RapidFloor MMA Technology

Rapid curing flooring system for Industry

Floors and repair systems that cure in one hour

a division of Nuplex Industries Ltd.

Chemical specialities for building and construction
Nuplex Corporate profile

- Established 1956
- Employees 1700
- Sales NZ$ 1500 (million) 2007
- Assets NZ$1 bn
- Business: specialist chemical manufacturer based on resin manufacturer. Nuplex is differentiated from other “flooring’ companies in that Nuplex actually manufactures the resins being used.
Nuplex Corporate profile

- Resin manufacturing plants in:
  - Sydney
  - Auckland
  - Melbourne
  - Indonesia
  - China
  - Vietnam
  - and around the world
Nuplex Corporate profile

- Technology centres in:
  - Sydney
  - Auckland
  - Netherlands
  - and around the world
Nuplex is MMA vertically integrated

- From MMA monomer, Nuplex manufacture resins based on Methyl Methacrylate monomer; converting it to PMMA (polymer).

- In combination with other acrylic monomers PMMA resin can produce a wide range of hardneses and flexiblity.
About RapidFloor MMA

- MMA monomer resins based on Methyl Methacrylate monomer; converting it to PMMA (polymer).

polymerization of methyl methacrylate to get poly(methyl methacrylate)

This is poly(methyl acrylate). It is soft and rubbery.

This is poly(methyl methacrylate). It is a hard plastic.
Nuplex integrated resin MMA position

Other Acrylic monomers

Nuplex

Acrylic & MMA resins

Plastics Industry

Nuplex

MMA Monomer

MMA resins

RapidFloor MMA Flooring resins

Nuplex

Acrylic & MMA resins

Plastics Industry
RapidFloor MMA in Flooring for Industry
Industrial flooring

- Food industry
- **Supermarket operating kitchens**
- Concourses in public areas (non-slip)
- **Decks, verandas, steps**
  (colours and non-slip)
- Carparks
- Non-slip line marking
- Airport & general guidance lines
RapidFloor MMA Characteristics

- Cures rapidly
  30-40 minutes per layer. The full system is installed in 1.5 – 2 hours.
- Cures at low temperatures.
  It may be used at -20°C with special processes.
- Interior / exterior
- Easy remedial work or repair
- Thin film (3-5mm) means economic installation.
RapidFloor MMA Composition

**Primer:** provides specific adhesion, seals the concrete, prevents porosity.

**Bodycoat:** provides impact resistance and is the levelling coat.

**Topcoat:** provides chemical and slip resistance with an aggregate finish.
RapidFloor MMA
in Flooring  - Details

<table>
<thead>
<tr>
<th>RapidFloor MMA</th>
<th>Primer</th>
<th>Bodycoat</th>
<th>Topcoat</th>
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<tbody>
<tr>
<td></td>
<td>RFP</td>
<td>RFBC</td>
<td>RFTC</td>
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<tr>
<td>Mix</td>
<td>RapidFloor catalyst</td>
<td>RapidFloor catalyst</td>
<td>RapidFloor catalyst</td>
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<tr>
<td>Cure Time</td>
<td>20 mins</td>
<td>30 mins</td>
<td>20 mins</td>
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<td></td>
<td>Fast &amp; Slow cure options. RFBC, RFBCS</td>
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<tr>
<td>Apply</td>
<td>Roll</td>
<td>Roll or trowel as a slurry</td>
<td>Roll</td>
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<tr>
<td>Options</td>
<td>Flexible option. RFBCF Fast or Slurries for strength</td>
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<tr>
<td>Colour</td>
<td>option</td>
<td>Colour option and coloured aggregates</td>
<td>Colour for a “solid” colour blockout</td>
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<tr>
<td>Aggregates</td>
<td>Quartzzite colours</td>
<td>Non-slip</td>
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<tr>
<td>Apply</td>
<td>Roll, trowel, spread</td>
<td>Non-slip</td>
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RapidFloor MMA in Flooring - Resistance

- RapidFloor MMA is resistant to a wide range of fats, oils, hot oils, common cleaners and solvents.
- Common acids and alkalies
- Refer to Nuplex chemical resistance chart
RapidFloor MMA in Flooring

- Ensure forced area movement is used at all times for environmental safety and to ensure no “dead air” areas that will inhibit cure.
- Open drums and pails and stir well immediately prior to use.
- Ensure that a full-bodied priming coat is used (or preferably use two primer coats)
- Use only Nuplex catalysts at the correct level
- Refer to Nuplex chemical Tech data at all times
RapidFloor MMA in Flooring - Rapid Odour reduction

Vertical scale shows perceived odour over time.

RapidFloor is virtually imperceptible after one hour.
RapidFloor MMA in Flooring - Rapid Odour reduction

- MMA resins are 100% reactive and solvent free.
- Once catalysed, virtually all the MMA monomer is converted to polymer.
- This means RapidFloor is virtually VOC when cured on the floor.
RapidFloor MMA in Flooring - 5mm thickness versus thinner epoxy coatings
Porosity

• All Nuplex floor toppings are non-porous and non-absorbent.
• Long life Nuplex floors have been proven in NZ industrial conditions over the last 30 years.
Porosity & Microbe Resistance

- All Nuplex floor toppings contain **STERISHIELD biocide**
- Sterishield helps inhibit the growth of microbes on the floor topping.
Durability vs Thickness

- *mm*
- Durability (years)

Graph showing durability vs thickness levels for different materials:
- Ep.coating
- Epoxy
- SLE Epoxy
- RapidFloor
Cost per mm vs Thickness

- Ep.coating
- Epoxy
- SLE epoxy
- RapidFloor
How do we make the Choice?

- **Functional Needs**
  - Mechanical Wear
  - Thermal Conditions
  - Chemical Spillage
  - Slip Resistance
  - Ease of Cleaning

- **Substrate Condition**
  - Strength
  - Levels
  - Contamination
  - Damp Membrane
  - Joint Construction

Aesthetic Requirements

Budget Available and clients expectations of durability

Choose Product
RapidFloor MMA compared to Systems Available (mm)

- Epoxy Coating: 0.5 mm
- Epoxy: 1.0 mm
- SLE epoxy: 2.0 mm
- RapidFloor: 5.0 mm
Conclusion

Thicker *RapidFloor MMA* floors

1. MORE DURABLE
2. MORE COST EFFECTIVE
3. MORE VERSATILE
4. WILL REDUCE THE LIFE CYCLE COST OF FLOORS

We are referring to speciality finishes, where clients are making an investment in a facility.

www.nuplexconstruction.com.au
www.nuplexconstruction.co.nz