Versiline CUI

Product characteristics

Description
Versiline CUI 56990 is a MIO pigmented, fibre reinforced, inorganic co-polymer coating that cures to an inert multi-polymeric matrix (IMPM), able to resist temperatures up to 650°C [1200°F] and thermal shock/cycling in dry or dry/wet service.

Conforms to NACE SP0198 - 2017 systems SS-5, CS-6 and CS-8. Approved to Saudi Aramco APCS-11C.

Recommended use
Versiline CUI 56990 is recommended for long term protection of hot pipework, equipment and other hot surfaces. The product is specially developed to prevent corrosion under insulation (CUI) and is applied directly onto the steel substrate or over a zinc silicate primer.

Conforms to NACE SP0198 - 2010 systems SS-5, CS-6 and CS-8.

Service temperature:
- From -196°C [-321°F] up to 650°C [1202°F] for dry or dry/wet exposure.

Certificates / Approvals
- Tested and assessed according to NACE TM0174; standard test method for evaluating protective coatings for immersion service. Resistance to Boiling Tap Water, Method B.
- Tested and assessed according to standard for Fire Test on Building Materials and Structures; method of test for ignitability BS 476-5.
- Tested and assessed according to standard for Fire Test on Building Materials and Structures; determination of the surface spread of flame of products BS 476-7.

Features
- MIO pigmented.
- Able to resist temperatures up to 650°C [1200°F] and thermal shock/cycling in dry or dry/wet service.
- Prevents corrosion under insulation (CUI).
- Applied directly onto the steel substrate or over a zinc silicate primer.

Product safety

Flash point 77°F [25°C]

VOC content

Legislation	Value
EU	3.06 lb/US gal [367 g/L]
US (coatings)	3.05 lb/US gal [366 g/L]
US (regulatory)	3.05 lb/US gal [366 g/L]
Canada	3.05 lb/US gal [366 g/L]
China	3.06 lb/US gal [367 g/L]
Hong Kong	3.05 lb/US gal [366 g/L]
Korea	3.06 lb/US gal [367 g/L]

According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. Measured according to GB/T 23985-2009. VOC values may vary with shade, please consult the Safety Data Sheet, section 9.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel's Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
56990

Standard shade / code
Metallic dark grey 10710 *
Metallic dark grey 10710

Gloss
Flat

* Slight discoloration may occur. This does not affect the performance of the coating.

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Volume solids
76 ± 2%

Specific gravity
15 lb/US gal [1.9 kg/L]

Reference dry film thickness
6.0 mils [150 micron]

Aluminum shade / code
Pearl Light Grey 19360
Pearlescent grey 19360

Gloss
Please consult Hempel's Guideline on aluminum pigmented coatings.

Volume solids
72 ± 2%

Specific gravity
15 lb/US gal [1.8 kg/L]

Reference dry film thickness
6.0 mils [150 micron]

Surface preparation

Cleanliness
- Remove oil, grease and other contaminants by suitable detergent cleaning.
- Remove salts, detergents and other contaminants by high pressure fresh water cleaning.

New build:
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Stainless steel, aluminium and other non ferric metals and alloys: use non-metallic blast media (corundum, garnet, etc.).
- Remove dust, blast media and loose materials.

Maintenance and Repair
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Water jetting to Wa 2½ (ISO 8501-4) or WJ-2 (SSPC-SP 12/NACE No.5).
- Flash rust degree of maximum FR M (ISO 8501-4) or SSPC-SP 12/NACE No.5.
- Clean thoroughly by hand or power tool to St 3 (ISO 8501-1) / SP 3 (SSPC). Avoid polishing.
- Remove dust, blast media and loose materials.

Roughness
- Surface profile Medium (G) (ISO 8503-2).

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Stir well before use.

Thinner
Hempel's Thinner 08080

Cleaner
Hempel's Tool Cleaner 99610
Hempel's Thinner 08080

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Application method

Tool	Thinning max vol.	Application parameters
Airless spray	10%	2500 psi [Nozzle pressure: 175 bar] Nozzle orifice: 0.017-0.021"
Air spray	10%	Not Applicable.
Brush	5%	Not Applicable.

If brush or roller application is used, more coats will be necessary to achieve the specified dry film thickness. Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 68°F [20°C].

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	4.0 mils [100 micron]	9.0 mils [225 micron]	6.0 mils [150 micron]
Wet film thickness	5.3 mils [132 micron]	12 mils [297 micron]	7.9 mils [198 micron]
Theoretical spreading rate	310 sq ft/US gal [7.6 m²/L]	139 sq ft/US gal [3.4 m²/L]	204 sq ft/US gal [5 m²/L]

For best performance, avoid excessive film thickness. Overthickness must be closely controlled and never locally exceed 12 mils [300 micron] DFT. On irregular surfaces it is recommended to employ special care in avoiding over application.

Application conditions

- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 5°F [3°C] above the dew point.
- Surface temperature must be above 50°F [10°C] during application and curing.
- Can be applied onto hot substrate up to maximum 200°C [392°F].
- For application onto hot substrate above 200°C [392°F], please contact Hempel.
- For service not exceeding 204°C (400°F) before or in operation, please review Hempel's Technical Guidance or contact Hempel.

Relative Humidity:

- Relative humidity must be below 85% during application.

Drying and overcoating

Product compatibility

- Previous coat: None or according to Hempel's specification. Recommended products are: Hempel's Galvosil 15700, Hempel's Galvosil 15680, Hempel's Galvosil Fibre 15750.
- Subsequent coat: None or according to Hempel's specification. Recommended products are: Hempel's Silicone Topcoat 56900, Hempel's Silicone Acrylic 56940, Hempel's Silicone Aluminium 56910.

Drying time

Surface temperature		50°F [10°C]	68°F [20°C]	86°F [30°C]	104°F [40°C]
Touch dry	min	90	45	30	30
Hard dry	hours	4	2	1½	1½

Determined for dry film thickness 6.0 mils [150 micron] at standard conditions, see Hempel's Explanatory Notes for details.

Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

Quality name		50°F [10°C]	68°F [20°C]	86°F [30°C]	104°F [40°C]
Atmospheric severe					
Versiline CUI	Min	18 h	6 h	3 h	2½ h
	Max	Ext*	Ext*	Ext*	Ext*

Ext*: Depending on the actual exposure conditions, the coated surface is overcoatable for an extended period of time. Contact your local Hempel representative for advice.
Consult Hempel's specification for more information.

Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.

Overcoating details

- When overcoating Versiline CUI 56990 with itself, applying the product in multiple thin passes can reduce the risk of popping/pinholes.
- The surface must be dry and clean prior to application.

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Other remarks
- Hempel's Specification supersedes any recommendations given in the Product Data Sheets.

Storage

Shelf life

Ambient temperature	77°F [25°C]
Product	12 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Always check the best before date or expiry date on the label.

Storage conditions
- The product must be stored in accordance with Safety Data Sheet, label and local regulations. Keep the containers in a dry, shaded, cool, well-ventilated space and away from sources of heat and ignition. Containers must be kept tightly closed. Handle with care.

Carbon Footprint

Dry film thickness	1 mil	1 µm
GWP (Global Warming Potential)	0.037 lb CO_2e/ft^2	7.1 g CO_2e/m^2

The carbon footprint is for 1 square meter / square foot of surface area with a dry film thickness of 1 micron / mil.

The scope includes raw materials, in-bound transport to the Hempel factory, Hempel manufacturing processes, and any Volatile Organic Compounds emitted during and after the application of the product.

It is calculated based on the standard shade defined in this PDS. Values may vary with shade.

Additional documents

Additional information is available at the Hempel website https://www.hempel.com/service-and-support/technical-guidelines or at your local Hempel website:

- Explanatory Notes explaining the fields in this Product Data Sheet.
- Surface Preparation Guidelines.
- Application Guidelines for different application methods.
- Surface Preparation.
- Repair & maintenance.