SHERWIN-WILLIAMS.

HEAT-FLEX® 750

MIO-ENHANCED ALKYLATED AMIDE EPOXY COATING FOR CUI PROTECTION

Heat-Flex 750, a two-component micaceous iron oxide (MIO) — enhanced alkylated amide epoxy (AAE) coating, exhibits excellent corrosion under insulation (CUI) protection and long-term durability — consistently outperforms comparable current alternatives in terms of heat, corrosion and thermal shock properties. In addition, Heat-Flex 750 features epoxy-type mechanical resistance, thus minimizing damage during the transport and erection of shop-fabricated modules and equipment. Heat-Flex 750 is suitable for temperatures ranging from -196°C (-321°F) to 205°C (401°F).

BENEFITS

The AAE, in combination with the high load of MIO in the dry film, extends coating life and reduces risk by addressing typical CUI failure mechanisms experienced while in service and during shipping and construction.

Extended life cycle — long-term corrosion resistance

- Excellent corrosion creep resistance and edge retention properties
- Superior protection against variable pH levels, chemical solutions and salts in wet/dry cyclic conditions
- Excellent heat and crack resistance at high dry film thickness (DFT) compared to traditional epoxy phenolics

Enhanced durability — less damage from shop to field

- High abrasion resistance
- Improved resistance to cracking
- Minimizing chalking and DFT erosion in atmospheric service

Faster shop throughput — enhanced shop coating properties

- Fast dry-to-touch and fast recoat times, combined with low-temperature cure
- Excellent application properties

Environmental volatile organic compounds (VOC) abatement

- Market-leading 80 percent volume solids
- Market-leading low VOC (250g/l)

FROM SPEC TO PROTECT

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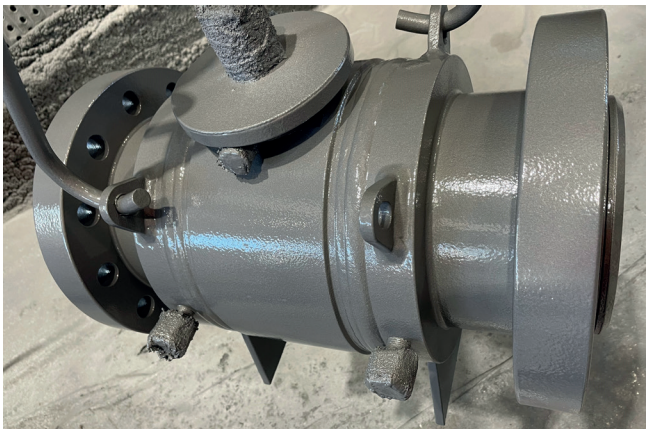
DURABILITY IN TRANSIT FROM SHOP TO FIELD

Heat-Flex 750 features enhanced durability, minimizing the damage caused by the transportation of the coated steelwork from the shop to the site.

Sherwin-Williams conducted numerous third-party durability tests, including ISO 19277 "Houston CUI Simulation Testing," ISO 12944-9, Protective paint systems and laboratory performance test methods for offshore and related CX environment structures, BS EN 927-6 Erosion resistance, and Thermal Resistivity. The results indicated that Heat-Flex® 750 outperforms competitive products in all durability tests carried out.



IMPROVED CORROSION RESISTANCE

Performance after accelerated testing showed that Heat-Flex 750 outperforms comparable products with no adhesion loss and has an excellent rating for rust and blistering.

Heat-Flex 750 has been tested against environments up to ISO 12944-9 CX (epoxy anticorrosive), direct to metal with no pre-heating and passes these requirements without a polyurethane topcoat. Corrosion creep was <4mm without a topcoat, which is market-leading for this product category.

EROSION RESISTANCE, ACCORDING TO BS EN 927-6:2016

Coatings were subjected to cyclic UV and water spray to simulate erosion in tropical environments. DFT was monitored over a period of 20 cycles. The addition of MIO improves performance.

Performance after accelerated testing showed Heat-Flex 750 outperforms traditional epoxy phenolics and other AAE technologies. In addition, erosion was only 20 µm (0.8 mils) after 20 erosion cycles, which is also market-leading for this product category.

Heat-Flex 750 will not significantly erode before being put into service and can withstand uninsulated service without a topcoat.

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THERMAL RESISTIVITY

Heat-Flex 750 has been tested under thermal cyclic conditions to assess the robust nature of the AAE technology.

Test method

Coated panels were heated for eight hrs at 200°C (392°F) and then cooled for 16 hours at room temperature. This was carried out for five cycles.

Results

Heat-Flex 750, applied in a single coat up to 450 µm (18 mils), showed no signs of cracking or delamination, vastly outperforming the traditional epoxy phenolic control. In addition, Heat-Flex 750 showed very little yellowing post-test, signifying resistance to thermal oxidation. The results also show that the Heat-Flex 750 has excellent tolerance to overapplication.

CORROSION UNDER INSULATION TEST

Sherwin-Williams evaluated Heat-Flex 750 in the "Houston pipe test" in accordance with ISO 19277:2018, with excellent results conforming to category CUI 3.

Test method

A coated pipe is insulated and placed onto a hotplate, where a thermal gradient (in general 450°C (842°F) — 60°C (140°F)) is created. The pipe is cycled for eight hours of heating with 16 hours of natural cooling. The insulation (typically calcium silicate) is soaked before and after each heating cycle (1 litre, 1 percent NaCl solution) — 30 cycles are performed.

This test is designed to simulate CUI conditions produced when a break occurs in the insulation jacketing causing water ingress.

Results

Heat-Flex 750 passed with no loss of adhesion and received a #10 rating for rusting and blistering, in the temperature range designated by CUI-3. The alkylated amide epoxy formula also showed very little yellowing (thermal oxidation) post-test, outperforming competitor products.

HEAT-FLEX® 750

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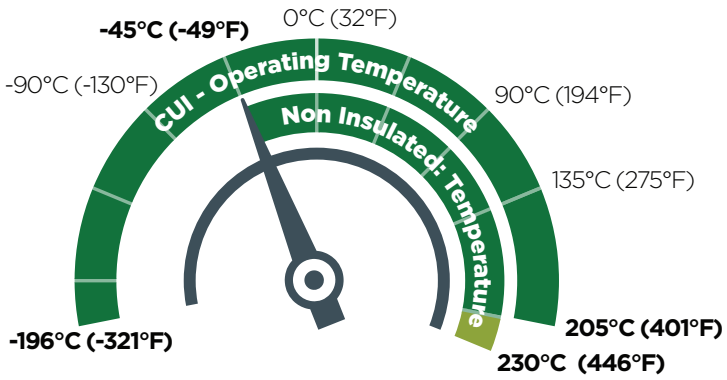
SUITABLE OPERATING TEMPERATURES



Service temperature Max. excursion

Use outside of given temperatures is not recommended.

TYPICAL SPECIFICATION

Insulated CS and SS to 205°C (401°F):

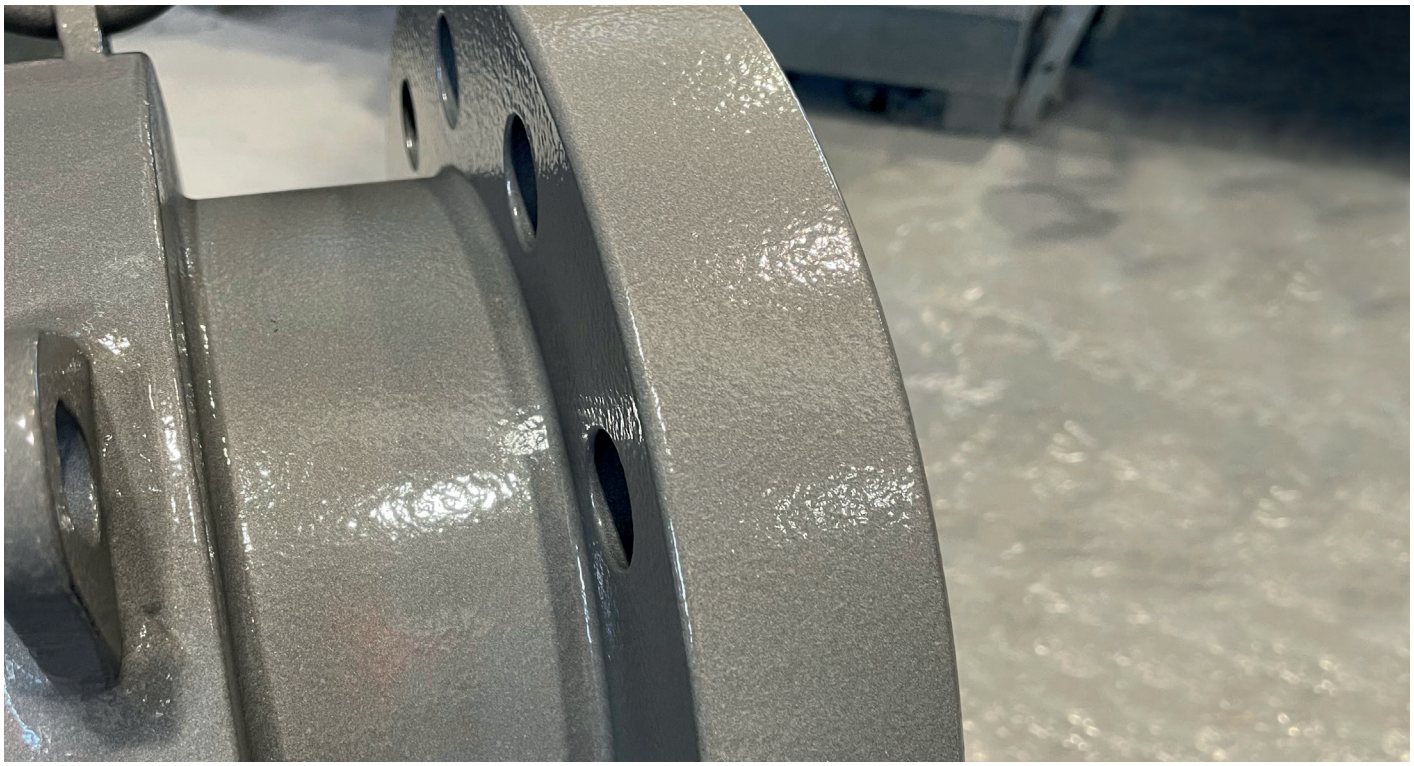
Primer: Heat-Flex 750–one coat 125–175 µm (5-7 mils) DFT

Finish coat: Heat-Flex 750–one coat 125–175 µm (5-7 mils) DFT

Uninsulated CS and SS to 230°C (446°F):

Primer: Heat-Flex 750–one coat 125-175 µm (5-7 mils) DFT

Finish coat: Heat-Flex 750–one coat 125–175 µm (5-7 mils) DFT



THE SHERWIN-WILLIAMS DIFFERENCE

Sherwin-Williams Protective & Marine delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe. Our broad portfolio of high-performance coatings and systems that excel at combating corrosion helps customers achieve smarter, time-tested asset protection. We serve a wide array of industries across our rapidly growing international distribution footprint, including energy, water and wastewater, bridge and highway, steel fabrication, flooring, manufacturing & processing, rail and power, and marine.

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