

Proven 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



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.

Why Silicone Resins?

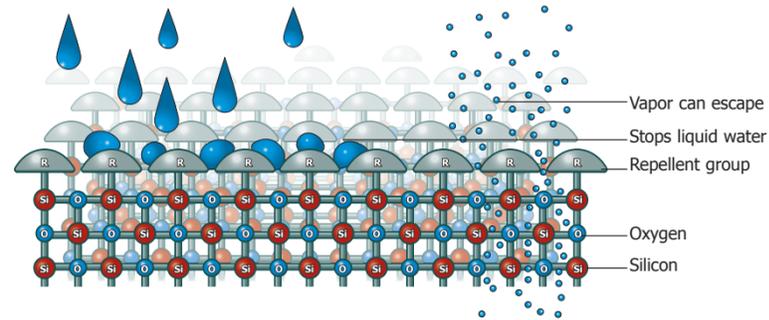
Silicon Dioxide or Quartz (SiO_2) is one of the most inert and durable substances found on earth. It is completely unaffected by UV, acid, alkali, heat, cold and free radical attack.

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.

Chemical Structure



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.

Exceptional Weather Protection

Excellent Water Repellency

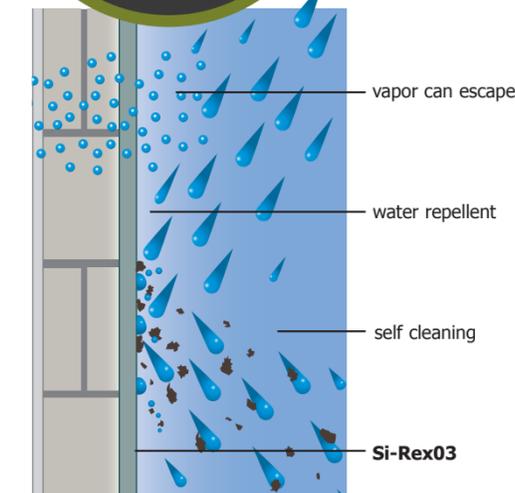
- Protects the Substrate by Keeping it Dry
- Self Cleaning Effect
- Prevents Microbial Attack

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.

Performance Properties	Emulsion / Latex paint	Si-Rex03
Water Resistance	good	excellent
Breathing	poor	excellent
UV Resistance	OK	excellent
Chalking Resistance	OK	excellent
Fading Resistance	fair	excellent
Mold Resistance	OK	good
Self Cleaning	poor	excellent
Repaint Interval	3-10 yrs	15-30 yrs

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

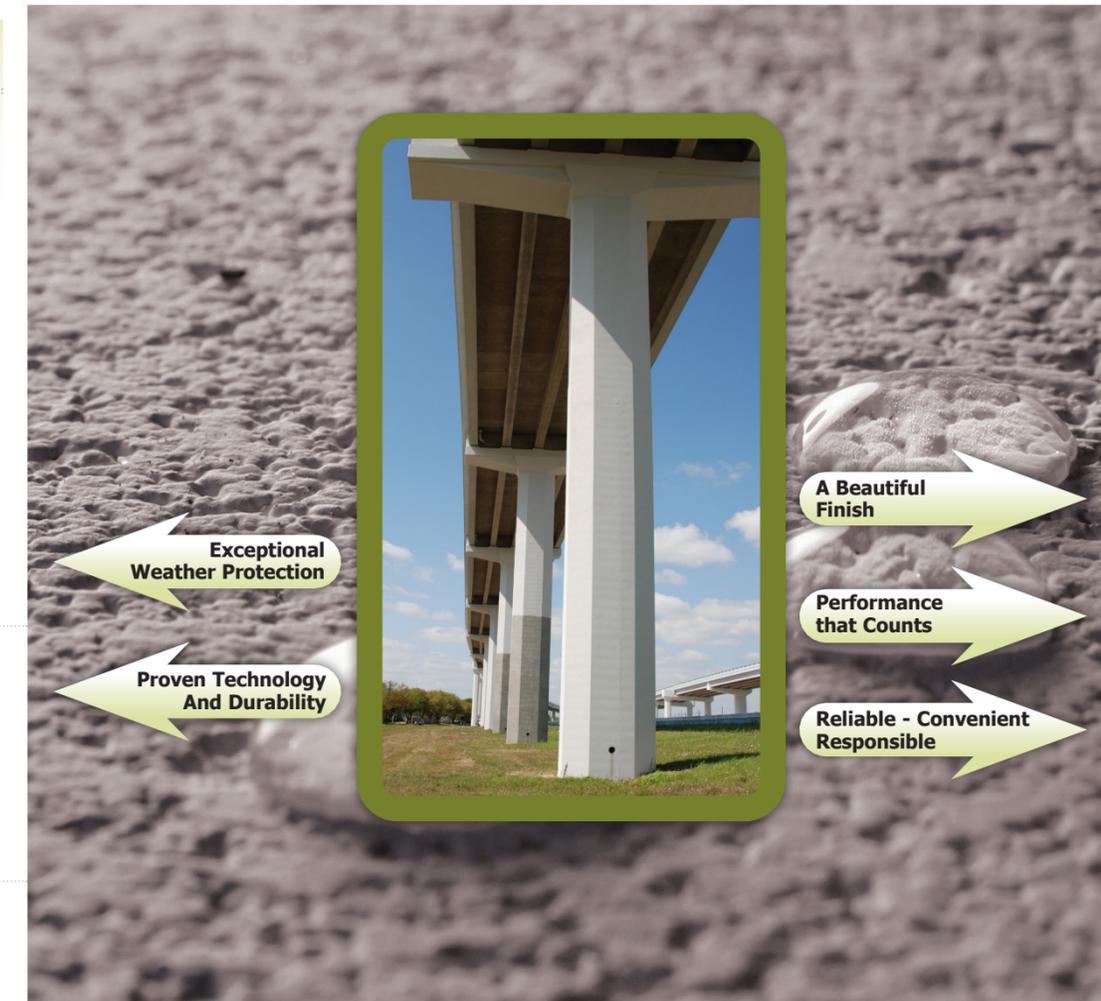
The high degree of water repellency prevents atmospheric soiling. Every time it rains, the water literally washes the dirt away, keeping the structure looking cleaner for longer; a significant advantage over texture coatings where dirt accumulation can be severe.

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.



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



Exceptional Weather Protection

Proven Technology And Durability

A Beautiful Finish

Performance that Counts

Reliable - Convenient Responsible

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 unevenness and bumps in the substrate.



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.



Appearance	Emulsion / Latex paint	Si-Rex03
Finish	low sheen-gloss	matte
Substrate Hiding	fair	excellent
Character	uniform	uniform
Colors	unlimited	earthy

Performance that Counts

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



	Emulsion Paint	Si-Rex03
Water Permeability	Low	Low
Water Vapor Diffusion	Low	High

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.

Product Usage Chart	Emulsion / Latex Paint	Si-Rex03
In-situ Concrete	yes	yes
Precast Concrete	yes	yes
Cement Stucco/Plaster	yes	yes
Skim Coat	yes	yes
Brickwork	yes	yes
Blockwork	yes	yes
Fiber Cement Sheet	yes	yes
Stone	no	yes
Wood	yes	no
Metals	yes	no
Glass	yes	no
Plastic	yes	no
Previous Painted	yes	yes



Typical Performance – Independent Laboratory Testing

Test	Test Method	Test Results
Wind Driven Rain Resistance	ASTM D6904-03(13) (TT-C-555B)	Pass No weight change; no noticeable defects in the coating
Water Vapor Transmission	ASTM D1653-12 Method B Wet Cup Method	38.13 Perms WVT 13.878 grains/hr-ft2
Tensile Adhesion on Concrete	ASTM D7234-12	Average Pull-Off Strength of 394.6 psi, 2.72 N/mm2
Mold Resistance	ASTM D3273-12 (after 500-hours accelerated weathering ASTM D4587-11 Cycle 2 QUV Exposure)	No evidence of mold growth (28-days)
Abrasion Resistance	ASTM D968-05(10)	31.31 L/mil Falling Sand
Accelerated Weathering	ASTM D4587-11 Cycle 2 1,000-hours QUV Exposure	No overall change observed in coating No Cracking, Flaking, Peeling, Softening or other defects noted
Flexibility	ASTM D522-13 Method A	Average Elongation 13.8% Average Resistance to Cracking 0.364"
Freeze-Thaw Resistance	50 Cycles to West Virginia DOT Protocol	No Chalking, Checking, Cracking or other deleterious effects
Salt Spray Resistance	ASTM B117 1,000-hours	No Chalking, Checking, Cracking or other deleterious effects
VOC	ASTM D3960-05	1.97 lbs/gal, 237 g/L*

*light tint base

“...Si-Rex03 Silicone Resin Emulsion Paint exhibited excellent performance with respect to accelerated weathering, adhesion, and mold resistance in addition to good abrasion resistance.”

“...Si-Rex03 coating primed with Si-Prime Impregnating Silane Primer exhibited high permeability values characteristic of a breathable coatings.”

For increased coating durability and substrate protection recommend the use of Klaas Coatings water repellent, breathable penetrating primer Si-Prime on bare surfaces.

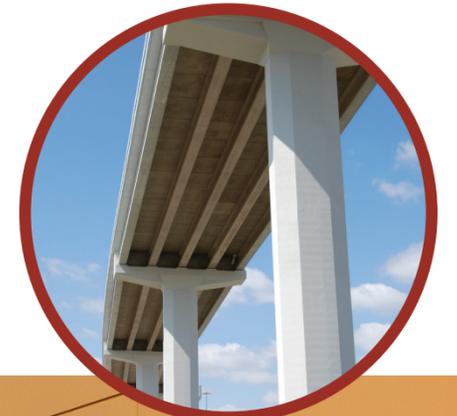
Reliable - Convenient - Responsible

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.

Application Properties	Emulsion / Latex paint	Si-Rex03
Brush	yes	yes
Roller	yes	yes
Spray	yes	yes
Wet Edge	long	moderate
Cutting In	easy	easy
Touch-up	good	good
Clean-up	water	water

Klaas Coatings (North America) LLC
PO Box 25122, Dallas, TX 75225-1122
T: 866.317.3633 (toll free)
E: info@klaascoatings-northamerica.com
W: www.klaascoatings-northamerica.com

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