



BCS Tunnelling Materials Overview

Injection, Water Stopping and Waterproofing

MC-Injekt GL-95TX			
Areas of application:	2 component, polymer reinforced acrylic gel. Low viscosity, soft elastic, highly flexible, waterproof injectable membrane with adjustable setting time. Used for joints, cracks and cavities in concrete and rock. Large scale sealing of rock fissures, contact areas between waterproof membranes (specifically HDPE), failed gaskets, XP to mainline interface, diaphragm walls or other areas of water ingress.		
Features		Benefits	
<ul style="list-style-type: none">• Equipment cleaning with water• Ultra-low viscosity• Fast, adjustable reaction time• Highly flexible• Polymer modified		<ul style="list-style-type: none">• Improved health and safety in underground conditions; no thinners required• Adjustable setting time allows the technician to control the spread of the resin• Covers 80% of all injection works• Reduced application and cleaning time• Instant measure of success due to fast setting time• Trouble-free reinjection due to merging of the material• Suitable for most ground media• Allows for movement of the structure• High strength against water pressure• Excellent adhesion to construction materials including PVC and itself	
Type:	Acrylic	Potable Water Certification:	Yes

MC-Injekt 2700			
Areas of application:	2 component, high strength polyurethane for filling and sealing of joints, voids, cracks and cavities under dry, water-bearing and high-pressure water bearing conditions. Water sealing and stabilising of sheet piles, diaphragm walls, rock and other concrete structures.		
Features		Benefits	
<ul style="list-style-type: none">• >75 MPa compressive strength• Fast reaction time• Closed cell• Low viscosity		<ul style="list-style-type: none">• High strength sealing and ground support to deal with high water pressures and soft ground• Instant measure of success• Limited foaming to provide strength• Long-term water sealing• Injectable with 2 component pump and reduced application and cleaning time	
Type:	Polyurethane	Potable Water Certification:	Yes



Micro Fine Cement: RapidSet150; Prefine 60, Prefine 80; MicroCem			
Areas of application:	Rock injection as pre and post stabilization; Water sealing of tunnels and caverns; Soil injection; Curtain grouting for dams and embankments; water stopping and sealing of dikes, rock fissures and voids;		
Features		Benefits	
<ul style="list-style-type: none">• Different type of particle sizes and setting times• Compatible with most admixtures• Compatible with standard cement injection equipment		<ul style="list-style-type: none">• Excellent tightness and penetration into micro cracks in rock and soil. Different gradings allow for better penetration• Different setting times to suit all types of applications• Safe and easy to use• Cost effective	
Type:	Cementitious	Potable Water Compatible:	Yes, if coated

MC-Injekt 2133 flex			
Areas of application:	True single component, non-shrink, water-reactive, elastomer resin for sealing and filling of cracks and voids. Closed cell foam for large scale permanent water sealing of contact areas between waterproof membranes and structures.		
Features		Benefits	
<ul style="list-style-type: none">• 1 component• Low viscosity• 10 times expansion in volume• Closed cell• Non toxic• Low Surface tension		<ul style="list-style-type: none">• Easy application with single component pump and low material usage• Continuous foaming for 2 minutes and instant measure of success• Injection in cracks from 0.3mm• Minimal water amount required to initiate foaming• Long-term water sealing• Material is drawn into the cracks	
Type	Polyurethane	Potable Water Certification:	No



Temporary water stopping

MC-Injekt 2088			
Areas of application:	2 component, fast reacting, 4000% foaming, water reactive polyurethane with catalyst for variable setting times. Stops high water flows and pressurised water. Filling of voids and temporary stopping of water.		
Features		Benefits	
<ul style="list-style-type: none">• 40 times volume expansion• Stable in volume, no shrinkage• Low viscosity• Fast reaction time• Open cell		<ul style="list-style-type: none">• Small amounts of materials required due to expansion leading to cost savings• Stable filler for voids for long term filling• Stops all water even when pressurized	
Type:	Polyurethane	Potable Water Certification:	No

Shotcrete Admixtures and Additives

MC Special AW			
Areas of application:	Waterproofing admixture to reduce cracks and improve water resistance of shotcrete and concrete		
Features		Benefits	
<ul style="list-style-type: none">• Chloride free• Applied during batching• Unique crystallisation properties• Low sulphate content		<ul style="list-style-type: none">• Self-healing of crack of up to 0.4mm• Compatible with most admixtures• Cost saving compared with waterproof membranes or coatings• No effect on setting time or water demand of concrete• Easy to apply, saving time and cost	

Centrlit NC II			
Areas of application:	Concrete additive to enhance acid and chemical resistance and reduce pore volume of concrete, used for precast units, high strength and high-performance concrete.		
Features		Benefits	
<ul style="list-style-type: none">• Bright coloured (does not change colour of concrete)• High uniformity and quality (Synthetically manufactured)• Excellent environmental compatibility		<ul style="list-style-type: none">• Improved homogeneity• Increased density and strength• Improved abrasion resistance• Application as dry powder and slurry• Increased chemical resistance	

Australian Distributors for MC-Bauchemie Müller GmbH & Co. KG and DESOI GmbH





Spray on Membrane

MC-Montan ShotSeal			
Areas of application:	Continuously bonded, spray applied waterproof membrane. Used for waterproofing of Cross Passages, Caverns, Tunnels, underground car parks, pile walls, D-Walls, also used as substitute for sheet membranes		
Features		Benefits	
<ul style="list-style-type: none">• Highly flexible• High pull off strength and excellent bonding to concrete and steel• Can be connected to PVC and HDPE liners• Highly water tight, 5 bar with zero penetration• Open to water vapour diffusion• High resistance against alkalinity (from fresh concrete)• Improved water tightness• High resistance to UV and weathering• Curing-free• Application by dry and wet spray methods• B2 fire rating after DIN 4201, self-extinguishing and does not support combustion• Formulated with EVA co-polymer hybrids to offer long term durability outperforming standard EVA systems		<ul style="list-style-type: none">• Faster and easier to install than sheet membranes (specifically overhead)• Fully bonded to the structure and not reliant on adhesives• Termination details, also to sheet membranes are simple to apply• Provides a continuous membrane even when overlapping or continuing application during next shift which eliminates the risk of leaking cold joints• Easier to repair and less prone to punctures than sheet membranes• Less dust generation compared to other powder type spray on systems• Application thickness 3-10mm• Suitable as sandwich layer between shotcrete, ability to apply in thick layers without loss of strength• Suitable as replacement of smoothing layer when applied thicker• Suitable for connection between different waterproofing systems (e.g. at cross passages or portals)• Can be applied on damp surfaces• The membrane regulates the dynamic E-modulus when used as a sandwich layer (the thicker the layer the lower the E-modulus; 25250 N/mm² at 4mm and 21050 N/mm² at 8mm)	
Type:	EVA	Potable Water Certification:	No



Crack Repair

MC-Injekt 2300 NV			
Areas of application:	2 component, low viscosity polyurethane for flexible sealing and filling of cracks and joints under dry, damp conditions. Permanent water seal for use with MC-Injekt 2033. Suitable for use with injection hoses		
Features		Benefits	
<ul style="list-style-type: none">• Very low viscosity• High flexibility• Minimal expansion in contact with water• Closed cell		<ul style="list-style-type: none">• Ensured crack filling due to low viscosity and extended setting time to allow for secondary injection• Suitable for use with injection hoses• Long-term water sealing• Adjustable reaction time• Injectable in cracks from 0.1mm	
Type:	Polyurethane	Potable Water Certification:	Yes

MC-DUR 1264 FFM			
Areas of application:	Structural crack injection in damp and dry conditions. Force transmitting repair of tunnel segments, precast elements and any other cracked concrete.		
Features		Benefits	
<ul style="list-style-type: none">• Low viscosity• Moisture compatible• High quality raw materials		<ul style="list-style-type: none">• Ensured crack filling due to low viscosity and reduction of surface tension• Hardening under dynamic conditions• Suitable for use with injection hoses	
Type:	Epoxy	Potable Water Certification:	No

MC-Fastpack Cartridge System			
Used for:	Injection Materials in cartridge system		
Available Materials		Cartridge Benefits	Advantages
<ul style="list-style-type: none">• MC-Injekt 2300 top• MC-Injekt 2700• MC-Injekt 1264 compact• MC Sewer Injekt• MC-Fastpack PU solid (surface sealant)		<ul style="list-style-type: none">• True viscosity for each material• Minimal clean up• No mixing errors• No ongoing equipment maintenance cost	<ul style="list-style-type: none">• Time and cost savings for smaller projects• No pump required only Fastpack Powertool and compressed air
Type	Polyurethane and Epoxy	Potable water certification	Depending on material



Cementitious Plugs and Mortars

MC FIX ST and MC FIX ST 5			
Areas of use:	Fast setting mortar for sealing of water ingress, plugging of packer holes, surface sealing when injecting and fast setting plug for leaks		
Features		Benefits	Advantages
<ul style="list-style-type: none">• Waterproof• 1 component• 60 sec or 5 min setting time• Swelling during setting process		<ul style="list-style-type: none">• Permanent water seal• Fast setting time• expansion and excellent plugging ability	<ul style="list-style-type: none">• Instant measure of success• Easy application
Type	Cementitious	Potable water	No

Nafufill KM 250M			
Areas of use:	Single component polymer modified, structural concrete replacement mortar with 2-hour fire rating, suitable for overhead repairs and chloride environments.		
Features		Benefits	Advantages
<ul style="list-style-type: none">• Polymer modified• 1 component• Hand or spray application		<ul style="list-style-type: none">• 2 hour fire rating at 1350°C to protect reinforcement (Nafufill KM 250 version only)• Statically calculable• Suitable for overhead repairs	<ul style="list-style-type: none">• Fire protection• Concrete replacement mortar• Compatible primer also acts as corrosion protection
Type	Cementitious	Potable water	Yes, if coated

Surface Putty

MC-DUR Underwater Pro			
Areas of application:	Epoxy putty for surface sealing of cracks and surface repair of concrete and steel components. Used in underwater applications, on wet and dry surfaces and where high strength is required.		
Features		Benefits	
<ul style="list-style-type: none">• Putty like viscosity• Easy mixing by hand 1:1• Fast setting time• High strength• Excellent adhesion		<ul style="list-style-type: none">• Easy to apply, no sagging and sticks to damp and wet surfaces• Used on concrete and steel• Hardens underwater• Optimal mixing control due to pigmented components• Concrete grey colour	
Type:	Epoxy	Potable Water Certification:	No



Cementitious Grouts

Emcekrete HP, HP80, HP100			
Areas of use:	High performance cementitious grout for concrete repairs, concrete anchors, bridge bearings, machine foundations (wind turbines) and filling of cavities		
Features		Benefits	Advantages
<ul style="list-style-type: none">• 2-stage shrinkage compensated• Chloride free• Adjustable consistency• 0% bleed at 3 hours		<ul style="list-style-type: none">• High ultimate strength (65, 80, 100MPa)• Rapid strength development• Can be blended with aggregate for deep pours	<ul style="list-style-type: none">• Excellent flowability• Easy to mix• Long pot life
Type	Cementitious	Potable water	No

Pump and Packer Systems

BCS distribute various Desoi pumps and packer systems for the installation of our materials.

Range of packers:

bore packers

needle packers for gasket leaks

hammer packer

surface adhesion packers

Range of pumps:

single component reciprocating pump

Two component reciprocating pump up to 20l/min out put

Membrane pumps