

Technological instruction for application of insulation coating based on LIAM tape

Insulating coating on the basis of LIAM tape is intended for corrosion protection of the outer surface of underground steel pipelines of all diameters during their repair with the temperature of the transported product up to + 60 °C.

Coating structure:

- ✓ Asmol primer
- ✓ LIAM tape (one or two layers)
- ✓ Polymer wrapper

Application of protective coating on the basis of LIAM tape can be performed by manual or electromechanical insulating machines.

The protective coating is applied at ambient air temperature:

LIAM – L tape (for summer): from 0 ° C to + 30 ° C

LIAM – Z tape (for winter): from - 30 ° C to 0 ° C

At ambient air temperatures from -10 ° C to + 10 ° C, LIAM-Z tape may be stored in any cold room or outdoors under a shelter excluding direct sunlight or precipitation. At temperatures below -10 ° C, LIAM-Z tape must be kept for at least 24 hours in a room with a temperature from -10 ° C to + 10 ° C before use. Lifting operations below - 20 ° C are not allowed.

At ambient air temperatures from + 10 ° C to + 30 ° C, LIAM-L tape can be stored outdoors under a shelter excluding direct sunlight or precipitation.. At temperatures below + 10 ° C, LIAM-L tape must be kept for at least 24 hours in a room with a temperature of at least + 15 ° C before use. Lifting operations above + 35 ° C are not allowed.

The process of applying insulation coating to the pipeline consists of the following technological operations:

- ✓ Cleaning of the insulation zone;
- ✓ Preparation for application of LIAM tape;
- ✓ Application of insulating coating;
- ✓ Quality control of the insulation coating.

1. Cleaning the metal surface before applying LIAM tape

1.1 Before applying insulation the pipeline surface must be pre-drained and cleaned with metal brushes (manually or by cleaning machines) from dirt and rust to the 4th degree of purification according to GOST 9.402-80.

1.2. On the surface of the pipeline being repaired, it is allowed to have remnants of old bitumen insulation, which is difficult to remove, left in the pipe granulations.

1.3 The surface of the pipeline shall be free of sharp protrusions, burrs, scoring, metal splashes, flux, which shall be removed. The surface prepared for application of primer and insulation coating must be dry, with no moisture in the form of film, bubbles or ice and frost.

2. Preparation for applying the LIAM tape

2.1 Rolls of LIAM tape are supplied in plastic bags. Rolls should be unloaded before using them at the place of work.

3. Application of an insulating coating

3.1 After cleaning, the dry and clean surface of the pipeline is coated with asmol primer (the primer is delivered to the site in metal drums). When using an electromechanical insulating machine, the primer is applied by the machine itself and rubbed in with a towel. When using a manual machine, the primer is applied using rollers or brushes (it is allowed to use other methods that ensure high-quality application of the primer to the surface of the pipeline).

3.2 LIAM tape is applied to the **non-dried primed** surface.

3.3 LIAM tape as well as protective wraps are applied to the pipeline surface by insulating machines or manually with tape tension force of 1.0 -1.5 kgf per 1 cm of tape width in summer, 2.0 kgf per 1 cm of tape width in winter.

3.4 The temperature of the primer during application should be in the range from + 10 ° C to + 30 ° C, therefore, at temperatures below + 10 ° C, the primer should be kept for at least 48 hours in a room with a temperature not lower than + 15 ° C (but not higher than + 35 ° C) or heated with water or oil a bath with a temperature not higher than + 50 ° C.

3.5 The cleaned surface of the pipeline must be coated with a continuous uniform layer of primer. The primer should be thoroughly mixed before application, it should not contain clots and foreign inclusions.

3.6 The primer layer must be solid, even and free of clots, drips and bubbles.

3.7 LIAM tape should be applied to the pipeline surface with a bearing layer outwards (mastic layer inwards) in a spiral without warping, wrinkles, sagging, with overlap not less than 30 mm. Application of insulation with corrugations, distortions, wrinkles and sagging is unacceptable. 3.8 Wrap is applied on the surface of the applied LIAM tape with a half width of the tape plus the overlap.

3.9 When using an electromechanical insulating machine, the machine immediately applies a layer of primer to the pipeline, covers it with one layer of LIAM tape and applies a wrapping layer. Before starting work, adjust the tape tension and overlap (at least 30 mm).

3.10 When using a manual insulating machine, only a roll of LIAM tape is installed. Before applying the LIAM tape, a layer of primer is applied with a roller or brush (priming machines may be used) and the LIAM tape is applied spirally over the non-dried surface (after adjusting the tension force and overlap value). When the roll of LIAM tape is finished, the machine returns to the original position and is refilled with wrapping tape. A wrapping layer is applied for the second pass.

3.11 When installing a new roll of LIAM tape or wrapping, the end of the applied tape should be lifted by 25-30 cm and the beginning of the unrolled roll should be placed under it. These ends are smoothed on the surface to be insulated and then crumpled by hand until they are overlapped by the next turn of tape, with the LIAM tape overlapping the LIAM tape respectively, and the wrapper overlapping the wrapper.

3.12 The insulated pipeline may be left uncovered with soil for not more than 24 hours.

3.13 Quality control of coating according to GOST 51164.