MAKPHALT™
Protecting Nation's Infrastructure
by M.K. PETRO PRODUCTS

MAK 3 PLY PE TAPE

Corrosion protection of Pipelines

Description

Mak 3 Ply PE Tape consisting of a stabilized polyethylene carrier film and butyl rubber adhesive layers on both sides. Mak 3 Ply PE Tape self-amalgamates in the overlap areas, forming a sleeve type coating, which is impermeable to water vapour and oxygen. Due to its smooth carrier film, it is highly conformable to uneven steel surface structures (e.g. weld beads) irregularly shaped installations (valves, T-pieces). Butyl layer of tape must face the steel and this should always be the thicker layer of Butyl rubber. This tape is compatible with the properties of primer and that of the outer wrap. Tape system complies with DIN 30672, DIN 53481, DIN 53455, DIN 53122 and EN 12068 standards and it shall be applied with 67% overlap creating three layers of Tape for the corrosion protective coating of buried or immersed pipes, tanks and installations with operating temperatures up to +50˚C in highly corrosive environments and exposed to medium mechanical stresses.

Mak 3Ply PE Tape Primer – It is a solution of Butyl Rubber and unsaponifiable resins in Petroleum Spirit. This is fully compatible with Mak 3Ply PE tape. The primer complies with DIN 51757, DIN 51758, DIN 53211 standards.

Application Procedure:

- **Cleaning:** The areas to be coated (steel urface and adjacent factory coating) have to be clean, dry, and free from grease and dust. All contamination which might act as a release agent (e.g. grease, oil,varnishes, temporary protecting paints, coupling agents) have to be completely removed prior to tape application. Use suitable solvent if necessary.
- **Drying:** Humidity and ice have to be removed by drying with a torch flame.
- **Surface Preparation:** Cleaning of steel surface can be done by wire brushing or abrasive blast cleaning. Any existing scale has to be removed by abrasive blast cleaning.
- **Transition to factory coating:** Transition to adjacent factory coating should be bevelled by use of a round shaped rasp. Recommended angle: app. 30 '). Remove grinding dust.
- **Preparation of factory coating:** Adjacent factory coating has to be cleaned in a width of app. 150 mm. Use suitable solvent if necessary. Cleaned factory coating has to be circumferentially roughened with coarse emery cloth. Remove grinding dust.
- **Priming:** Thoroughly stir Mak 3Ply PE Tape-Primer in original container until any bottom settlings are solved. By use of brush or roller apply an even coat of primer to cleaned and dried surface. Let the primer dry until it is tack free. The drying time depends on ambient temperature and air movement. The primed surface should be wrapped within 8 h. Otherwise or in case of contamination (e.g. dust) the primer coat has to be renewed.
- **Inner Warp:** a) In case of hand wrapping (tape width max. 50mm) start with one circumferential wrap before spirally wrapping the tape (start of wrapping min 50mm on factory coating.

b) Spirally wrap tape (Mak 3Ply PE Tapes with grey side facing the pipe surface) under tension with min 50% overlap around the pipe.

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c) Tape tension is sufficient, if tape width is narrowed by app. 1% during application. Remove the interleaving.
d) The tape wrapping should cover the full circumference of the adjacent factory coating by a width of min. 50mm.
◆**Outer wrap: a)** In case of hand wrapping (tape width max. 50 mm) start with one circumferential wrap before spirally wrapping the tape.
b) The outer wrap should at least fully cover the inner ware. It is recommended to start wrapping by covering the inner wrap by ½ tape width.
c) Spirally wrap tape (Mak 3 Ply PE Tapes with grey side facing the pipe surface) under tension with min 50% overlap around the pipe.
d) Tape tension is sufficient, if tape width is narrowed by app. 1% during application.
e) Remove interleaving.
f) The tapes wrapping should cover the full circumference of the adjacent factory coating by a width of min. 50 mm.

Technical Data

Pipe surface temperature	:	up to (+) 65°C
Pipe Operating Temperature	:	up to (+) 75°C
Inner Butyl layer (facing steel)	:	Approximately 0.44mm
Polyethylene carrier film	:	Approximately 0.98mm
Outer Butyl layer	:	Approximately 0.08mm
Total Tape Thickness	:	Approximately 1.5mm

Primer Properties

Ambient Temperature	(-) 40°C to (+) 60°C
Operating Temperature	(-) 60°C to (+) 100°C
Pipe surface Temperature	Above dew point to (+)80°C
Flash point	Approx. (-)14°C to (+) 24°C
Consumption Hand Application	Approx. 0.2 L/ m2 packed in 1 L/10 L can or 180 L drum.

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Tape Roll Sizes:

Total tape thickness	Approx.1.5mm
Tensile Strength at 23°C (in N/10mm)	>120
Elongation at break at 23°C (in %)	>600
Dielectric strength (in KV/mm)	>40
Water vapour transmission (in g/ M2, 24 hours)	< 5/100
Water Absorption at 23°C (in %)	<0.1
Bonding Value Tape/Tape at 23°C (inN/10mm), 100mm/min.	>45
Adhesion Strength Metal/Primer/Tape at 23°C (in N/10mm), 100mm/min.	>45
Lap Shear Resistance at 23°C to Steel (N/mm2)	15
To factory coating(N/mm2)	15

Packing

Rolls of 15 M are packed in carton.

Disclaimer

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

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