

# MasterShield PEL 1100 (formerly MasterShield PEL 1100)

Hydrophobic impregnant based on isobutyltriethoxysilane

## Material Description

**MasterShield PEL 1100** is undiluted isobutyltriethoxysilane which is a clear low viscosity liquid. **MasterShield PEL 1100** has a very low molecular size, which ensures effective impregnation of concrete and masonry surfaces of 3-8 mm penetration into the pore structure. The impregnated **MasterShield PEL 1100** reacts with moisture or interstitial humidity and forms permanently bonded hydrophobic lining on the pore-walls of the substrate.

The treated substrates are therefore highly hydrophobic and will inhibit ingress of liquid water and water borne aggressive agents such as chlorides. It also provides a barrier to the attack done by dissolved carbon dioxide by preventing carbonic acid entering the structure. **MasterShield PEL 1100** does not change the appearance of the base concrete after absorption and thus is ideal for architectural concrete elements.

**MasterShield PEL 1100** is also available with a red fugitive dye that provides an easy identification of the treated areas. The colour of the dye will disappear in approximately 1 week depending on the number of coats applied and the amount of UV light.

## Areas of Application

**MasterShield PEL 1100** is recommended for application to most of the cementitious, masonry and mineral substrates above ground, not subject to hydrostatic pressure. Applications include treating the surfaces of:

- Bridge decks, abutments, piers, soffits, etc
- Beams, columns and walls of buildings
- Exposed brick structures
- Car parks
- Marine structures

## Characteristics and Benefits

- Effective water repellence - durability. Inhibits ingress of water borne aggressive agents such as chlorides giving long term protection from reinforcing corrosion.
- Minimises surface efflorescence - clean appearance of masonry surfaces.

- Breathable - allows water vapour to move through the substrate.
- Highly penetrative - ensures long-term effectiveness even on surfaces exposed to traffic (e.g.: car parks).
- Can be supplied with a fugitive dye - treated area easily identifiable. No wasteful repetitive coatings or risk of untreated areas.

## Properties

Maximum depth of penetration can be achieved over a dry substrate on a dry, windless day with a high ambient temperature of around 40°C.

Temperature	Relative humidity	Depth of penetration
24°C	13 %	4-6 mm
	52 %	3-5 mm
	79 %	3-5 mm
40°C	13 %	4-6 mm
	52 %	3-5 mm
	79 %	3-5 mm

*Note: Experience has shown that a depth of penetration of >3 mm gives the required long term protection to concrete. Some very dense concretes will allow a visible penetration of less than 3mm but will still be adequately protected.*

**MasterShield PEL 1100** complies with British Highway Specification BD 43/90.

Supply form	Clear liquid
Refractive index of material as supplied	1.400 ± 0.005
Specific gravity	0.88
Purity (Isobutyltriethoxysilane)	98%
Active ingredients	100%
VOC content	390g/L

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## Application

Use **MasterShield PEL 1100** as supplied without dilution.

### Surface Preparation

Surfaces should be clean and free from loose particles, oil, grease or any other contaminant. Cement laitance, loose particles, oil, grease, mould release agent, curing membrane and other contaminants must be removed by high pressure water jetting or other such effective methods.

Mask and protect all areas not to be treated including glass (contact with glass will permanently mark the glass), plants, etc., and any other material that should not be exposed to **MasterShield PEL 1100**. **MasterShield PEL 1100** can be applied to MasterEmaco repair mortars or fairing coats if repairs are done to the surface.

A test application is recommended on each surface or masonry material to be treated to ensure compatibility and desired water repellent effect.

### Placing

**MasterShield PEL 1100** may be applied to damp surfaces although dry surfaces preferred for optimum penetration of the substrate. Apply **MasterShield PEL 1100** in two coats with about two hours interval between coats.

Avoid application on a windy or a rainy day and start after at least a couple of hours of clear sunshine following rains. For best results on vertical surfaces, starting at the bottom of the structure and working up, apply a flood coat of **MasterShield PEL 1100** by a low pressure air-less spray equipment (knapsack sprayer), so as to produce 150-200 mm run off on the surface below the contact point of the spray pattern.

It can also be applied using a wide short nap roller or brush, in which case, it should be applied repeatedly until the surface remains moist for a few seconds. On horizontal surfaces, apply sufficient material so that it stands for a few seconds before penetration.

## Estimating Data

150 - 300 ml/m<sup>2</sup> (0.13 - 0.26 kg/m<sup>2</sup>) per coat depending on porosity of the substrate. Consumption can increase while treating tall structures, caused by loss due to wind.

## Packaging

**MasterShield PEL 1100** is available in 200 litre drums and 20 litre pails.

## Storage & Shelf Life

**MasterShield PEL 1100** has a shelf life of 12 months. Store out of direct sunlight, clear of the ground on pallets protected from rainfall.

## Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

# MasterShield PEL II00 (formerly MasterShield PEL II00)

Hydrophobic impregnant based on isobutyltriethoxysilane

## Disclaimer

MasterShield PEL II00 -ANZ-VI-1224

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#### MB Solutions Australia Pty Ltd

ABN 69 634 934 419  
Suite 102, 2 Burbank Place  
Norwest NSW 2153

**Freecall:** 1300 227 300

[www.master-builders-solutions.com/en-au](http://www.master-builders-solutions.com/en-au)

#### MB Solutions New Zealand Ltd

45C William Pickering Drive  
Albany, Auckland  
New Zealand

**Phone:** +64 9 414 7233

#### Emergency Advice:

1300 954 583 within Australia (24hr)  
0800 001 607 within New Zealand