RUSCOMPOZIT Ltd.

KSI

Anti-corrosion polymeric tape coating systems

TECHNICAL DATA SHEET

POLILEN® Cold-Applied Tape Coating System

POLILEN® PRIMER NK-122 + POLILEN® 40-LI-63 + POLILEN® OB 40-OB-63

(primer + inner anti-corrosion tape + outer mechanical protection wrap)

ISO 9001:2015

Tested in accordance with ASTM D 1000, ASTM D 570, ASTM E 96, ASTM D 149

Manufactured under ISO 9001:2015 quality management system

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POLILEN® 40-LI-63

Polyethylene inner tape with butyl rubber adhesive

PURPOSE	APPLICATION AREA	OPERATING TEMPERATURE	TAPE STRUCTURE
Anti-corrosion inner layer of multi-layer polymeric tape coating systems for steel pipelines.	Pipelines of various purposes, diameters and operating pressures.	From –60 °C to +60 °C on the surface of the pipe.	PE carrier PE / butyl rubber (co-extruded) × 2 Butyl rubber adhesive

PRODUCT DESCRIPTION

POLILEN® 40-LI-63 is a four-layer cold-applied tape based on thermally stabilised polyethylene with a butyl rubber adhesive. It is designed to serve as the inner (anti-corrosion) layer of the POLILEN® polymeric tape coating system, in conjunction with POLILEN® PRIMER NK-122 (primer layer) and POLILEN® OB 40-OB-63 (outer mechanical protection layer).

The tape is intended for external corrosion protection of steel trunk, field and process pipelines and their fittings during construction and rehabilitation, at operating temperatures up to +60 °C. It is applied by the cold (no-flame) method, which makes installation simple, fast and safe.

DISTINCTIVE FEATURES AND ADVANTAGES

Unique production technology

POLILEN® tapes are manufactured by co-extrusion calendering: layers of different composition are welded together in the molten state. The resulting four-layer structure features a gradual transition from polyethylene to butyl rubber, which provides an optimum combination of mechanical and barrier properties and ensures long-term stability of every layer and of the composite as a whole.

Performance characteristics

Coatings based on POLILEN® retain their protective properties unchanged throughout the service life and are designed for operation in the range from –60 °C to +60 °C, where the coating does not degrade. The system offers high resistance to impact, compression and abrasion; it is not easily damaged during handling, storage or backfilling. POLILEN® coatings are resistant to acids and alkalis and provide reliable underground service even in highly saline soils. They have high dielectric strength and excellent adhesion to steel and to polyethylene.

Application advantages

The application technology is simple and highly productive. It does not require highly qualified personnel or bulky equipment for the preparation of bituminous mastics, and it does not involve open flame or curing equipment. POLILEN® tapes are non-toxic and safe for both operators and the environment, and the quality of the applied coating can be inspected visually with ease.

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BASIC PROPERTIES

Property	Test method	Unit	Typical Values
Total thickness	ASTM D 1000	mm	0.64
Polyethylene backing	ASTM D 1000	mm	0.33
Butyl rubber adhesive	ASTM D 1000	mm	0.31
Backing colour	—	—	Black
Areal density	GOST 6943.16	g/m^2	650
Tensile strength at +23 °C	ASTM D 1000	N / 10 mm	90
Yield strength at +23 °C	ASTM D 1000	N / 10 mm	60
Elongation at break at +23 °C	ASTM D 1000	%	600
Adhesion to primed steel at +23 °C, 300 mm/min	ASTM D 1000	N / 10 mm	45
Adhesion to own backing at +23 °C, 300 mm/min	ASTM D 1000	N / 10 mm	7
Water-vapour transmission rate	ASTM E 96	$g/m^2 \cdot 24$ h	≤ 0.2
Water absorption at +23 °C after 24 h	ASTM D 570	%	≤ 0.1
Dielectric strength	ASTM D 1000 / ASTM D 149	kV/mm	≥ 40
Application temperature	—	°C	0 to +50

GEOMETRIC PARAMETERS

Parameter	Standard value
Tape width	50 mm (2″), 101 mm (4″), 152 mm (6″), 228 mm (9″)
Tape length	30 m (100 ft), 61 m (200 ft), 122 m (400 ft), 183 m (600 ft), 244 m (800 ft)
Backing colour	Black (BLK)
Core inner diameter	41 mm or 76 mm

The tape can be produced with other geometrical dimensions on request.

ORDER INFORMATION

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POLILEN® OB 40-OB-63

Polyethylene outer wrap with butyl rubber adhesive

PURPOSE	APPLICATION AREA	OPERATING TEMPERATURE	TAPE STRUCTURE
Mechanical protection (outer) layer of multi-layer polymeric tape coating systems for steel pipelines.	Pipelines of various purposes, diameters and operating pressures.	From –60 °C to +60 °C on the surface of the pipe.	PE carrier PE / butyl rubber (co-extruded) Butyl rubber adhesive

PRODUCT DESCRIPTION

POLILEN® OB 40-OB-63 is a four-layer cold-applied tape based on thermally stabilised polyethylene with a butyl rubber adhesive. It is designed to serve as the outer (mechanical protection) layer of the POLILEN® polymeric tape coating system, in conjunction with POLILEN® PRIMER NK-122 (primer layer) and POLILEN® 40-LI-63 (inner anti-corrosion layer).

The wrap protects the underlying anti-corrosion coating from mechanical damage during transportation, lowering and backfilling, and during long-term service. It is intended for steel trunk, field and process pipelines and their fittings, at operating temperatures up to +60 °C.

DISTINCTIVE FEATURES AND ADVANTAGES

Unique production technology

POLILEN® tapes are manufactured by co-extrusion calendering: layers of different composition are welded together in the molten state. The resulting four-layer structure features a gradual transition from polyethylene to butyl rubber, which provides an optimum combination of mechanical and barrier properties and ensures long-term stability of every layer and of the composite as a whole.

Performance characteristics

The outer wrap features a thicker polyethylene carrier (0.51 mm) that delivers high mechanical strength and resistance to impact, compression and abrasion. POLILEN® coatings are designed for operation from –60 °C to +60 °C without degradation, are resistant to acids and alkalis, and remain reliable in highly saline soils. The wrap offers high dielectric strength and forms a strong tape-to-tape bond with the underlying POLILEN® 40-LI-63 inner tape.

Application advantages

The cold application method is simple and highly productive. It requires no open flame, no curing equipment and no highly qualified personnel. POLILEN® tapes are non-toxic and safe for operators and the environment, and the quality of the applied coating can be inspected visually with ease.

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BASIC PROPERTIES

Property	Test method	Unit	Typical Values
Total thickness	ASTM D 1000	mm	0.64
Polyethylene backing	ASTM D 1000	mm	0.51
Butyl rubber adhesive	ASTM D 1000	mm	0.13
Backing colour	—	—	Black (standard); White on request
Areal density	GOST 6943.16	g/m²	640
Tensile strength at +23 °C	ASTM D 1000	N / 10 mm	90
Yield strength at +23 °C	ASTM D 1000	N / 10 mm	60
Elongation at break at +23 °C	ASTM D 1000	%	650
Adhesion to inner tape (tape-to-tape) at +23 °C, 300 mm/min	ASTM D 1000	N / 10 mm	≥ 8
Adhesion to own backing at +23 °C, 300 mm/min	ASTM D 1000	N / 10 mm	5
Water-vapour transmission rate	ASTM E 96	g/m² · 24 h	≤ 0.1
Water absorption at +23 °C after 24 h	ASTM D 570	%	≤ 0.1
Dielectric strength	ASTM D 1000 / ASTM D 149	kV/mm	≥ 40
Application temperature	—	°C	0 to +50

GEOMETRIC PARAMETERS

Parameter	Standard value
Tape width	50 mm (2"), 101 mm (4"), 152 mm (6"), 228 mm (9")
Tape length	30 m (100 ft), 61 m (200 ft), 122 m (400 ft), 183 m (600 ft), 244 m (800 ft)
Backing colour	Black (BLK) standard; White (WHI) on request
Core inner diameter	41 mm or 76 mm

The tape can be produced with other geometrical dimensions on request.

ORDER INFORMATION

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POLILEN® PRIMER NK-122

Liquid adhesive primer for the POLILEN® coating system

PURPOSE	APPLICATION AREA	OPERATING TEMPERATURE	BASE
Liquid primer (first layer) of the POLILEN® polymeric tape coating system.	Steel pipelines of various purposes, diameters and operating pressures.	From –60 °C to +60 °C on the surface of the pipe.	Rubber-and-resin compound dissolved in petroleum solvent (gasoline-type).

PRODUCT DESCRIPTION

POLILEN® PRIMER NK-122 is a liquid adhesive primer composed of a rubber-and-resin compound dissolved in petroleum solvent. It is the first layer of the POLILEN® polymeric tape coating system and is applied directly to the prepared steel surface before the inner tape POLILEN® 40-LI-63.

The primer is intended for external corrosion protection of underground steel oil and petroleum-product trunk pipelines and their branches, with diameters up to 1 420 mm, operating at temperatures up to +60 °C, during construction and rehabilitation.

FEATURES AND ADVANTAGES

Formulation

The composition of POLILEN® PRIMER NK-122 is optimised for both manual and mechanised application onto uneven, restored or freshly cleaned steel pipe surfaces.

Performance

The primer ensures excellent adhesion to steel, high resistance to cathodic disbondment, a long-term bond between the steel and the POLILEN® tape coating, and reliable long-term corrosion protection.

Material preparation

Mix the primer thoroughly before application, until any sediment is fully dispersed. If a viscosity adjustment is required, the primer may be diluted with Nefras S-2-80/120 (or an equivalent petroleum-based solvent); the volume of solvent added must not exceed 10 % of the diluted mixture.

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BASIC PROPERTIES

Property	Test method	Unit	Typical Values
Dry-film thickness	ASTM D 1186	µm	64
Colour	—	—	Black
Drying time (touch-dry)	ASTM D 1640 / D 1680	min	12
Flash point	Abel, IP 170	°C	– 48
Solid content	ISO 1515	%	24
Viscosity at +23 °C (flow cup, 4 mm nozzle)	ASTM D 1200	s	42
Density	ASTM D 1298	g/cm³	0.755

PRIMER CONSUMPTION

Application method	Unit	Standard value
Brush	ml/m²	150 – 220
Spray	ml/m²	200 – 250
Priming machine with rotating wipers	ml/m²	150 – 200

PACKAGING & ORDER INFORMATION

Standard packaging: 200 L steel drums (other packaging on request).

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