

Intertherm[®] 751 CSA

Heat resistant cold spray aluminium

Temperature and corrosion resistance? Protection against corrosion under insulation? Intertherm 751 CSA gives you it all.

Being suitable for application on cyclic equipment and pipework, Intertherm 751 bridges the performance gap between conventional coatings and thermal sprayed aluminium (TSA).

- High performance, temperature resistant “cold spray aluminium” based on titanium modified inorganic copolymer technology
- Specifically designed to provide a corrosion resistant barrier to steelwork in both atmospheric service and under insulation operating in thermal cyclical conditions between -196°C (-321°F) and 400°C (752°F)
- Excellent resistance to "thermal shock" experienced during rapid temperature cycling
- Effective in maintenance situations when used to mitigate the damaging effects of corrosion under insulation (CUI)
- Can be applied at 200µm (8 mils) in a single coat using standard application equipment and cures effectively at ambient temperatures
- Ideal for use during routine maintenance or major refurbishment projects where significant volumes of insulated and uninsulated pipe work can be maintained using a single anti-corrosive system
- Suitable for application to steel substrates operating at temperatures up to 120°C (248°F)



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Intertherm 751 is an innovative temperature resistant “cold spray aluminium” based on inorganic copolymer technology

Intertherm 751 has been developed as a result of more than 10 years' extensive research and development into high temperature corrosion mechanisms.

The material has a wide range of features that make it ideally suitable for a variety of applications from flare stacks, furnace surfaces, heat exchangers, and the piping industry.

Corrosion under insulation

The problem of corrosion under insulation (CUI) costs industry millions of dollars annually. Moisture ingress into conventional insulation materials usually results in accelerated corrosion of the underlying steel surface which, if left unchecked, can result in structural failure of the pipe, vessel or other insulated items.

Intertherm 751 CSA is a high performance anti-corrosive that is applied using standard application equipment and cures effectively at ambient temperatures.

Cyclic Temperature Conditions

Suitable for protecting steelwork that is exposed to a wide range of highly corrosive environments, particularly insulated pipe work subjected to wet and dry cycling, operating at temperatures up to 400°C (752°F).

Intertherm 751 CSA also has excellent resistance to "thermal shock" experienced during rapid temperature cycling. It is capable of providing corrosion protection to steel in both atmospheric service and under insulation operating in thermal cyclical conditions between -196°C (-321°F) and 400°C (752°F) without the need for additional heat curing prior to being placed in service. This ensures the integrity of correctly applied anti-corrosive schemes are maintained when plants are restarted after shutdowns.

Test Data

TEST TYPE	REFERENCE	DETAILS	RESULTS
Atmospheric exposure	Exterior exposure at coastal site (ISO 12944; C5-M Environment)	1x 200µm (8 mils) dft applied directly to Sa2.5 (SSPC-SP6) blasted steel. (Ambient Cure)	No film defects, and an average of <1mm rust creep at the scribe following 18 months exposure
Quenching test followed by cyclic corrosion (prohesion)	3 x cycle of test panel exposure to 400°C (752°F) for 8 hours & quenching in ambient tap water. Followed by ASTM G85, Annex A5 - "Modified salt spray or Prohesion test"	1x 200µm (8 mils) dft applied directly to Sa2.5 (SSPC-SP6) blasted steel	No blistering, rusting or cracking, and an average of <2 mm rust creep at the scribe following 5000 hours exposure
Elevated temperature immersion test	Immersion in 1% Sodium chloride solution @ 95°C (203°F)	1x 200µm (8 mils) dft applied directly to Sa2.5 (SSPC-SP6) blasted steel. Stoved for 3x8 hours at 400°C (752°F) prior to exposure	No blistering, rusting, cracking etc after 3000 hours immersion
Wet/dry cycling under thermal insulation	Test piece exposed to wet/dry insulation over temperature range 60° - 400°C (140° - 752°F) for 8 hours, followed by cooling to ambient for 16 hours	1x 200µm (8 mils) dft applied directly to Sa2.5 (SSPC-SP6) blasted steel	No blistering, rusting or cracking following 30 wet/dry cycles
Wet/dry cycling under thermal insulation	Test piece exposed to wet/dry insulation over temperature range 70°-250°C (158°-482°F) for 8 hours, followed by cooling to ambient for 16 hours	1x 200µm (8 mils) dft applied directly to Sa2.5 (SSPC-SP6) blasted steel	No blistering, rusting or cracking, following 30 wet/dry cycles

The above performance data has been compiled based on present experience of in-service product performance and upon performance data obtained under laboratory test conditions. Actual performance of the product will depend upon the conditions in which the product is used.

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In Situ Maintenance on Plant

Maintenance and refurbishment of high temperature process plant and equipment has its own unique set of challenges. Not only can the steelwork be exposed to high temperatures during operation, but also access to the structure is sometimes limited which often makes the application of thermal metal spray (TSA) impractical.

Intertherm 751 CSA is a cost-effective alternative. Typically applied direct to metal, as a one or two coat system, Intertherm 751 CSA offers the flexibility of application using standard equipment and is particularly effective in maintenance situations when used to mitigate the damaging effects of corrosion under insulation (CUI).

Technical Information

Colour	Aluminium	
Volume Solids	61%	
Film Thickness	100-200µm (4-8 mils) dry	
Mix Ratio	71.4:1 by weight	
Temperature	Touch Dry	Min Recoat
5°C (41°F)	2 hours	36 hours
15°C (59°F)	90 minutes	24 hours
25°C (77°F)	60 minutes	16 hours
40°C (104°F)	30 minutes	12 hours
VOC's	420g/l (3.5lb/gal) UK - PG6/23(92), Appendix 3 3.5lb/gal (420g/l) USA - EPA Method 24 425g/l, 327g/kg - EU Solvent Emissions Directive (Council Directive 1999/13/EC)	