Water Repellent, Breathable Architectural Coating for Concrete, Stucco and Masonry

Superior Technology And Durability
The Ultimate In Weather Protection
A Beautiful Finish
Proven Performance
Reliable - Convenient Responsible
Superior Technology And Durability

Quartz-like Structure
- Very High Weather and UV Resistance
- Resistance to Dilute Alkalis and Acids
- Non-Combustible and Heat Resistant
- Tough and Abrasion Resistant

Superior Life Cycle Costing
- Inorganic Pigments
- Resists Fading and Chalking
- 15-30 Year Re-coat Cycle

Why Silicone Resins?
Silicon Dioxide or Quartz (SiO2) is one of the most inert and durable substances found on earth. It is completely unaffected by UV, acid, alkali, heat, cold and free radical attack.

The Silicone in Si-Rex03 reacts to form a 3-dimensional “quartz-like structure” of alternating Silicone and Oxygen atoms; durable structure unaffected by UV and environmental degradation. Water repellent groups line the pores of the paint and stop the ingress of liquid water but allow vapor to outgas. This unique structure is the key to the performance of Si-Rex03.

Conventional polymers such as acrylics are composed of long carbon chains. These chains are formed by a process called “free radical polymerisation”. Just as free radicals “zip up” these compounds they can also unzip them as well causing the binder to degrade resulting in chalking and colors to fade. The most common source of free radicals is exposure to UV light.

Supreme Durability
The combination of the ultra durable Silicone Resin binders and Inorganic pigments means Si-Rex03 will outlast almost all other exterior coating systems, and allows for significantly longer re-coat intervals.

Conventional latex and acrylics degrade and fade with UV exposure and need regular maintenance. Re-coating intervals can be as little as 2-3 years up to 10 years.

Silicone resins will last between 15 to 30 years between re-coats.

15-Year Warranty
Minimum 15-Year durability where substrate is sound and manufacturer’s recommendations have been followed. Refer Klaas Coatings (North America) LLC warranty guidelines.

Chemical Structure
Vapor can escape
Stops liquid water
Repellent group
Oxygen
Silicon

Extremely Economical
Commercial structures, residential complexes, urban infrastructure and transportation networks are long term assets. Costs associated with building materials should not only reflect the up-front price but also the maintenance and replacement intervals; along with resultant restrictions for traffic and access.

Si-Rex03 can cost half or less than those costs associated with conventional systems over the life of the coating. This is especially so where access is difficult, such as tall buildings and suspended structures.
The Ultimate In Weather Protection

Excellent Water Repellency
- Protects the Substrate by Keeping it Dry
- Self Cleaning Effect
- Prevents Microbial Attack

High Vapor Permeability
- Open Structure Allows Entrapped Moisture to Escape
- Maintains a Moisture & Gas “Equilibrium”
- No Effect on Thermal Conductivity and Insulation

Excellent Water Repellency
Cementitious and mineral building materials such as concrete, bricks, stuccos and plasters are hygroscopic (absorbs water) and need protection from moisture. Si-Rex03 is strongly water repellent that can be seen with the characteristic beading of water droplets on the surface when wet.

High Vapor Permeability
Si-Rex03, while highly water repellent, also allows the substrate to breathe virtually unhindered (this is similar to Gore-tex® in principle).

This ability to breathe is due to the unique open structure that allows vapor to escape, while the surface and pores of Si-Rex03 are lined with strongly hydrophobic (water repellent) compounds. It is this innovative combination that keeps the substrate dry and protected from harsh weather.

<table>
<thead>
<tr>
<th>Performance Properties</th>
<th>Emulsion / Latex paint</th>
<th>Si-Rex03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Resistance</td>
<td>good</td>
<td>excellent</td>
</tr>
<tr>
<td>Breathing</td>
<td>poor</td>
<td>excellent</td>
</tr>
<tr>
<td>UV Resistance</td>
<td>OK</td>
<td>excellent</td>
</tr>
<tr>
<td>Chalking Resistance</td>
<td>OK</td>
<td>excellent</td>
</tr>
<tr>
<td>Fading Resistance</td>
<td>fair</td>
<td>excellent</td>
</tr>
<tr>
<td>Mold Resistance</td>
<td>OK</td>
<td>good</td>
</tr>
<tr>
<td>Self Cleaning</td>
<td>poor</td>
<td>excellent</td>
</tr>
<tr>
<td>Repaint Interval</td>
<td>3-10 yrs</td>
<td>15-30 yrs</td>
</tr>
</tbody>
</table>

Regular emulsion paints form a closed film that prevents water getting in but has a very limited ability to allow the water vapor out. Thus the substrate can “sweat” and these paints can delaminate, crack, peel and bubble.

Self Cleaning Effect
The high degree of water repellency prevents atmospheric soiling. Every time it rains, the water literally washes the dirt away, keeping the structure looking cleaner for longer; a significant advantage over texture coatings where dirt accumulation can be severe.

Resists Mold and Mildew
Mold and mildew prefer damp and organic rich areas to grow. By keeping the surface drier for longer, and being mostly inorganic, Si-Rex03 prevents the growth of these micro-organisms from taking hold and soiling the surface; especially in warm, tropical environments.
Excellent Depth of Color
Colors appear with more depth and strength in Si-Rex03. Objects appear a certain color because they absorb all the light wavelengths except the color the observer sees, which are reflected back.

The combination of hiding irregularities, softer looking finish, excellent depth and strength of color makes Si-Rex03 painted surfaces look “timeless”, “established” and of high quality.

Fade Resistant Inorganic Pigments
Inorganic Oxide Pigments are the only pigments that do not degrade with outdoor exposure to UV light. Si-Rex03 uses only these high quality pigments in our colors and color matches.

The Klaas ASF Colorguide has 200 neutral and earthy tones that suit concrete and masonry substrates.

### A Beautiful Finish

**Mineral Matte Finish**
- Diffuses Light to Hide Substrate Irregularities
- In Harmony with Mineral Substrates
- Colors Appear Clean and True

**Earthy Colors**
- Inorganic Pigments
- Resists Fading

**Hiding Surface Irregularities**
The Mineral Matte finish of Si-Rex03 has a microscopically rough surface that scatters and diffuses light; surfaces appear more regular and true with a better quality of finish.

Paints with gloss or sheen tend to look “plastic-like” and highlight the uneveness and bumps in the substrate.

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<table>
<thead>
<tr>
<th>Appearance</th>
<th>Emulsion / Latex paint</th>
<th>Si-Rex03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>low sheen-gloss</td>
<td>matte</td>
</tr>
<tr>
<td>Substrate Hiding</td>
<td>fair</td>
<td>excellent</td>
</tr>
<tr>
<td>Character</td>
<td>uniform</td>
<td>uniform</td>
</tr>
<tr>
<td>Colors</td>
<td>unlimited</td>
<td>earthy</td>
</tr>
</tbody>
</table>
Coatings incorporating Silicone Resin Emulsion Paint technology have been available in Europe for over 25 years and are now the fastest growing exterior paint system in Western Europe.

Klaas Coatings has specifically formulated Si-Rex03 to cope with the harsh UV and weather conditions of Australia, the Americas and Asia; some of the toughest environments in the world for exterior coatings.

Closed film versus Open Structure

When Si-Rex03 is put under a Scanning Electron Microscope the difference to a conventional emulsion paint film is obvious. Note that the acrylic film is closed; closed films acts like a barrier for water going in and out. Si-Rex03 on the other hand is open; allows moisture to escape as vapor, however the repellent nature of the surface does not let water in.

Typical Performance – Independent Laboratory Testing

<table>
<thead>
<tr>
<th>Test</th>
<th>Test Method</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesion to Concrete</td>
<td>ASTM D 4541</td>
<td>Pull-off strength 710 psi</td>
</tr>
<tr>
<td>Water Vapor Resistance</td>
<td>ASTM E 96 Wet cup method</td>
<td>67.9 perms</td>
</tr>
<tr>
<td>Abrasion Resistance</td>
<td>ASTM D 968</td>
<td>323 liters falling sand</td>
</tr>
<tr>
<td>Mold Resistance</td>
<td>ASTM D 3273 / D 3274</td>
<td>9 (10 = best on scale of 1-10)</td>
</tr>
<tr>
<td>Accelerated Weathering</td>
<td>G 154 500 hours UVB cycling Cycle 2</td>
<td>- Visual color change None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Visual gloss change None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chalking ASTM rating 10 (none)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Checking ASTM rating 10 (none)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cracking ASTM rating 10 (none)</td>
</tr>
<tr>
<td>VOC*</td>
<td>EPA Method 24</td>
<td>1.5 lbs/gal (175 g/L)</td>
</tr>
<tr>
<td>Solids, by Weight*</td>
<td>ASTM D 2369</td>
<td>55%</td>
</tr>
<tr>
<td>Solids, by Volume*</td>
<td>ASTM D 2697</td>
<td>37%</td>
</tr>
</tbody>
</table>

* Light tint base

For increased coating performance and durability plus substrate protection consider using Klaas Coatings water repellent, breathable primers - Si-Prime™ and Cremsil™.
Reliable - Convenient - Responsible

User Friendly
- Easy to Paint
- Computer Controlled Tinting and Color Matching
- High Opacity - Excellent Dry Hiding
- Can be Applied to Very Warm, Cool, Dry or Dampish Substrates without Stresses Forming on Drying.
- Use Roller, Brush or Spray
- Touch Dry Typically 15-minutes (@75°F)

Water Based
- Easy Clean Up
- Low range VOC (Volatile Organic Compounds)

Easy Application
Si-Rex03 has been formulated to be as user and applicator friendly as possible. It can be applied by brush, roller, conventional and airless spray; the excellent touch-up and cutting-in properties make painting easy. Si-Rex03 has excellent opacity and covers the substrate in 2 coats.

Color Matching and Consistency
Klaas Coatings prides itself on a high degree of quality control including the latest color matching software and computer controlled colorant dispensing systems; vital for color consistency between batches.

Committed to the Environment
A paint that lasts a long time intrinsically delivers great environmental benefits. In addition, Si-Rex03 is a water based system and easily cleaned up in water. All formulations have minimal odor. Klaas Coatings is further committed to the environment by adopting close to zero wastage manufacturing techniques and practices.

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<tr>
<th>Application Properties</th>
<th>Emulsion / Latex paint</th>
<th>Si-Rex03</th>
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<tbody>
<tr>
<td>Brush</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Roller</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Spray</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Wet Edge</td>
<td>long</td>
<td>moderate</td>
</tr>
<tr>
<td>Cutting In</td>
<td>easy</td>
<td>easy</td>
</tr>
<tr>
<td>Touch-up</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>Clean-up</td>
<td>water</td>
<td>water</td>
</tr>
</tbody>
</table>

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