Dooyong Ceratech’s Nano Ceramic Paints are eco-friendly & nonflammable products that combine nano ceramics with inorganic binders. This product gives excellent performance, durability and construability.

**Anti–Carbonation Ceramic Coating**

- **DY–1500** is a superb floor coating that gives excellent anti–carbonation and water–proofing performance.
The formation of DY-1500 (ceramic water repellent coating) on concrete has displayed an exceptional level of anti-carbonation as well as significant water-proofing performance. This is an eco-friendly product that gives superb durability, abrasion resistance, chemical resistance, prevention of discoloration and chloride resistance on top of preventing corrosion and being water-proof.

**Prevention of concrete carbonation & deterioration**
- Prevention of carbonation and deterioration of concrete due to ceramic coating (Preventing corrosion)
- Prevention of cracks on concrete

**Outstanding water-proofing**
- Excellent water proofing coating (Superior in durability & economic efficiency to Urethane and Epoxy)
- Remarkable levels of chemical resistance, chloride resistance and corrosion prevention

**Eco-friendly & nonflammable**
- DY-1500 is an eco-friendly product that does not inflict any volatile toxic substances or heavy metals.
- It is also a 100% non-flammable product.

**Durability, abrasion and chemical resistance**
- Superb durability because of the ceramic coating being like porcelain (which is durable for over 10 years)
- Excellent coating strength & abrasion resistance
- Strong chemical & chloride resistance against various acids & alkalis

**Light proofing and prevention of discoloration**
- Blocks and reflects sunlight & ultraviolet rays
- Prevents discoloration
This ceramic coating is dissimilar to resin paint because it has an inorganic matter, that of concrete. This means that concrete and ceramic coating are combined as one. It is able to give superb durability, acid resistance, chloride resistance and air permeability, at the same time being eco-friendly.

**Resin paint (organic compounds) coating**

- Most resin paints are durable for 2 - 3 years on average but never more than 5 years
- An organic compound is inferior to inorganic matter in acid-resistance, water-prooﬁng and chloride resistance
- Many resin paints have very good water-prooﬁng performance. However while concrete curing, it generates porosity as the moisture can not be discharged. Accordingly, the coating begins to peel.
- Many resin paints have good adhesiveness but it is impossible to unite concrete and coating as one because it is very diﬃcult to bond inorganic concrete to an organic compound paint.

**Requirements for anti-carbonation coating**

- Long-lasting durability and weather ability to protect concrete
- Superb acid-resistance, water-prooﬁng and chloride resistance (against main causes of carbonation)
- Excellent water-prooﬁng performance to prevent rust on steel reinforcement by water permeation
- Outstanding adhesiveness to bond strong alkaline & inorganic concrete and coating together

**Ceramic (inorganic matter) coating**

- Inorganic ceramic paint ensures durability for 5-10 years and more.
- Inorganic ceramic paint is superior in chemical resistance, water resistance and chloride resistance to resin paint.
- Ceramic paint has outstanding water-prooﬁng performance from the outside and offers permeability, discharging air from the inside. Thus ceramic paint does not generate porosity at all while concrete curing and gives strong durability.
- Ceramic paint is an inorganic matter just like concrete. It forms a waterproof coating by permeating concrete porosity, when set the concrete and the ceramic coating are united as one.
Application

**Roof Water-Proofing**

- **Roof water-proofing agent** to prevent water penetration  
  *(The alternative to Urethane rubber water-proofing)*

  ※ Ceramic water-proofing does debond from the roof as it does with Urethane rubber water-proofing. Also, it is an eco-friendly construction method having strong durability and economic efficiency.

* [Roof Water-proofing]

**Building Walls & Floors**

- **Eco-friendly water-repellent agent** painting on outer walls of buildings to repel water  
  ※ It has no harmful ingredients at all and also not decolorized nor discolored.

- **Eco-friendly & non-flammable flooring materials** for underground car parks, floors in factory, etc.  
  ※ Excellent water-proofing performance and durability

* [Outer walls of buildings] [Flooring]

**Corrosion Protection of Constructions**

- **Protection of concrete for water treatment plants like septic tanks, sewage treatment plants, etc.**  
  ※ It has no harmful ingredients at all and is eco-friendly.

- **Corrosion protection for concrete structures like bridges, tunnels, etc.**  
  ※ Eco-friendly corrosion protection with excellent chloride resistance and durability

* [Water Treatment Plants] [Structures]
# Comparison for Flooring Paints

<table>
<thead>
<tr>
<th></th>
<th>Urethane</th>
<th>Epoxy</th>
<th>Polyurea</th>
<th>Ceramic (Inorganic Matter)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials</strong></td>
<td>Primer, Urethane</td>
<td>Primer, Epoxy Coating</td>
<td>Primer, Polyurea</td>
<td>Ceramic (the only pure inorganic matter)</td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td>Poor</td>
<td>Poor</td>
<td>Excellent</td>
<td>Excellent</td>
</tr>
<tr>
<td><strong>Crack Resistibility</strong></td>
<td>Good</td>
<td>Poor</td>
<td>Excellent</td>
<td>Insufficient due to elasticity. Excellent permeability and same expansion ratio with concrete</td>
</tr>
<tr>
<td><strong>Coating Film Speed</strong></td>
<td>Debonding</td>
<td>Debonding</td>
<td>Hold down to debonding</td>
<td>No debonding at all</td>
</tr>
<tr>
<td><strong>Constructability</strong></td>
<td>Excellent (2 liquids only)</td>
<td>Excellent (2 liquids only)</td>
<td>Require exclusive special equipment (2 liquids)</td>
<td>Excellent (1 liquid)</td>
</tr>
<tr>
<td><strong>Non-flammable</strong></td>
<td>Highly fire prone(toxic gas)</td>
<td>Highly fire prone(toxic gas)</td>
<td>Endure up to 177°C, but prone to fire beyond 177°C</td>
<td>Chemical fee non-flammable product (It does not combust at 400°C or more)</td>
</tr>
<tr>
<td><strong>Economic Efficiency</strong></td>
<td>Good (but according to coating thickness, unit price can be increased)</td>
<td>Good (but according to coating thickness, unit price can be increased)</td>
<td>Expensive (product and construction cost)</td>
<td>Good (Economical against urethane and epoxy)</td>
</tr>
</tbody>
</table>

### Strength
- Easy to construct and patch. Also easy to construct onto curved surface
- Excellent flexibility and crack resistibility
- Excellent chemical resistance and weather ability
- Excellent hardness and compressive strength
- Excellent adhesiveness on dry surface
- Easy to secure skilled workers
- Excellent chemical resistance
- Reduces the construction period due to short curing time
- Excellent chemical resistance and durability
- Excellent elasticity and crack resistibility
- Wide range of execution temperature
- Excellent durability and surface strength
- Excellent chemical resistance, chloride resistance, water resistance and oil resistance
- Easy to construct onto complex structures (1 liquid)
- Non-flammable, eco-friendly, economical, etc.

### Weakness
- Very vulnerable to moisture
- Low level of adhesion & tensile strength
- Long period of construction for long curing time
- Distinct quality difference according to subject and mixing ratio of hardener
- Weakness on UV and oil
- Very vulnerable to moisture on foundations
- High VOC and emits harmful gases
- Distinct quality difference according to subject and mixing ratio of hardener
- Long period of construction due to long curing time
- Requires special equipment and has expensive construction costs
- Generates fugitive dust during construction
- Need to hire skilled workers to maintain the constant thickness of film
- Sensitive to temperature on surface
- Lack of elasticity and flexibility
- Coating film may look a little rough on an uneven surface