

Guide to World-Class Concrete Production, Placement & Finishing

New Zealand



Guide to World-Class Concrete Production, Placement & Finishing

Surface Retarder

A concrete surface retarder is a chemical formulation applied to the surface of freshly placed concrete to slow down or retard the setting of the cement paste on the top layer. This delayed setting allows for various decorative and functional finishes to be applied to the concrete surface, such as exposed aggregate or textured patterns.

MasterFinish 380: MasterFinish 380 is a water based chemical retarder used to expose the aggregate in concrete surfaces. The new yellow formulation makes it easy to see when applied to light or dark concrete.

Form Release Agents

A form release agent is a substance applied to the surface of a mold or form before casting concrete to prevent the adhesion of the freshly placed material to the form. The primary purpose of using a release agent is to facilitate the easy removal of the cast element from the mold or formwork, ensuring a smooth and clean surface finish on the final product.

MasterFinish RL 211: A ready-to-use, water based, non-toxic surface consolidation agent, specially formulated to reduce or eliminate concrete surface imperfections.

MasterFinish 222: A low viscosity, chemical release agent that reacts with the alkalis and water at the interface of the concrete and formwork to produce a thin film of lime soap which breaks the bond enabling the formwork to be readily stripped.

Agitator Barrel Cleaner

MasterFinish CLN 820: A ready for use liquid cleaning agent for agitator barrels. It has been developed to facilitate cost efficient and safe handling for cement cleaning applications.

Evaporation Retardant and Finishing Aid

Plastic shrinkage cracking in concrete occurs during the early stages of the curing process, typically within the first few hours after placement, before the concrete has fully hardened. Environmental factors that can enhance the rate of water evaporation from the surface of freshly placed concrete include: High Ambient Temperatures, Low Humidity, Wind Velocity.

An anti-evaporation agent assists in preventing plastic shrinkage cracking in concrete by reducing the rate of water evaporation from the surface of the freshly placed concrete during its early curing stages.

MasterKure III: An evaporation retardant and finishing aid, which assists in producing high quality concrete flatwork. It retards water evaporation during trowelling, regulates the surface condition of the slab and permits better adherence to finishing schedules.

Fibers

Plastic fibers, such as polypropylene or polyethylene fibers, can be added to concrete to enhance its properties and performance. Some advantages of using plastic fibers in concrete include: Crack Control, Increased strength, Corrosion Resistance, Reduced Microcracking.

MasterFiber I43: The innovative alternative to steel reinforcement. I43 tackles shrinkage and cracking complications while enhancing residual flexural strength and durability. Used in shotcrete applications, ground supported slabs, industrial flooring, pavement, and precast elements.

MasterFiber M 018: A monofilament micro fibre, which reduces plastic shrinkage cracking, improves impact resistance, fatigue resistance and provides long-term fire durability.

MasterFiber F 018: High-performance micro fibrillated fibre for concrete reinforcement, reducing shrinkage cracks, improving impact resistance, abrasion resistance, fatigue resistance, and toughness of concrete and cement-based products.

Returned Concrete Recycling

Dumping wet concrete, also known as concrete washout, poses environmental concerns primarily due to the potential release of harmful substances into the surrounding soil and water. Concrete washout is the residue left behind after concrete mixer trucks are cleaned.

Fresh concrete is highly alkaline, and as it cures, it continues to release alkaline substances. When wet concrete is dumped or washed out on the ground, rainwater can leach the alkaline substances, raising the pH of the surrounding soil and water. Elevated pH levels can harm aquatic life and affect the health of plants.

MasterSuna RCT 323: MasterSuna RCT 323 returned concrete admixture ensures that 100% of the ready-mix load is recycled and utilised in other construction applications.

Microsilica

Microsilica, also known as silica fume, is a by-product of the production of silicon metal or ferrosilicon alloys. It consists of very fine, amorphous particles of silicon dioxide. It is a highly reactive pozzolan, and its addition to concrete offers several benefits including strength improvement, durability enhancement and reduced permeability.





MasterFinish 380

Surface retarder for horizontal exposed aggregate concrete surfaces

MasterFinish 380 is a water based chemical retarder used to expose the aggregate in horizontal concrete surfaces. MasterFinish 380 delays the set of the mortar paste on the surface to a controlled depth. MasterFinish 380 does not kill the set of the main concrete. The retarded mortar paste may be removed by washing and brushing after the set of the concrete to expose the aggregate.

Areas of Application

- MasterFinish 380 is ideal for the production of exposed aggregate architectural finishes on horizontal surfaces or on pre-cast panels produced in a horizontal plane.
- MasterFinish 380 may also be used on concrete slabs prior to the granolithic application of a screed or thick layer surface topping.
- MasterFinish 380 is ideally suited for exposing aggregate on horizontal 'kicker' and construction joints thus ensuring good bonding of the fresh concrete, eliminating the requirement for mechanical preparation of these surfaces.

Characteristics and Benefits

- Controlled retardation of concrete surface -produces consistent textured and attractive exposed aggregate surface
- Easy to use – simple spray application
- Economic – only 250ml per square meter
- Consistent exposed aggregate surface – improved bond of fresh concrete to exposed surfaces
- Controlled retardation of surface set – no residual retardation to interfere with subsequent toppings or concrete pours
- Water based – simple clean up





MasterFinish RL 211

High quality water-based surface consolidation and form release agent

MasterFinish RL 211 is a ready-to-use, water based, non-toxic surface consolidation agent with excellent form release properties. It is readily biodegradable according to OECD Guideline 301. It has been specially formulated to reduce or eliminate concrete surface imperfections. This unique product, when applied to most forms and form liners enhances the appearance of precast, prestressed and cast-in-place concrete. MasterFinish RL 211 form release agent significantly reduces production cost through its efficiency, ease of use and its superb release capability.

Areas of Application

Application to all types of formwork including wood, metal, polyester or plywood where a good surface finish and optimum release are required.

MasterFinish RL 211 is not recommended for use on rubber lined forms and where rapid de- shuttering of forms (e.g. block making) is practiced.

Characteristics and Benefits

- Unique product to improve concrete off-form finish and ensure optimum release of formwork
- Improved concrete surface by reducing or eliminating surface voids and defects
- Minimises repair costs associated with patching or polishing to remove surface defects
- Improved surface quality often leads to better prices for finished product
- Non-staining, suitable even for concrete containing off-white cement
- Promotes easy and efficient stripping of forms
- Reduces the need for and cost of frequently cleaning forms by reducing the concrete residue.
- Easy and inexpensive to apply by spray
- Milky appearance means increased coverage by reducing overlapping applications
- Better and safer working environment
- Non-toxic, being made from “skin friendly” ester oils
- Biodegradable





MasterFinish 222

General purpose oil-based form release agent

MasterFinish 222 is a low viscosity, chemical release agent for all types of concrete formwork. MasterFinish 222 reacts with the alkalis and water at the interface of the concrete and formwork to produce a thin film of lime soap which breaks the bond enabling the formwork to be readily stripped.

Areas of Application

- Use on all types of formwork to enable clean stripping of forms and provide excellent architectural finishes
- Use in all concrete construction whether “in situ”, precast or prestressed
- Application to wheelbarrows, trowels, buckets and other construction tools to facilitate cleaning and provide temporary protection against rusting
- Application to metal window and door frames to prevent adhesion of cement and mortar splashes during construction

Characteristics and Benefits

- No discolouration or blotchiness, provides stain-free, “off-form” architectural concrete finishes
- High coverage rate MasterFinish 222 is economical to use
- Suitable for use with normal, off-white and coloured concrete
- Leaves no residue on concrete finish
- Excellent “off-form” finish - produces a clear reproduction of formwork texture and sharp concrete features
- Reduces the incidence of air pockets and tendency of surface spalling at corners
- Will not impair the bond of subsequent applications of paint, render or tiles
- Preserves and waterproofs timber forms and inhibits rusting of steel forms in use or storage
- Protects aluminium windows and door frames from plaster and mortar splashes
- Easy to use, requires no mixing on site





MasterFinish CLN 820

Thixotropic liquid cleaning agent with corrosion inhibition used for agitator barrels in concrete trucks

MasterFinish CLN 820 is a ready for use liquid cleaning agent for the agitator barrels of concrete trucks. It has been developed to facilitate cost efficient and safe handling for cement cleaning applications.

Areas of Application

MasterFinish CLN 820 is recommended for the cleaning of the outside of all agitator barrels (bowls), especially in situations where cement “stains” are difficult to remove with conventional cleaners.

Characteristics and Benefits

MasterFinish CLN 820 has the following features:

- Thixotropic
- Corrosion inhibited
- Minimal vapour emissions when compared to conventional acid cleaning agents

These features result in a number of benefits including:

- Reduced waste and cost
- The thixotropic nature of MasterFinish CLN 820 leads to minimal “runoff” and subsequent more efficient use of the product
- Substantial decrease in cleaning agent induced corrosion
- OH&S friendly – results in easier and safer handling





MasterKure III

Evaporation retardant and finishing aid for fresh concrete

MasterKure III is an evaporation retardant and finishing aid, which assists in producing high quality concrete flatwork. It retards water evaporation during trowelling, regulates the surface condition of the slab and permits better adherence to finishing schedules. MasterKure III is especially effective in combating rapid-drying conditions such as high temperatures, low humidity and high winds.

Areas of Application

All types of concrete slabs, toppings, and finishing operations including:

- Concrete containing water reducing, retarding or accelerating admixtures
- Air entrained concrete
- Tilt-up, lift slab, pre-cast or prestressed concrete
- Metallic or natural aggregate dry shakes and toppings
- Coloured concrete
- Burnished hard trowel, non-slip, swirl-trowelled, or wood float finishes
- Hand or machine finishing
- Membrane-type curing compounds, plastic sheeting, waterproof paper or ponding

MasterKure III is not a curing agent and has no effect on hardened concrete. Concrete must still be properly cured.

Characteristics and Benefits

- Reduces surface moisture evaporation - reduces or eliminates plastic shrinkage cracking and wind crusting by about 80% in wind and 40% in sunlight
- Reduces potential for surface drying shrinkage crazing - concrete quality improves with better and denser surface
- Easier finishing - the surface closes better under the trowel giving an improved finish with less work
- Reduces or eliminates crusting, stickiness and underlying sponginess – due to rapid evaporation leading to unevenness and poor surface texture
- Essential hot weather concreting practice – to combat rapid-drying conditions and retard evaporation





MasterFiber 143

Polypropylene fibre for reinforcement in sprayed concrete and cast concrete applications as alternative and/or supplement to existing concrete reinforcement products

MasterFiber 143 is engineered for use as secondary reinforcement to control shrinkage, settlement and temperature cracking both in sprayed and cast in-situ applications. The inclusion of MasterFiber 143 in a concrete mix will contribute to improving the durability of concrete by increased crack propagation resistance and by its energy absorption characteristics. The fibres will disperse uniformly throughout the concrete mix and act as an anchoring mechanism within the cement matrix thereby improving the toughness and ductility of the material. MasterFiber 143 can maximize concrete service life by providing superior resistance to attack from damaging environmental elements such as water, chlorides and corrosive environments such as sewerage conduits and/or saline water.

Areas of Application

MasterFiber 143 is appropriate for use in ground supported slabs, industrial flooring, pavement, and precast elements. MasterFiber 143 can also be used in shotcrete applications for increased energy absorption and reduced rebound.

MasterFiber 143 increases:

- Concrete durability
- Toughness
- Post-residual flexural strength

MasterFiber 143 decreases:

- Hardened shrinkage
- Shotcrete rebound
- Manual labour

Characteristics and Benefits

- Easy to dose either at the batch plant or on-site concrete mixer truck prior to application
- Only minor impact on flow and slump properties of fresh concrete
- High resistance to acid/alkalis attack suitable for use in wet underground conditions and subsurface constructions exposed to damp conditions
- Reduces labour, construction





MasterFiber M 018

Monofilament micro polypropylene fibre for concrete

MasterFiber M 018 is a 100 percent virgin polypropylene, micro monofilament fibre designed to provide a high-performance concrete reinforcement system. MasterFiber M 018 is specifically engineered and manufactured to be used for the reduction of plastic shrinkage cracks, to improve impact, shatter, and abrasion resistance, to increase fatigue resistance, to increase toughness and provide long term fire durability of concrete and cement-based building products. MasterFiber M 018 meets the material specifications described in ASTM C-1116, Type III, Section 4.1.3 “Synthetic Fibre-Reinforced Concrete and Shotcrete”.

Characteristics and Benefits

MasterFiber M 018 aids in the issues that arise from curing concrete by promoting a uniform bleed profile and controlling bleed water. By increasing the strain capacity of fresh concrete MasterFiber M 018 also minimises plastic shrinkage and plastic settlement in addition to:

- Increased impact, shatter, and abrasion resistance of concrete
- Increased fatigue resistance and concrete toughness
- Increased cohesion
- Reduced segregation
- Reduced freeze/thaw damage





MasterFiber F 018

Monofilament micro polypropylene fibre for concrete

MasterFiber F 018 is a 100 percent virgin polypropylene, micro fibrillated fibre designed to provide a high-performance concrete reinforcement system. MasterFiber F 018 is specifically engineered and manufactured to be used for the reduction of plastic shrinkage cracks, to improve impact, shatter, and abrasion resistance, to increase fatigue resistance, and to increase toughness of concrete and cement-based building products. MasterFiber F 018 meets the material specifications described in ASTM C-1116, Type III, Section 4.1.3 "Synthetic Fibre-Reinforced Concrete and Shotcrete".

Characteristics and Benefits

MasterFiber F 018 aids in the issues that arise from curing concrete by promoting a uniform bleed profile and reducing bleed water. By increasing the strain capacity of fresh concrete MasterFiber F 018 also minimises plastic shrinkage and plastic settlement in addition to:

- Increased impact, shatter, and abrasion resistance of concrete
- Increased fatigue resistance and concrete toughness
- Increased cohesion
- Reduced segregation
- Reduced freeze/thaw damage





MasterSuna RCT 323

Monofilament micro polypropylene fibre for concrete

MasterSuna RCT 323 admixture is a one component product that is formulated to treat returned fresh concrete for subsequent beneficial use. It is an engineered powdered polymer that gels the fresh concrete resulting in very rapid stiffening and significantly minimizes cement hydration and strength development. MasterSuna RCT 323 admixture comes in water soluble bags and is added directly into the drum of the ready-mixed concrete truck. MasterSuna RCT 323 admixture allows concrete producers to develop a returned concrete solution that eliminates the need for onsite concrete crushing and disposal into landfills.

Characteristics and Benefits

- One-component
- Low dosage for ease of use
- Fixed dosage to treat a variety of returned concrete mixtures
- Fast acting – gels fresh concrete and provides rapid stiffening in two to five minutes
- Provides concrete producers with a cost-effective solution to address returned fresh concrete
- Eliminates the need for onsite concrete crushing, which improves safety and reduces the carbon footprint
- Creates an environmentally sustainable solution to address the issue of returned concrete by diverting a waste material into beneficial applications





MasterLife SF 100

Silica fume mineral admixture

MasterLife SF 100 is a dry, compacted, silica fume mineral admixture formulated to produce concrete with special performance qualities. It improves the hardened characteristics of concrete in two main ways. Firstly, MasterLife SF 100 is a pozzolan which reacts chemically within the concrete to increase the amount of calcium silicate hydrate gel formed, thus improving the strength and impermeability of the concrete. Secondly, MasterLife SF 100 is an ultra-fine material that, when added to concrete, physically fills the voids between cement particles resulting in an extremely dense and impermeable concrete. MasterLife SF 100 meets AS/NZS 3582.3 Amorphous Silica and ASTM C 1240 requirements.

Areas of Application

The reduced permeability of concrete produced with MasterLife SF 100 greatly limits the ingress of water, chlorides, sulphates, and aggressive chemicals known for promoting reinforcing steel corrosion and other distress in the concrete. This makes MasterLife SF 100 an ideal product for use in basement structures, parking decks, bridge decks, marine structures, and any construction that requires the protection provided by impermeable concrete.

Because of its pozzolanic and void-filling properties, the addition of MasterLife SF 100 to conventional concrete can also provide ultra-high compressive strengths. This allows for design flexibility, resulting in reduced member size, increased span lengths, and improves overall structural economics.

As a result of the preceding advantages, MasterLife SF 100 will improve performance in wet and dry shotcrete, prestressed, precast, and ready-mixed concrete applications.

When air entrainment is desired, an air-entraining admixture is recommended. Please consult your local Master Builders Solutions Technical Sales Representative. It is also recommended that MasterLife SF 100 be used in conjunction with a high range, water-reducing admixture, such as MasterRheobuild or MasterGlenium admixtures for maximum workability while maintaining a low water-cementitious ratio.

Characteristics and Benefits

MasterLife SF 100 aids in the production of concrete with the following special qualities:

- Dramatically improved durability
- Uniformly high compressive strength
- Abrasion and erosion protection
- Better flexural strengths at all ages
- Low permeability
- Excellent freeze/thaw resistance



Master Builders Solutions has been a key player in the New Zealand building and construction sector for decades, operating predominantly from the Albany office and production site, serving both the North and South Islands. The dedicated local team embodies our slogan, “Inspiring People to Build Better,” reflecting our commitment to innovation and excellence in the industry. We focus on delivering top-quality building solutions while supporting sustainable development across New Zealand.



NEW ZEALAND TEAM:

Customer Services, Orders

ordersnz@masterbuilders.com 09 414 7233



Wynand Marais

Technical Sales Representative

wynand.marais@masterbuilders.com 027 277 2586



Nav Prasad

Dispenser Technician – South Island

nav.prasad@masterbuilders.com 021 665 804



Darren Smith

Dispenser Technician – North Island (Taupo North)

darren.smith@masterbuilders.com 027 230 0581



Matenga Love

Dispenser Technician – North Island (Taupo South, Taranaki, Hawkes Bay)

matenga.love@masterbuilders.com 027 268 8418



Tim Dashfield

Country Manager

tim.dashfield@masterbuilders.com 027 836 5773

CONTACT US:

New Zealand
MB Solutions New Zealand Ltd
Freecall 0800 334 877
Sales Orders: ordersnz@masterbuilders.com

Australia
MB Solutions Australia Pty Ltd
Freecall: 1300 227 300
Sales Orders: ordersau@masterbuilders.com



The data contained in this publication are based on our current knowledge and experience. They do not constitute the agreed contractual quality of the product and, in view of the many factors that may affect processing and application of our products, do not relieve processors from carrying out their own investigations and tests. The agreed contractual quality of the product at the time of transfer of risk is based solely on the data in the specification data sheet. Any descriptions, drawings, photographs, data, proportions, weights, etc. given in this publication may change without prior information. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed (02/2014).