

Waste and Industrial Water Treatment

Cem-Kote Flex CR and Nano-Shield OSP (organic solvent protection)



Delivering tomorrow's technology today

CEM-KOTE™ FLEX CR

CEM-KOTE FLEX CR is a unique, highly flexible waterproofing, cement-based membrane, designed for protection of concrete exposed to high concentrations of sulfuric acid formed in environments with a high hydrogen sulfide concentration. CEM-KOTE FLEX CR is used in the repair and protection of digesters in wastewater treatment facilities, sewer systems, pumping (lift) stations, and other areas exposed to chemical attack. Insensitive to substrate moisture during application, the product is easily applied by brushing or spraying. CEM-KOTE FLEX CR has been extensively proven in many applications around the world. It replaces traditionally used epoxies that have serious problem in de-bonding when applied to concrete below grade or to moist concrete

Characteristics	Cem-Kote Flex CR	Polymer Coatings
Flexibility	Flexible	Most epoxies used are brittle
Sensitivity to water saturation in concrete	Insensitive	Highly sensitive – will de-bond when applied to moist concrete. The sufficient drying, especially in restoration projects is almost impossible and very expensive
Breathability	Breathable	Non-breathable – may de-bond when water vapour, penetrating from behind concrete wall or slab condenses at the polymer/concrete interface
De-bonding due to interface capillary pressure	Will not de-bond	Will de-bond – this happens randomly, due to capillary pressure at the interface of polymer coating and concrete
De-bonding due to negative side water pressure	Will not de-bond	Will de-bond – this happens also due to capillary pressure at the polymer/concrete interface
Sensitivity to variation in mixing	Less sensitive	Highly sensitive – keeping the proper ration and sufficient, thorough mixing of A and B components is very critical for obtaining performance composition.
Ease of application	Very easy and fast	Difficult and slow – applying very “sticky” materials slow and difficult
Clean-ability of tools	Easy to clean with water	Difficult - expensive, toxic, flammable and difficult to discard solvents must be used
Toxicity	Non-toxic	Some toxic components – curatives could be carcinogenic
Cost in place	Low to moderate	High
Longevity	High	Average – Gemite can demonstrate projects in place since 1990, polymer coatings often fail by de-bonding in much shorter time, due to reasons described above

NANO-SHIELD OSP™

NANO-SHIELD OSP (organic solvents protection) is a completely inorganic coating/topping used primarily as protection of concrete against penetration of organic solvents, such as acetones, toluene, xylene, benzene, hydraulic fluids, oils, diesel and jet fuels and emulsified hydrocarbons. It also provides a highly effective waterproofing on both, negative and positive sides. It is used mainly in concrete tanks, as a topping or coating on floors, and in secondary containment structures. Nano-Shield OSP is one component system, supplied as dry powder. In combination with Cem-Kote Barrier Coat 100 it can be bonded to oil contaminated concrete. The key advantages of Nano-Shield OSP over polymer coatings and toppings in protection against organic, polar or non-polar solvents, oils, jet fuels and diesel fuels are summarized in the table below.

Characteristics	Nano-Shield OSP	Polymer coatings
Breathability and sensitivity to moisture	Breathable and insensitive	Vapor barrier and highly sensitive
Thermal expansion and contraction	Similar to concrete	Much higher
Ease of application	Very easy	Difficult
Clean-ability of tools and equipment	Ease – use water	Difficult, must use solvents
Cost	Low	High



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Figures

1. **Cem-Kote Flex CR**, Rockland, Ottawa, Ontario, Canada
2. **Gem-Plast TC** and **Cem-Kote Flex CR**, Kitchener, Ontario, Canada
3. **Cem-Kote Flex CR** and **Reinforcing Fabric HD**, Saint John, New Brunswick, Canada
4. **Cem-Kote Flex CR** and **Reinforcing Fabric HD**, Amhestburg, Ontario, Canada
5. **Cem-Kote Flex CR**, VA Hospital, Phoenix, Arizona, USA
6. **Cem-Kote Flex CR**, Skyway, Burlington, Ontario, Canada
7. **Cem-Kote Flex CR**, digester, Orillia, Ontario, Canada

8. **Cem-Kote Flex CR**, Digester, Guelph, Ontario, Canada
9. **Nano-Shield OSP**, Sussex, New Brunswick, Canada
10. Industrial waste water treatment, Bratislava, Slovakia
11. Industrial waste water treatment, Bratislava, Slovakia, aromatic and aliphatic hydrocarbons; acetone, benzene, xylene present in waste water
12. **Cem-Kote Barrier Cote 100** and **Nano-Shield OSP**, Bratislava, Slovakia
13. **Cem-Kote Flex CR**, Phoenix, USA
14. **Cem-Kote Flex CR**, Valaska, Slovakia
15. **Adi-Con CSF R**, **Cem-Kote Flex ST**, Tianjin, China
16. **Cem-Kote Flex CR**, Botosani, Romania

GEMITE INNOVATIVE GLOBAL CENTRE

Gemite draws upon many decades of a practical experience to assist the Architect, Engineer and Contractor to find the most Efficient and Permanent Solution. From the Condition Analysis of existing structures, to continuous support during the Design and Specification process, we provide advice to assure that the best and cost efficient systems are selected.

Worldwide Technology Leader

Our continuous Innovation, Superior Quality and Solid Reputation make Gemite the preferred industry choice for lasting and reliable solutions. The latest technology introduced by Gemite is a Nano group of products.



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Established and Field Proven Technology

Gemite material systems have been used in new construction and restoration projects ranging from small to huge. We have an international track record of successful installations for over 25 years around the globe, from the ravages of Sahara to the colds of Alaska.



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Global Availability and Support

Gemite materials are available internationally, ensuring consistent quality and service to customers everywhere. Gemite guarantees a Single Source of Environmentally Responsible Materials, applied by well-trained Professional Applicators, and supported by a Global Technical Network.

LEED, Green and Safe

Gemite supports LEED Green concept and strives to maximize sustainability and environmental health by using materials with the lowest possible carbon footprint. Gemite's constant improvement of operating procedures and strict Quality Control according to its ISO 9001 Certification assures that we deliver materials with consistent quality and performance to our global Customers.

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- Wastewater treatment
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- Parking garages
- Wall and roof coatings
- Industrial concrete
- Dams and locks
- Tunnels
- Marine structures
- Cooling towers
- Airports
- Chemical protection of concrete
- Carbon Fibre Reinforcement
- Sewers and manholes



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