STOPAQ®
Self-healing corrosion prevention & sealant technology
SEALFORLIFE

PRODUCT DATA SHEET

STOPAQ® OUTERWRAP HTPP

Product Information

Product description: Stopaq® Outerwrap HTPP is a high temperature polymeric tape that is an integral part of Stopaq® non-crystalline low-viscosity coating systems that further comprises Stopaq® Wrappingband. Stopaq® Outerwrap HTPP provides protection of the coating system against mechanical forces like impact, indentation, and shear. Furthermore it provides circumferential compression to the Stopaq® Wrappingband material, thereby accelerating the bond to the substrate and also supporting self-healing of the coating.

Stopaq® Outerwrap HTPP is made of a radiation cross-linked high density polyethylene backing (HDPE) and a cross-linked elastomeric adhesive, provided with a release liner for proper unwinding of the roll. Stopaq® Outerwrap HTPP 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 for corrosion under insulation. The heavy-duty adhesive layer provides good adhesion to the outer surface of Stopaq® Wrappingband as well as to its own backing. Stopaq® Outerwrap HTPP is a highly flexible UV-resistant tape that also has good resistance to various chemicals.

Features:

- Provides excellent impact and indentation resistance.
- Very high resistance to ageing, even when exposed to maximum or minimum temperature for longer periods of time.
- Suitable for continuous use at high service temperatures.
- UV-resistant and good resistance to various chemicals.
- Good adhesion to Stopaq® Wrappingband as well as to its own backing.
- Cold applied, good conformability

Benefits:

- Very suitable for manual application
- Fast and easy field application.
- Resists impacts and indentations which may occur during installation and backfilling.

Application examples

Buried and immersed pipes: As Outerwrap tape on Stopaq® corrosion preventing Wrappingband, applied on buried and immersed pipes, fittings and field joints made of carbon steel, alloy steel or ductile iron.

Above ground and offshore pipes and risers: As Outerwrap tape on Stopaq® corrosion preventing Wrappingband, applied on carbon steel, alloy steel and ductile iron pipes, field joints and fittings exposed to extreme atmospheric conditions.

Corrosion Under Insulation: As Outerwrap tape on Stopaq® corrosion preventing Wrappingband applied on thermally insulated pipes, field joints and fittings made of carbon steel, alloy steel pipes and ductile iron..

Pipe coating repair and rehabilitation: As Outerwrap tape on Stopaq® corrosion preventing Wrappingband, applied as repair or rehabilitation of pipeline coating defects.

General order information

Product	Stopaq® Outerwrap HTPP is available in rolls, wound on cardboard cores, packed in cardboard boxes:
Art. Nr.:	Product dimensions (W x L) and contents:
1249-03048	2 inch x 100 ft
1250-03048	4 inch x 100 ft
Handling	Handle with care. Keep boxes upright.
Storage	Store indoor, clean and dry, away from direct sunlight in a cool place below +40°C [104°F].

Product properties of Stopaq® Outerwrap HTPP

Colour	Black
Thickness	Backing 0.25 mm [10 mils] Total 0.63 mm [25 mils]
Temperature range	Buried and immersed conditions: – Operational: -35°C [-49°F] to +95°C [+203°F] Atmospheric and CUI conditions: – Operational: -35°C [-49°F] to +120°C [+248°F]
Peel strength layer to layer before and after accelerated ageing tests	Before ageing [A)] – Peel strength (P_0) – @+23°C [+73°F] ≥ 0.2 N/mm [≥ 18 oz/in] (typical 1.7 N/mm [155 oz/in]) – @+95°C [+203°F] ≥ 0.02 N/mm [≥ 1.8 oz/in] (typical 0.135 N/mm [12 oz/in]) After thermal ageing for 100 days at +115°C [+239°F] [A)] – Peel strength: 1.0 N/mm [91 oz/in] (typical) – P_{100} / P_0: 0.6 (typical) After hot water immersion 100 days at +95°C [+203°F] [A)] – Peel strength: 3.3 N/mm [301 oz/in] (typical) – P_{100} / P_0: 1.9 (typical)
Peel strength to plant coating PP before and after accelerated ageing tests	Before ageing [A)] – Peel strength (P_0) – @+23°C [+73°F]:1.7 N/mm [155 oz/in](typical) – @+95°C [+203°F]: 0.10 N/mm [≥ 9 oz/in] (typical) After thermal ageing for 100 days at +115°C [+239°F] [A)] – Peel strength: 0.70 N/mm [64 oz/in] (typical) – P_{100} / P_0: 0.4 (typical) After hot water immersion 100 days at +95°C [+203°F] [A)] – Peel strength: 2.4 N/mm [219 oz/in] (typical) – P_{100} / P_0: 1.4 (typical)
Peel strength to plant coating FBE before and after accelerated ageing tests	Before ageing [A)] – Peel strength (P_0) – @+23°C [+73°F]::2.5 N/mm [228 oz/in](typical) – @+95°C [+203°F]: 0.11 N/mm [10 oz/in](typical) After thermal ageing for 100 days at +115°C [+239°F] [A)] – Peel strength 0.80 N/mm [64 oz/in] (typical) – P_{100} / P_0: 0.3 (typical) After hot water immersion 100 days at +95°C [+203°F] [A)] – Peel strength: 3.0 N/mm [274 oz/in] (typical) – P_{100} / P_0: 1.2 (typical)
Elongation at break before and after accelerated ageing tests	Before ageing – Elongation (E_0): 792% (typical) After thermal ageing for 100 days at +115°C [+239°F] – E_{100} / E_0 ≥ 0.9 (typical)
Elastic modulus before and after accelerated ageing tests	Before ageing [A)] – Elastic modulus (E_{mod0}): 0.074 GPa (typical) After thermal ageing for 100 days at +115°C [+239°F] [A)] – E_{mod100} / E_{mod0} ≥ 0.63 (typical)

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

Impact resistance	Tested at 15 J [132 in.lbf] [A)] and at 40 J [354 in.lbf] – @+23°C [+73°F]: no holidays [A)] – @+95°C [+203°F]: no holidays
Indentation resistance	Tested with 10 N/mm² [1450 psi] [A)] @ +23°C [+73°F] and @ +95°C [+203°F]: – no holidays, residual thickness ≥ 0.6 mm [24 mils] [B)]
Cathodic disbondment resistance	Tested @ +23°C [+73°F] and @ +95°C [+203°F] [A)] – Disbondment 0 mm, no holiday. Defect Ø 6mm [1/4"] self-healed within 24 hours.
Self-healing test	Tested @ +23°C [+73°F] and @ +95°C [+203°F] – Completed < 24 hours, no holiday.
Ageing resistance test	Acc. ISO 20340:2009 Annex A (4200 h), tested on carbon steel (St 3, Sa 2 ½), on 304 stainless steel, and on existing liquid epoxy coating over carbon steel – Corrosion creep from scribe: M ≤ 8.0 mm – 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

[A)] According to ISO 21809-3:2016 (2nd ed.) for coating type 13
[B)] (within 1 hour after removal of load)

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Application instruction - Job preparation

Tools, equipment and auxiliaries	– Scissors, knife and measuring tape
Additional coating materials	Stopaq® Outerwrap HTPP is applied as integral part of a coating system that consists of other Stopaq® coating materials, e.g. Corrosion preventing materials: – Stopaq® Wrappingband CZHT – Stopaq® Paste CZHT Additional mechanical protective layers may also be applied over the complete coating, e.g. – Stopaq® Polyester – Stopaq® Vinylester – Stopaq® Outerglass Shield XT
High humidity	Stopaq® Outerwrap HTPP can be applied in a humid atmosphere. The substrate should be free from condensing water which can be reached by keeping the temperature at least 3°C [6°F] above dew point.
Work area and substrate	The substrate should be dry, clean and protected against negative weather influences. Temperature of the substrate should preferably be between +10°C and +50°C.
Product conditions	Stopaq® Outerwrap HTPP should be dry and the temperature should preferably be between +10° C [+50°F] and +30°C [+86°F] for the ease of application.

Application instruction - Brief version

General	Specific application instructions are available at Seal For Life Industries, e.g. for wrapping of pipes, field joints, fittings, etc.
Example - Pipe wrapping	Horizontal pipelines should be spirally wrapped from left-to-right or from right-to-left. Pipelines positioned with an angle deviating from horizontal should be wrapped from bottom to top (e.g. risers). In general Stopaq® Outerwrap HTPP should be applied with tension by gently pulling the roll of material, unless stated otherwise in specific application instructions. Start wrapping Outerwrap HTPP with two full circumferential wraps perpendicular to the pipe, leaving 3 mm of the previously applied Stopaq® Wrappingband visible at the boundary.
Example - Pipe wrapping (continued)	After application of the circumferential wraps, consecutive spiral wraps should have an overlap of ≥ 50% Avoid air inclusions. Avoid tenting and bridging Continue spiral wrapping until reaching the boundary of the area to be coated, leaving 3 mm of the previously applied Stopaq® Wrappingband visible at the boundary. When more than one roll of Outerwrap HTPP is needed to continue wrapping, an overlap on the end of the previously applied Outerwrap HTPP should be created of at least 100 mm. End wrapping with two full circumferential wraps perpendicular to the pipe. End with a quarter circumferential wrap of Outerwrap HTPP without tension. In case of wrapping on horizontal pipes, the tape end should face downwards ending at 3 o'clock position. Cut off in a tie-form. The applied Outerwrap HTPP must look smooth and tight and should be shaped around all details and into corners..

Handling and commissioning

Exposure to loads	Objects coated with Stopaq® Outerwrap HTPP should not be exposed to excessive loads e.g. from supports- or lifting equipment.
Immersion or burying	Immersion or burying is possible immediately after completion of the coating application. Consult 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

Documentation	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 email to **info@stopaq.com**
Certified staff	Application of the described coating system should be carried out by certified personnel.

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