm)		>=0.20	
6	Bentonite expansion coefficient, (ml/2g)		>= 24	ASTM D5890
7	Fluid Loss (ml)		<18	ASTM-D-5891
8	Moisture Content (%)		> 80	ASTM D-4643
9	Coefficient of water absorption (%)		> 600	ASTM D-4643
10	Water Content (%)		<=10	ISO 11465 (5hrs,105C)
11	Thickness (mm)		6	ASTM D 5199
12	Peeling Resistance (N/10cm)	Non-woven and woven fabric	>=60	ASTM D4632
		PE membrane and non-woven	>=40	ASTM D4632
13	Hydraulic conductivity, k-value (Permeability) (m/s)		4.5 x10 ⁻¹²	ASTM D5084
14	Hydrated Internal Shear Strength (kPa)		60	ASTM 6243
15	Water loss (ml)		<=18	ASTM 5891
16	GCL Rupture Intensity Strength (kN/m)		>=7	ASTM D-6768
17	Width (m)		1.65	
18	Length (m)		15	
19	Square Meter Per Roll (m2)		24.75	
20	Load quantity Rolls Per 20' GP (Rolls)			

Product Name: SWELLSEAL MULTI SYSTEM / HIGH PRESSURE (MS / HP) V3 September 2018

SWELLSEAL MS 5500 LP Data Sheet

SWELLSEAL Multi System is a waterproofing membrane comprising of a Geosynthetic Clay Liner (GCL) composite made from high quality polypropylene geotextiles and a premium grade sodium bentonite granules. SWELLSEAL is fully fibre-reinforced by needle-punching across the full length and width.

	Item	Value	Test Method
1	Non woven geotextile cover layer (g/m ²)	210	ASTM D5261
2	Bentonite layer (g/m ²)	5500	ASTM D-5993
3	Woven geotextile layer (g/m ²)	110	ASTM D5261
4	Bentonite expansion coefficient, (ml/2g)	>= 24	ASTM D5890
5	Fluid Loss (ml)	<18	ASTM-D-5891
6	Moisture Content (%)	> 80	ASTM D-4643
7	Coefficient of water absorption (%)	> 600	ASTM D-4643
8	Water Content (%)	<=10	ISO 11465 (5hrs,105C)
9	Thickness (mm)	6	ASTM D 5199
10	Peeling Resistance (N/10cm)	Non-woven and woven fabric	>=60
			ASTM D4632
11	Hydraulic conductivity, k-value (Permeability) (m/s)	4.5 x10 ⁻¹²	ASTM D5084
12	Hydrated Internal Shear Strength (kPa)	60	ASTM 6243
13	Water loss (ml)	<=18	ASTM 5891
14	GCL Rupture Intensity Strength (kN/m)	>=7	ASTM D-6768
15	Width (m)	1.65	
16	Length (m)	15	
17	Square Meter Per Roll (m ²)	24.75	
18	Load quantity Rolls Per 20GP (Rolls)		

Product Name: SWELLSEAL MULTI SYSTEM

SwellSeal Granular Bentonite**TECHNICAL DATA SHEET****PRODUCT CODE:** A15**ISSUE DATE:****AUGUST 2017****V1****SWELLSEAL BENTONITE GRANULES****GENERAL Description:**

A standard viscosity sodium bentonite with average particle size ranging from between 0.850 and 0.212mm.

APPLICATIONS:

SwellSeal Bentonite Granules are a general purpose filler and extender for use when mild thixotropic properties are desirable.

INSTALLATION:

- Neoferma SwellSeal Seaming Paste should be trowel (or hand) applied to approx 50-75mm width of the top lap edge of the membrane and allowed to “ooze” out from the lap.
- Smooth off the excess over the lap joint.

Typical Chemical composition (moisture free):

SiO ₂	31.02%	MgO	1.35%	Al ₂ O ₃	11.04%	Na ₂ O	1.25%
Fe ₂ O ₃	1.12%	CaO	0.37%	FeO	0.13%	H ₂ O	53.36%
Trace elements: 0.36%							

Purity:

Hydrous aluminium silicate comprised principally of the clay mineral montmorillonite. Montmorillonite content 90% minimum. Contains small percentage of feldspar, biotite, selenite, etc.

Moisture Content: Maximum 13% shipped.

Dry particle size: Maximum 20% retained on a 1.18mm sieve.

Maximum 15% passing a 0.212mm sieve.



TECHNICAL DATA SHEET

PRODUCT CODE: A36

ISSUE DATE:

MAR 2016 V1

SWELLSEAL SEAMING PASTE

GENERAL Description:

SwellSeal Seaming paste is a detailing accessory product for use with SwellSeal MS bentonite membranes to provide additional waterproofing protection. When used on all horizontal and vertical membrane laps the seaming paste provides lap integrity until the concrete pour is completed as the SwellSeal Seaming Paste prevents movement from construction operations or concrete placement.

APPLICATIONS:

SwellSeal Seaming Paste is designed to work in conjunction with SwellSeal MS waterproofing membranes at the horizontal and vertical laps by providing a consistent application of pre-hydrated sodium bentonite to secure the laps.

SwellSeal Seaming Paste can also be used as a fillet for the footing/wall junction of foundation walls providing additional waterproofing protection at this critical junction.

INSTALLATION:

- Neoferma SwellSeal Seaming Paste should be trowel (or hand) applied to approx 50-75mm width of the top lap edge of the membrane and allowed to "ooze" out from the lap.
- Smooth off the excess over the lap joint.

Typical Analysis:

SiO ₂	31.02%	MgO	1.35%
Al ₂ O ₃	11.04%	Na ₂ O	1.25%
Fe ₂ O ₃	1.12%	CaO	0.37%
FeO	0.13%	H ₂ O	53.36%

Trace elements: 0.36%

NEOFERMA AUSTRALIA PTY LTD

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TECHNICAL DATA SHEET

PRODUCT CODE: A30 **ISSUE DATE:** MAR 2016 V1

NEOFERMA DETAIL PASTE

GENERAL Description:

Neoferma Detail paste is a trowel grade, sodium bentonite based, detailing accessory product for use with Swellseal MS bentonite membranes, gasket and a variety of surfaces. When used on all horizontal and vertical membrane laps the Detail paste provides lap integrity until the concrete pour is completed as the DETAIL PASTE prevents water ingress in the event of movement from construction operations or concrete placement.

APPLICATIONS:

Neoferma Detail paste is designed to work;

- Bonding waterstops to uneven surfaces
- At the horizontal and vertical laps by providing a consistent application of pre-hydrated sodium bentonite to secure the Swellseal bentonite membrane laps.
- Around drains and penetrations
- Sealing waterproofing terminations
- As a fillet for the footing/wall junction of foundation walls providing additional waterproofing protection at this critical junction.
- Pre-cast manhole covers, cable ducts and pipes
- Sealing around precast segments
- Sealing rubber, and / or pvc waterstops

INSTALLATION for basement tanking specifically:

- Neoferma Detail Paste should be trowel (or hand) applied to approx 50-75mm width of the top lap edge of the membrane and allowed to "ooze" out from the lap. Smooth off the excess over the lap joint.

Packaging:

15kgs, plastic pails.

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