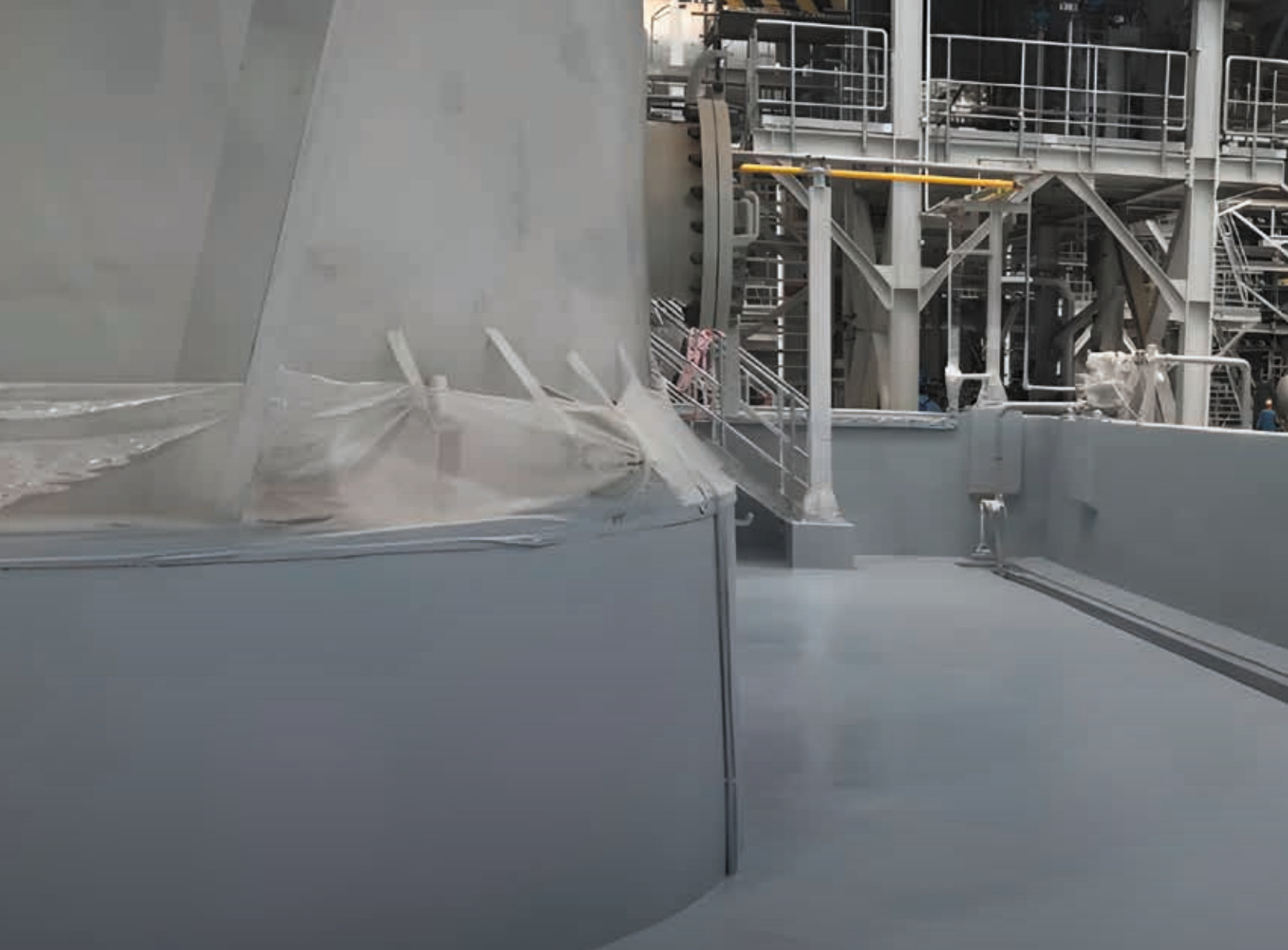


Protective linings

High performance linings with a proven track record



Your expert linings partner

With the increasing range of products and chemicals being processed and stored, correct protective lining selection has never been more challenging. This complexity is compounded by such factors as substrate type (steel, concrete, stainless), substrate condition, primary or secondary containment, cargo and thermal cycling, pressure variations, cleaning requirements and ambient conditions during both application and service. Add to this the need for various global, regional and local approvals, and the choice can quickly become overwhelming.

The importance of correct coating selection increases further when considering the cost and inconvenience of having storage or processing facilities out of service or the expense of installing a new lining system.

As your expert partner, International® offers one of the broadest ranges of chemically resistant linings and brings over 70 years of experience in the protective coatings market. We are ideally positioned to provide tailored advice and coating solutions across industries where chemical resistance is a primary requirement.

Segments and substrates

Segments

Chemically resistant linings are extensively used across a variety of industries ranging from upstream and downstream oil & gas, power including thermal generation and emerging energy transition technologies such as ammonia and hydrogen.

Add to that Infrastructure facilities such as water/waste water and regional industries such as mining and rail transportation, it is clear that linings are key to many essential industries.

With such a wide variety of exposure conditions and other variables, the need for a linings range that meets the requirements of multiple stakeholders across diverse industries and geographies has never been greater.

Core range

Experience has shown that no one coating technology or product is resistant to all cargoes or exposure conditions. However, with an in-depth understanding of the existing and future industry requirements, International® has created a core linings range to meet the functional and operational needs of each party in the value chain.

This ranges from asset owners and operators that focus on in-service performance, to contractors and applicators who value aspects such as supply availability and ease of application.

Substrates

The substrate and its condition are key to coating selection. Depending on depth, pitted substrates may not be suitable for thin film solvent based systems with solvent free systems being preferred.

Concrete differs from metallic substrates in that it is porous, requiring the use of a sealer that penetrates the surface layer sealing it off, after which the lining system can be applied. Additionally, concrete structures can move and crack, which need to be considered during both pre-treatment and coating specification.



Our core linings range

Epoxy linings

Interline 850

High solids epoxy phenolic lining

- Two coat system
- Wide chemical resistance range
- High solids, economical option
- Suitable for methanol and ethanol
- Fully EI1541 jet fuel compliant

Interline 994

Medium solids epoxy novolac lining

- Two or three coat system
- Broadest chemical resistance range
- Suitable for new construction or maintenance
- Excellent application characteristics
- Unlimited fatty acid resistance
- Resistant to high temperature water (150°C)
- Suitable for crude oil up to 160°C
- FDA compliant for bulk liquid food contact
- Resistant to molten sulphur

Interline 984/984C

Solvent free heavy duty epoxy phenolic lining

- Single coat at maintenance or new construction
- Broad chemical resistance
- Excellent flow, levelling and pit-filling
- Static dissipative DIBt compliant (Interline 984C)
- Enhanced resistance to vegetable oils/fatty acids
- Fully EI1541 jet fuel compliant
- Resistant to high temperature crude oil (90°C)
- Option to reinforce with chopped fiber for 20cm hole-bridging

Enviroline 376F-60

Solvent free rapid cure epoxy novolac

- Single coat at maintenance or new construction
- Broad chemical resistance
- Low temperature version curing down to - 7°C
- 14 hours return to service
- Suitable for heavily pitted steel and 5 cm hole bridging properties
- Resistant to high temperature crude oil (90°C)
- Fully EI1541 jet fuel compliant
- Flake and fiber-reinforced, API 652 compliant for 10+5 year inspection interval

Enviroline 405HTR

Rapid cure epoxy novolac for high temperature chemicals and water

- Ultra high solids
- Single coat at maintenance or new construction
- Enhanced temperature and chemical resistance
- 14 hours return to service
- Suitable for heavily pitted steel and 5 cm hole bridging properties
- Resistant to crude oil/water up to 150°C
- Flake and fiber-reinforced, API 652 compliant for 10+5 year inspection interval
- Suitable for external coating of buried pipes

Interline 925/975

Solvent free high build epoxy linings

- Certified for storage and transmission of potable water
- Single coat system
- Hard glossy surface ensures it is easy to clean and low maintenance
- Applied by standard airless spray equipment, brush and roller
- Product suitability depends on certification required

Ceilmote 680(M)

Low viscosity high solids epoxy primer/sealer for steel and concrete

- Good all round chemical resistance
- For use in combination with other epoxy lining systems
- Mixed with Ceilmote powders to create trowelable screeds/basecoats



Vinyl esters

Ceilcote 242

Mica filled vinyl ester

- Broad resistance to a variety of chemicals including inorganic/organic acids, aliphatic solvents and caustic
- Excellent brush, roller and airless spray application
- Suitable for primary/secondary containment on steel/concrete
- Fast curing/return to service
- Mat reinforced grades available for improved protection and durability

Ceilcote 232

Mica filled novolac vinyl ester

- Broad resistance to a variety of chemicals including inorganic/organic acids, aliphatic solvents
- Single or two coat system depending on service
- Excellent brush, roller and airless spray application
- Unlimited fatty acid/water mixtures up to 80°C
- Good heat resistance, suitable for flue gas up to 177°C
- Suitable for primary/secondary containment on steel/concrete
- Fast curing/return to service
- Mat reinforced grades available for improved protection and durability

Ceilcote 282(HB)

Glassflake filled novolac vinyl ester

- Standard and high build (HB) grades
- Single or two coat system depending on service
- Broad resistance to organic/inorganic acids and solvents
- Excellent heat resistance, suitable for flue gas up to 204°C (230°C peak)
- Unlimited fatty acid/water mixtures up to 80°C
- For primary or secondary containment
- Suitable for steel or concrete substrates
- Fast return to service
- Mat reinforced systems available

Ceilcote 380

Low viscosity vinyl ester primer/sealer for steel and concrete

- Good all round chemical resistance
- Extended overcoating interval
- For use in combination with other Ceilcote products
- Mixed with Ceilcote powders to create trowelable screeds/basecoats

Ceilcote 370HT

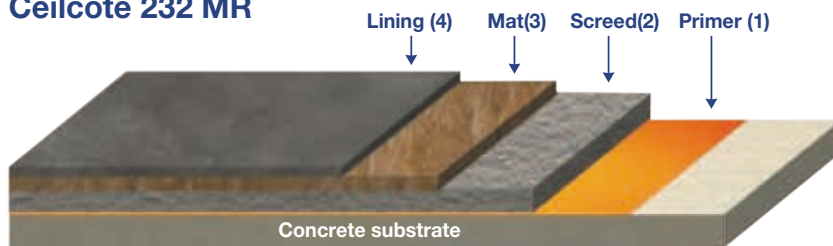
Low viscosity novolac vinyl ester primer/sealer for steel and concrete

- Excellent heat and acid resistance
- Extended overcoating interval
- For use in combination with other Ceilcote products
- Mixed with Ceilcote powders to create trowelable screeds/basecoats

Mat Reinforced (MR) and Ceilcrete systems

Mat Reinforced systems are created with various core range products and provide increased mechanical properties such as impact/abrasion resistance and crack bridging. Comprised of trowelable screed, mixed on site utilizing epoxy or vinyl ester resins and suitable mineral fillers, it is followed by the addition of a saturated glass fiber mat overcoated with one of two coats of the desired Interline or Ceilcote finish. Similarly, Ceilcrete systems are comprised of a fiber mat layer sandwiched between two trowelable screed layers, providing even better mechanical properties.

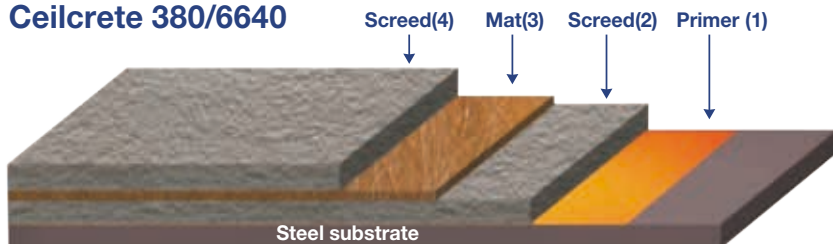
Ceilcote 232 MR



Typical total system thickness: 2800µm

Layer	Typical thickness**	Component	Application methods
1 Primer	Seal concrete	Ceilcote 370HT Resin	Spray, brush, roller
2 Screed	1500µm	Ceilcote 370HT Primer/S1 Powder	Trowel
3 Reinforcement Mat	800µm	Ceilcote 370HT Resin 450 g/m ² chopped strand glass fiber mat	Roller
4 Lining	1 or 2 x 500µm	Ceilcote 232	Spray, brush, roller

Ceilcrete 380/6640



Typical total system thickness: 3800µm

Layer	Typical thickness**	Component	Application methods
1 Primer	Seal concrete	Ceilcote 380 Resin	Spray, brush, roller
2 Screed	1500µm	Ceilcote 380 Primer/S1 Powder	Trowel
3 Reinforcement Mat	800µm	Ceilcote 380 Resin 450 g/m ² chopped strand glass fiber mat	Roller
4 Screed	1500µm	Ceilcote 380 Resin S1 Powder	Trowel

Lining system overview

Key properties overview

	Coating type	Volume solids	Typical specification Microns	Return to service	Application/ curing temperature range	Application method
Interline 850	Solvent based phenolic epoxy	76%	2 x 125-150	2-6 days @25°C depending on cargo	10°C to 40°C	Spray, brush, roller
Interline 994	Solvent based epoxy novolac	70%	3 x 100 2 x 125-150	7 days @25°C	10°C to 40°C	Spray, brush, roller
Interline 984(C)	Solvent free epoxy phenolic	100%	1 x 300-1000	1-7 days @25°C depending on cargo	10°C to 40°C	Spray, brush, roller
Enviroline 376F-60	Solvent free epoxy novolac	100%	1 x 500-2000	14hrs @25°C	-7°C to 40°C	Spray
Enviroline 405HTR	Ultra high solids epoxy novolac	98%	1 x 500-1500	14hrs @25°C	10°C to 40°C	Spray
Ceilmate 242	Vinyl ester	85%	2 x 375-625	24hrs @20°C	10°C to 35°C	Spray, brush, roller
Ceilmate 232	Novolac vinyl ester	85%	1 x 500 2 x 375-625	24hrs @20°C	10°C to 35°C	Spray, brush, roller
Ceilmate 282 (HB)	Glassflake novolac vinyl ester	85%	1 x 750-1250 2 x 375-625	24hrs @20°C	10°C to 35°C	Spray

Chemical resistance overview

	Crude Hydrocarbons	Refined Hydrocarbons and biofuels ²	Fatty acids and vegetable oils ³	Small polar solvents and bioalcohols	Mineral acids	Small organic acids	Water (not potable)
Interline 850		EI1541	40°C TAN 27 Max water 1%				50°C
Interline 994			71°C Unlimited TAN Max water 1%				150°C
Interline 984		EI1541	50°C TAN 137 Max water 1%				60°C
Enviroline 376F-60		EI1541	40°C TAN 27 Max water 1%				60°C
Enviroline 405HTR			71°C TAN 137 Max water 1%				150°C
Ceilmate 242			60°C Unlimited TAN Unlimited water				60°C
Ceilmate 232			80°C Unlimited TAN Unlimited water				80°C
Ceilmate 282(HB)			80°C Unlimited TAN Unlimited water				80°C

Resistant ¹



Limited resistance ¹



¹ Check with International to confirm suitability

² Fully compliant with EI1541 (2016)

³ Total Acid Number (TAN) mgKOH/g

About International

International® is a world leader in high performance marine, protective, and yacht coatings. Onshore and off, International® delivers complete solutions backed by expert service, global support and over 140 years of heritage in innovation and partnership — spanning anticorrosion, passive fire protection, and advanced fouling control to premium aesthetic finishes. International® coatings cover everything from the world's tallest and most sustainable buildings to supertankers and megayachts. International® is a brand of the Marine, Protective and Yacht Coatings business unit of AkzoNobel.

To discover more about our range of coating solutions contact us or visit our website:

international-pc.com

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The logo for International, featuring a red stylized flower icon to the left of the word "International" in a bold, white, sans-serif font.

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