TECHNOPOL SA
ENERGY SAVING MATERIALS

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INSTALLATION GUIDE

EPS Pipe Lagging

Pre-cut split EPS pipe insulation, made to order in bores 15NB-650NB and insulation-wall thicknesses of 20-150 mm, supplied bare as 2- or 3-piece sections at a standard 1220 mm length.

DOCUMENT	ISSUED	PRODUCT	STATUS
TP-IG-PIPE-LAGGING	2026-08-20	pipe-lagging	Issued for use

BEFORE YOU START

The pipe must be complete, pressure-tested and signed off BEFORE any lagging goes on. The shells are not made to come off and go back on, so a leak found afterwards means the run is scrapped. The pipe surface must be clean, dry and free of loose scale, weld spatter and standing water, and any specified corrosion protection or primer must be fully cured and EPS-compatible - an uncured solvent-based primer attacks the inside face of the shell. Measure the actual pipe outside diameter with callipers and check it against the schedule before opening a box: the shells are made to the nominal-bore outside-diameter table (15NB = 22 mm through 300NB = 324 mm) and copper, plastic and stainless pipe do not follow it. Store the shells flat, dry, out of direct sunlight, and well clear of solvents, fuels, bitumen and solvent-based adhesives on site.

TOOLS

- Tape measure and vernier or pipe callipers - to confirm the actual pipe o/d against the schedule
- Fine-tooth handsaw or a long sharp knife for cutting shells and mitres; a hot-wire cutter where one is available
- Mitre box or template for elbow and bend segments
- EPS-compatible, SOLVENT-FREE adhesive (two-part PU) and an applicator
- Foil / vapour-barrier tape with a solvent-free adhesive - not ordinary duct tape
- Vapour-barrier membrane or wrap, and vapour-tight EPS-compatible mastic - mandatory on cold and chilled work
- Banding or strapping and a tensioner, or plastic cable ties, per the mechanical specification
- Metal, foil or PVC jacketing and its fasteners for external and UV-exposed runs
- Rated load-bearing pipe-support inserts or saddles for every hanger, clamp and roller
- Sling psychrometer or hygrometer on cold work - to establish the actual site dew point rather than assuming it

SEQUENCE

1. Check the delivery against the schedule

Before anything is cut, check every line of the delivery: nominal bore, insulation wall thickness, EPS density grade, pieces per ring, and section length (standard 1220 mm). Offer one shell up to the pipe and confirm it seats without forcing and without a gap. The shells are brittle - reject crushed or chipped ends now, not once they are on the pipe.

> **CHECK BEFORE MOVING ON**
>
> - Measured pipe o/d matches the bore the shells were made to - callipers, not eyeball
> - Wall thickness matches the drawing, not 'near enough'
> - Pieces per ring are what the quotation says (2 or 3; more at the largest bores)
> - No crushed ends, no split shells, nothing wet
> - Material is dry and has not been stored beside solvents, fuel or bitumen

2. Confirm the pipe is finished and tested

Insulation goes on last. The line must be pressure-tested and the test signed off, the surface clean and dry, and any corrosion protection applied and fully cured. On a chilled or refrigerant line, take a dry-bulb and RH reading and work out the site dew point now - it is the number the whole cold installation lives or dies by.

> **CHECK BEFORE MOVING ON**
>
> - Pressure test complete and signed off
> - Pipe dry and clean; no standing water, no loose scale
> - Any primer or paint fully cured AND solvent-free - a wet solvent primer eats the shell from the inside
> - Site dew point measured and recorded on cold work

3. Set out the run; mark supports, valves and fittings

Walk the run before fitting anything. Mark every hanger, clamp, roller, valve, flange, tee, elbow, pump connection and wall or floor penetration. Each is a separate detail, and each is where the insulation - and on cold work the vapour barrier - fails if it is improvised at the last minute. Set the shells out so that end joints do not land on a support.

> **CHECK BEFORE MOVING ON**
>
> - Every support has a load-bearing insert or a saddle allocated to it (step 7)
> - Every valve, flange and elbow has a cut or preformed piece allocated to it
> - End joints planned to fall clear of supports and penetrations

4. Fit the shells

Open the split, seat the shell squarely on the pipe and close it. Butt the end joint of the next section tight against the last - a visible gap is a heat leak on a hot line and a condensation site on a cold one. Stagger the longitudinal seams: rotate each successive shell so the seams do not line up along the run, and keep them off the top of the pipe, which is where any water will find them. On a 3-piece set, close the pieces in turn and make sure the last one seats fully rather than being forced.

Where the shells are bonded, use only an EPS-compatible, solvent-free adhesive. Where they are banded, tension the band just enough to close the joint and no more - over-tensioned banding crushes the EPS and permanently loses the thickness the client paid for.

> **CHECK BEFORE MOVING ON**
>
> - No visible gap at any end joint - light should not pass through
> - Longitudinal seams staggered, not aligned, and not on the top of the pipe
> - Shell seats on the pipe without forcing and without rattling
> - Every adhesive, tape and mastic on the job is solvent-free - if it smells of solvent, it will dissolve the shell
> - Banding closes the joint without crushing the shell

5. Insulate the fittings - bends, valves, flanges, tees

A bare elbow or valve is not a small omission. On a cold line it is exactly where the condensation and the ice form; on a hot line it can be a disproportionate share of the total loss. Cut mitred segments from straight sections and build the bend up piece by piece, or order preformed fittings. Valves and flanges that must be maintained need a removable box or jacketed section - agree with the mechanical engineer which ones those are before you seal anything.

> **CHECK BEFORE MOVING ON**
>
> - No bend, tee, elbow, valve, flange or pump connection left bare
> - Mitred segments butt tight and are sealed like any other joint
> - Removable sections at maintainable valves, and their vapour barrier is re-sealable

6. Vapour barrier - mandatory on every below-ambient line

This step decides whether a chilled installation survives. Technopol supplies the shells bare: there is no facing and no vapour barrier in the box.

Apply a continuous vapour barrier over the OUTSIDE of the insulation - the warm side - lapped and sealed at every seam, and sealed BACK TO THE PIPE at every termination: at each end of run, and at both sides of every valve, flange, hanger and penetration. If the barrier is not sealed back to the pipe, vapour travels along the annulus under the insulation from the first open end and the whole run ices up from the inside.

Run the barrier continuously THROUGH supports - the support is the classic breach. Do not puncture it with fixings. Inspect it before it is clad, because once the jacket is on nobody will see it again.

> **CHECK BEFORE MOVING ON**
>
> - Barrier continuous - no unsealed seam, no unsealed penetration, no bare end
> - Barrier sealed BACK TO THE PIPE at EVERY termination
> - Barrier continuous through every support and hanger
> - No fixing driven through the barrier
> - Inspected and signed off BEFORE cladding goes on

7. Supports, hangers and clamps

The lagging is not a load-bearing component and must not carry pipe load. At every hanger, clamp, roller and saddle, provide a rated load-bearing insert or an external saddle designed by others, and pass the lagging - and the vapour barrier - around it without interruption. Do not clamp a pipe through an EPS shell: the shell crushes, the thickness is lost, a cold bridge forms, and on a cold line the vapour barrier is punctured at precisely the point where condensate collects.

> **CHECK BEFORE MOVING ON**
>
> - Every support has a load-bearing insert or a saddle - nothing clamped through bare EPS
> - Full insulation thickness maintained through the support
> - Vapour barrier unbroken through the support

8. Cladding and finish

Clad any run that is outdoors, in sunlight, in a plant room where it can be knocked, or anywhere exposed to cleaning chemicals, fuels or solvents. Bare EPS degrades under UV and is dissolved by hydrocarbons. Lap the cladding to shed water downwards, and fix it without driving screws through the vapour barrier. Finish with the pipework identification the mechanical specification requires.

> **CHECK BEFORE MOVING ON**
>
> - All external and UV-exposed runs are clad
> - Cladding laps shed water downwards
> - No cladding fastener penetrates the vapour barrier
> - Identification and labelling complete

9. Handover

Record what was actually installed: bore, wall thickness, density grade, and the vapour-barrier and cladding system used - the last two did not come from Technopol. State in the O&M file that the insulation carries no reaction-to-fire class, is not rated as a fire division, that EPS is combustible, and that the line must not be run above roughly 70 C. That one entry protects everybody the next time the plant is modified by somebody who was not there.

> **CHECK BEFORE MOVING ON**
>
> - As-installed schedule recorded: bore / wall / grade / vapour barrier / cladding
> - O&M file states: no fire class, not a fire division, combustible, keep the pipe surface below approximately 70 C
> - Any deviation from the schedule reported, not quietly absorbed

FIXINGS AND FASTENERS

Scope	**The product is supplied bare - shells only. Everything below is the site-applied kit the INSTALLER supplies, defined by the mechanical specification.**
Adhesive	**EPS-compatible, SOLVENT-FREE only (for example a two-part PU adhesive). Solvent-based adhesives dissolve EPS.**
Tape	**Foil / vapour-barrier tape with a solvent-free adhesive. Ordinary duct tape and solvent-bearing tapes attack the EPS along the tape line.**
Banding / strapping	**Non-metallic strap, cable ties or stainless band. Tension only enough to close the joint - over-tensioning crushes the shell and permanently loses thickness. Spacing per the mechanical specification.**
Vapour barrier (all below-ambient service)	**Continuous sealed membrane over the OUTSIDE of the shells, lapped and sealed at every joint and sealed back to the pipe at every termination, valve, hanger and end of run. Mandatory. Not supplied with the product.**
Vapour-tight mastic	**EPS-compatible, solvent-free. Used at every termination and penetration where the barrier seals down to the pipe.**
Cladding / jacket	**Metal, foil or PVC jacket on all external, UV-exposed, chemically-exposed or impact-prone runs. Fixed without penetrating the vapour barrier.**
Load-bearing support insert	**A rated insert or saddle at every hanger, clamp and roller, designed by others. The EPS shell is not a load-bearing component and must not carry pipe load.**

Never use	**Bitumen, coal-tar primer, solvent-based paint or mastic, hydrocarbon-bearing sealant, solvent-thinned coating, or any tape with a solvent adhesive. Every one of these dissolves EPS.**

WHAT ACTUALLY GOES WRONG ON SITE

- Ordering by nominal bore on non-steel pipe. Copper, plastic and stainless pipe do not follow the nominal-bore outside-diameter table (15NB = 22 mm, 25NB = 34 mm, 100NB = 115 mm, 300NB = 324 mm). Measure the actual o/d and order to that, or the shells will not seat.
- Lagging before the pressure test. The shells are not made to come off and go back on. One leak and the run is scrapped.
- Leaving the vapour barrier off a chilled line because the run is indoors. Vapour pressure does not care that the plant room feels dry today. This is the single most common cause of failure with EPS lagging: the line ices up inside the insulation, the insulation quietly stops working, and the pipe corrodes underneath where nobody looks.
- Failing to seal the vapour barrier back to the pipe at the ends of the run and at every valve, flange and hanger. A perfect barrier with one open end is not a barrier - vapour tracks straight along the annulus under the insulation.
- Lining every longitudinal seam up along the top of the pipe. Stagger them, and keep them off the top face.
- Using duct tape or a solvent-based mastic 'just to hold it'. The solvent dissolves the EPS under the tape and the shell collapses inside the finished jacket, where you will never see it.
- Clamping the pipe support directly through the lagging. It crushes the EPS, loses the thickness, forms a cold bridge and punctures the vapour barrier - all at the same point.
- Leaving bends, elbows, tees, valves and flanges bare because 'the fittings will be done later'. They rarely are, and they are precisely where condensation and ice appear.
- Leaving EPS exposed outdoors and unclad over a season. UV degrades it and it does not recover.
- Putting it on a hot line because it was cheaper. Above roughly 70-80 C the EPS softens, creeps, shrinks off the pipe and collapses. Keep the pipe surface below about 70 C.
- Assuming the shells are a fire-retardant grade. Standard EPS pipe lagging carries no reaction-to-fire class and is not rated as a fire division. If the fire officer asks, the answer is none.
- Cutting sections short to save money. Anything between 610 and 1220 mm is invoiced at the 1220 mm price anyway.

How to read this document. Where a figure is load-bearing in your design, confirm it for the material actually supplied — on any load-bearing application, by testing the product delivered to your site. That is the right way to buy from anybody, including us.