

## STOPAQ® WRAPPINGBAND CZHT

### Product Information

**Product description:** Stopaq® Wrappingband CZHT is a high temperature corrosion preventing wrap material adhering extremely well to steel and plant applied pipeline coatings like PP, Liquid Epoxies and FBE. It is very suitable for use on buried and immersed pipes, for use on pipes and risers in offshore atmospheric conditions, and for use on pipes susceptible to corrosion under insulation (CUI).

Stopaq® Wrappingband CZHT is a non-toxic, cold-applied, prefabricated wrap coating, based on a compound containing non-crystalline, low-viscosity, non-crosslinked (fully amorphous), pure homopolymer Polyisobutene. It is viscous at the indicated operating temperatures and due to its liquid nature it has a set of unique properties like cold-flow into all irregularities of the substrate and self-healing of the complete coating system. The compound does not cure and is unable to build up internal stress. Stopaq® Wrappingband CZHT is fully resistant to water, salt spray and UV-radiation, and has a low gas- and water vapour permeability.

Stopaq® Wrappingband CZHT requires application of a polymeric outer wrap material like Stopaq® Outerwrap HTPP or Stopaq® High Impact Shield HT. This improves impact and indentation resistance of the coating system and supports the self-healing ability of small damages like dents and cuts. Optionally additional mechanical protective layers can be applied on top like Stopaq® Polyester, Stopaq® Vinylester or Stopaq® Outerglass Shield.

#### Features:

- Controlled cold flow providing inflow into the finest pores of the substrate
- Resistant to high temperatures
- Conforms to irregular shapes
- Low surface tension; adheres on many types of dry substrates at a molecular level
- Surface tolerant: no blasting techniques required, wire brushing is sufficient (ISO 8501-1: St 2)
- Constant film thickness
- Adhesion based on vanderWaals forces
- Self-healing of small dents, voids and cracks
- Inert to ageing and weathering
- Resistant to many chemicals like water, salts, acids, alkalis, polar solvents, etc. For additional information, please contact Seal For Life Industries

#### Benefits:

- Very well suited for application on new-built pipes and for pipe coating rehabilitation
- Safe to use. No physical, health or environmental hazards
- Fast and easy field application
- Can be moulded onto various types of irregular shaped objects
- No osmosis or underfilm migration of moisture
- No cathodic disbondment
- Cathodic Protection (CP) of steel structures is not affected

### Application examples

**Buried and immersed pipes:** For protection against external corrosion of buried and immersed pipes, fittings and field joints made of carbon steel, alloy steel or ductile iron.

**Above ground and offshore pipes and risers:** For protection against external corrosion of carbon steel, alloy steel and ductile iron pipes, field joints and fittings exposed to extreme atmospheric conditions.

**Corrosion Under Insulation:** For protection against corrosion under insulation of thermally insulated pipes, field joints and fittings made of carbon steel, alloy steel pipes and ductile iron.

**Pipe coating repair and rehabilitation:** For repair and rehabilitation and protection against external corrosion of pipeline coating defects.

### General order information

<b>Product</b>	Stopaq® Wrappingband CZHT is available in rolls, packed in cardboard boxes:
<b>Art. Nr.:</b>	<b>Product dimensions and contents:</b>
6301	50mm x 10m [2"x33']; 12 pcs/box; 360 pcs/pallet
6302	100mm x 10m [4"x33']; 6 pcs/box; 180 pcs/pallet
6303	200mm x 10m [8"x33']; 2 pcs/box; 96 pcs/pallet
6304	200mm x 20m [8"x66']; 2 pcs/box; 96 pcs/pallet
6305	300mm x 10m [12"x33']; 2 pcs/box; 80 pcs/pallet
<b>Handling</b>	Handle with care. Keep boxes upright.
<b>Storage</b>	Store indoor, clean and dry, away from direct sunlight in a cool place below +45 °C [113 °F]. Unlimited shelf life.

### Product properties of Stopaq® Wrappingband CZHT

<b>Colour</b>	Green
<b>Thickness</b>	2,0 ± 0,2 mm [80 ± 8 mils] <sup>A)</sup>
<b>Density</b>	1,5 ± 0,1 g/cm <sup>3</sup> [12.5 ± 0.8 lbs/gal] (ISO 1183-1)
<b>Mass / Area</b>	3,0 ± 0,3 kg/m <sup>2</sup> [0.614 lbs/sq.ft]
<b>Temperature range</b>	-45 to +120 °C [-49 to +248 °F]
<b>Glass transition temp.</b>	≤ -65 °C [-85 °F] <sup>A)</sup>
<b>Crystallization temp.</b>	Tested range -100 °C to +190 °C [-148 to +374 °F] <sup>A)</sup> - No evidence of crystallization
<b>Holiday detection</b>	No holidays at 15 kV <sup>A)</sup>
<b>Drip resistance</b>	Tested 48h @ +155 °C [+293 °F] <sup>A), B)</sup> : - No dripping of compound
<b>Peel tests before and after accelerated ageing tests</b>	Tested on carbon steel (St 3, Sa 2½), 304 stainless steel, and on plant coatings PP, FBE, and liquid applied epoxy.  <b>Before ageing</b> <sup>A)</sup> - Peel strength: - @+23 °C [+73 °F] ≥ 0,2 N/mm [≥ 18 ozf/in] - @+95 °C [+203 °F] ≥ 0,05 N/mm [≥ 4.6 ozf/in]  <b>After thermal ageing for 100 days at +115 °C [+239°F]</b> <sup>A)</sup> - Peel strength @+23 °C [+73 °F] ≥ 0,2 N/mm [≥ 18 ozf/in]  <b>After hot water immersion for 100 days at +95 °C [+203°F]</b> <sup>A)</sup> - Peel strength @+23 °C [+73 °F] ≥ 0,2 N/mm [≥ 18 ozf/in]  <b>In all cases:</b> - Cohesive separation mode, ≥ 95% coverage of surface
<b>Lap shear resistance</b>	Tested on carbon steel Sa 2½ <sup>A)</sup> - Lap shear strength: - @+23 °C [+73 °F] ≥ 0,02 N/mm <sup>2</sup> [≥ 2.9 psi] - @+95 °C [+203 °F] ≥ 0,002 N/mm <sup>2</sup> [≥ 0.29 psi] - Cohesive separation mode, ≥ 95% coverage of surface
<b>Specific electrical insulation resistance</b>	RS <sub>100</sub> > 10 <sup>8</sup> (1E+08) Ω.m <sup>2</sup> > 10 <sup>9</sup> (1E+09) Ω.ft <sup>2</sup> <sup>A)</sup>
<b>Ageing resistance test</b>	Acc. ISO 20340:2009 Annex A (4200 h), tested on carbon steel (St 3, Sa 2½), on 304 stainless steel, and on existing liquid epoxy coating over carbon steel - Corrosion creep from scribe: M ≤ 8,0 mm [5/16"] - ISO 4628-2 Blistering: 0(S0) - ISO 4628-3 Rusting: Ri 0 - ISO 4628-4 Cracking: 0(S0) - ISO 4628-5 Flaking: 0(S0) - ISO 4628-6 Chalking: 0

### Properties of complete coating system comprising Stopaq® Wrappingband CZHT and Stopaq® Outerwrap HTPP

<b>Construction</b>	- 1 layer of Stopaq® Wrappingband CZHT - 2 layers of Stopaq® Outerwrap HTPP
<b>Operational temperature ranges</b>	- Buried and submerged: -45 to +95 °C [-49 to +203 °F] - Atmospheric and CUI: -45 to +120 °C [-49 to +248 °F]
<b>Impact resistance</b>	Tested at 15 J [132 in.lbf] <sup>A)</sup> and at 40 J [354 in.lbf] - @+23 °C [+73 °F]: no holidays <sup>A)</sup> - @+95 °C [+203 °F]: no holidays
<b>Indentation resistance</b>	Tested with 10 N/mm <sup>2</sup> [1450 psi] <sup>A)</sup> @ +23 °C [+73 °F] and @ +95 °C [+203 °F]: - no holidays, residual thickness ≥ 0,6 mm [24 mils] <sup>B)</sup>
<b>Cathodic disbondment resistance</b>	Tested @ +23 °C [+73 °F] and @ +95 °C [+203 °F] <sup>A)</sup> - Disbondment 0 mm, no holiday. Defect Ø 6 mm [1/4"] self-healed within 24 hours.
<b>Self-healing test</b>	Tested @ +23 °C [+73 °F] and @ +95 °C [+203 °F] - Completed < 24 hours, no holiday.
<b>Cyclic thermal shock resistance</b>	<b>After hot dry/wet thermal shock cycling</b> <sup>C)</sup> - Peel strength ≥ 0,2 N/mm [≥ 18 ozf/in] - Cohesive separation, ≥ 95% coverage of surface
<b>Cyclic freeze/thaw resistance</b>	<b>After immersed freeze/thaw cycling</b> <sup>D)</sup> - Peel strength ≥ 0,2 N/mm [≥ 18 ozf/in] - Cohesive separation, ≥ 95% coverage of surface

<sup>A)</sup> ISO 21809-3:2016 coating type 13

<sup>B)</sup> After removal of load within 3 hrs.

<sup>C)</sup> 80 cycles consisting of ≥ 16 h dry @ +120 °C [248 °F], 1 min. water quench to +10 °C [50 °F] and 8 h water immersion @ +95 °C [203 °F]

<sup>D)</sup> 50 cycles immersed in water consisting of 24 h @ +95 °C [203 °F] and 24 h @ -15 °C [5 °F]

Application instruction - Job preparation	
<b>Tools, equipment and auxiliaries</b>	<ul style="list-style-type: none"> <li>– Temperature probe, Dew point tester, High voltage holiday tester</li> <li>– Scissors, Knife, Measuring tape</li> <li>– Abrasive cleaning pads, Wire brushes</li> <li>– SFL™ Cleaning Wipes or Isopropyl alcohol, cas. nr. 67-63-0</li> <li>– Personal protective gear</li> </ul>
<b>Additional coating materials</b>	Stopaq® Wrappingband CZHT requires application of a polymeric outer wrap material, such as: <ul style="list-style-type: none"> <li>– Stopaq® Outerwrap HTPP</li> <li>– Stopaq® High Impact Shield HT</li> </ul> Additional mechanical protective layers may also be applied over the complete coating, e.g. <ul style="list-style-type: none"> <li>– Stopaq® Polyester</li> <li>– Stopaq® Vinylester</li> <li>– Stopaq® Outerglass Shield</li> </ul>
<b>Work area and substrate</b>	The substrate must be dry, clean and protected against negative weather influences.
<b>Product conditions</b>	Stopaq® Wrappingband CZHT must be dry and the temperature should preferably be between +20 °C and +50 °C [68 to 122 °F] for the ease of application.

Application instruction - Surface preparation	
<b>General</b>	The area to be coated must be clean, dry, and free from oil, grease and dust. All contamination including mill-scale must be removed.
<b>Degreasing</b>	Degrease surfaces with SFL™ Cleaning Wipes or Isopropyl alcohol and e.g. a lint-free cloth.
<b>Substrate temperature</b>	Prior to and during the application, the temperature of the substrate(s) must be at least 3 °C [6 °F] above the dew point. Temperature of the substrate should preferably be +30 °C [86 °F] or more for fast and easy application. Preheating may be required.
<b>Carbon Steel</b>	Minimum requirement for surface preparation is St 2 according to ISO 8501-1. Roughness profile is not essential for adhesion but in case abrasive blast cleaning techniques are used, the preferred roughness is 50 µm or less.
<b>Other substrates</b>	De-gloss and degrease the surfaces with SFL™ Cleaning Wipes or isopropyl alcohol and an abrasive pad.
<b>Cleanliness check</b>	Take a piece of Stopaq® Wrappingband CZHT of ± 150 mm [6"] length, remove the release liner and fold it back for about 25 mm [1"]. Apply it to the surface, press it firmly and leave it for 5 minutes. Pull the Wrappingband from the substrate with an angle of app. 135 deg. and a speed of 100 mm/min [4"/min]. Cohesive separation mode should occur and coverage of the surface with remaining material should be ≥ 95%. If this is less, surface cleaning is insufficient. At too low substrate temperatures this test may not be successful. Preheat the substrate to the preferred temperature and repeat the test.

Application instruction – Brief version	
See specific Stopaq coating instructions for e.g. field joints, pipe wrapping, coating repair, fittings, etc.	
<b>Wrapping</b>	Start with removal of a small part of the release foil and apply Stopaq® Wrappingband CZHT on the substrate. Apply Wrappingband without tension and avoid air entrapment. Mould the Wrappingband tight onto the substrate.
<b>Release liner</b>	Only remove the release liner from Stopaq® Wrappingband CZHT just before applying it to the substrate.
<b>Overlap of wraps</b>	Side-by-side overlap: ≥ 10 mm [3/8"] Consecutive rolls: ≥ 50 mm [2"] Overlap on existing coatings: See specific Stopaq coating instructions.
<b>Visual inspection</b>	The appearance of Stopaq® Wrappingband CZHT must look smooth and tight, and should be shaped around all details and into corners.
<b>Holiday detection</b>	The coated surface must be checked for holidays using a high voltage holiday detector at 15 kV equipped with a brush probe prior to application of any outer wrap material.
<b>Application of outer wrap materials</b>	Stopaq® Wrappingband CZHT must be protected against impacts, indentations, soil pressure and other influences by application of Stopaq® Outerwrap HTPP or Stopaq® High Impact Shield HT. Optionally, additional mechanical protective materials like Stopaq® Outerglass Shield or Stopaq® Polyester can be installed over the complete coating system. Please contact Stopaq B.V. for further information.

Handling and commissioning	
<b>Exposure to loads</b>	Objects coated with Stopaq® Wrappingband CZHT should not be exposed to loads e.g. from supports- or lifting equipment.
<b>Immersion or burying</b>	Immersion or burying is possible immediately after completion of the coating application. See data sheets for specific instructions of additional materials used. Backfill and compact with clean sand and filling material without sharp stones or hard lumps of soil.

Information	
<b>Documentation</b>	Extensive information is available on our web-site. Application instructions and other documentation can be obtained by contacting our head office, from our local distributor or by sending an email to <a href="mailto:info@sealforlife.com">info@sealforlife.com</a>
<b>Certified staff</b>	Application of the described coating system should be carried out by certified personnel.



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