



INSTRUCTIONS FOR USE DOCUMENT

STRUCTURAL IN-SITU LINING OF WASTE WATER PIPES WITH ACOTHANE WASTESEAL

Coating System Acothane Wasteseal (Formally Corroless ACO Wasteseal)

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p1 of 7

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INDEX

1. Product description

- 1.1 General
- 1.2 Appearance
- 1.3 Packaging

2. Product use

3. Product application

- 3.1 General
- 3.2 Surface preparation and cleaning
- 3.3 Environmental conditions
- 3.4 Equipment requirements
- 3.5 Product mix ratio
- 3.6 Lining Thickness
- 3.7 Pre and post lining operations
- 3.8 Cure time

4. Return to service

- 4.1 Visual check

5. Product storage

6. Disposal of waste and spillage

7. Appendix 1



1. Product description

1.1 General

Acothane Wasteseal is a solvent free two component, liquid applied hybrid polyurethane coating containing structural fibre reinforcement.

1.2 Appearance

Part A Component: Dark Grey thixotropic liquid

Part B Component: Dark amber thixotropic coloured liquid

Mixed Material: Dark Grey

1.3 Packaging

Part A Base Component, supplied in a range of convenient pack sizes to suit specific supply requirements.

Part B Activator component, supplied in a range of convenient pack sizes to suit specific supply requirements

2. Product use

Acothane Wasteseal is designed for in-situ application to the internal surfaces of waste water pipes, of internal diameters from 3”(76mm) to 1M, that carry waste water. It has been specifically formulated for application using suitably designed internal pipe coating machines.

3. Product application

3.1 General

All contractors must be licenced by Acothane UK Limited and apply the lining in accordance with the Acothane UK Limited Operational Requirements. All application procedures comply with the requirements of the Water Industry Information and Guidance Note IGN 4-02-05 "Code of Practice: In-situ Polymeric lining of sewer Pipelines" and the Water Industry Specification WIS 4-02-04 "Operational Requirements: In-situ Polymeric lining of Sewer Pipelines" regarding materials, lining planning preparation, pipeline cleaning, application of lining, curing and quality control procedures.

3.2 Surface preparation/mains cleaning

The main should be suitably cleaned to remove all loose or adhered deposits resulting from corrosion and mains deterioration processes. A number of cleaning techniques are suitable, depending upon pipe diameter. These include power boring, drag scraping, abrasive pigging, pressure scraping, pressure jetting and vortex of air technique. Details of these are contained within the Code of Practice for In-Situ Polymeric Lining of Sewer Pipelines (IGN 4-02-05).

The choice of cleaning method is at the discretion of the water supplier and/or the contractor as defined in the contract documents, however irrespective of the cleaning method adopted the surface of the pipe shall be dry and free from dust or other particulate matter.

NB: Compressed air utilised for the propulsion of foam swabs should be dry (see 3.3) and free from oil or other contaminants.

3.3 Environmental conditions

Acothane Wasteseal should not be applied when substrate temperatures are below 3°C. In addition, the substrate temperature should be minimally 3°C above the dew point of the atmosphere within the pipe and the Relative Humidity should be below 80% at the time of application. This requirement can be achieved via two methods:

- a) The use of a forced air vortex cleaning technique which elevates the temperature of the pipe wall and reduces the RH within the pipe.
- b) The use of a positive pressure of dry air which changes the atmosphere within the pipe. Suitably dry air has a dew point of minus 20°C or lower (equivalent to a maximum moisture content of 1,000 ppm).

3.4 Lining rig requirements

Suitably specified lining equipment must be fitted with flow meters with subsidiary pressure monitors and must be capable of dispensing and monitoring the Part A (Base) and Part B (Activator) components within $\pm 5\%$ of the specified mix ratio. The equipment must be fitted with an audible alarm, which is activated when the mix ratio departs from $\pm 5\%$ of that specified. Equipment should be fitted with an appropriate mixer tube.

Lining equipment shall be capable of individually heating both Part A (Base) and Part B (Activator) components so that the material temperature at the application head is 60-80°C. In order to facilitate this, lining rigs shall be equipped with heated "umbilical" delivery hoses. Material temperatures in the lining rig shall not exceed 80°C.

The resin storage tanks should be equipped with suitable stirrer/agitator blades such that full material movement is maintained during the heating and conditioning phase. The tanks should be blanketed with either nitrogen or dry air (see 3.3).

Lining equipment shall provide a continuous record (display and hard copy) of minimally the following:

- Volume and flow rate of material delivered to the application head

- Mix ratio by volume

- Pressures in both Part A (Base) and Part B (Activator) hose lines

- Lining thickness

- Elapsed time from start of lining

- Date and real time

The compressed air feeding the lining head should be dry (see 3.3) and free from oil or other contaminants. In cases where the lining application head is 'skid mounted', an 'Intermediate' hose support assembly should be employed.

3.5 Product mix ratio

By volume 4:1 (Part A : Part B)

By weight 100: 20 (Part A : Part B)

3.6 Lining thickness

Linings up to a maximum of 3.0 mm thickness should be applied via a single pass operation. Linings greater than 3.0 mm target thickness should be applied via a dual pass operation comprising two approximately equal thickness linings, with neither of the individual linings exceeding 3.0 mm thickness.

3.7 Pre and post lining operations

Prior to commencement of lining, the appropriate spin-up time must be allowed to elapse in order to attain steady state conditions. The minimum spin-up time for a particular lining rig shall be in accordance with the equipment manufacturer's recommendations.

On completion of the lining operation, the spinner head should be cleaned by flushing with Xylene. The solvent flush hose shall only be connected to the manifold after completion of the lining operation and shall be disconnected immediately after cleaning. The spinner head should be enclosed within a suitable receptacle at all times during the cleaning process. All solvent washings should be removed from site by the contractor for subsequent disposal as hazardous waste.

Determination of spin-up time

The spin-up procedure is designed to identify the time required for a specific rig/material combination to achieve steady state conditions i.e. the transient period of time during which material passing through the static mixer is not at the correct ratio. The procedure detailed below should be followed.

Procedure

Mixed material should be spread applied at 2-3mm thickness onto test plates, at 10 second intervals, for 30 seconds, after the minimum 60 second spin up time, and allowed to cure/dry for 1 hour before carrying out a hardness check to ensure that the minimum hardness reading is achieved, <50 Shore D @ 20C, and that full cure is being achieved.

However, irrespective of the time taken to achieve steady state conditions, the minimum spin-up time shall not be less than 60 seconds.

3.8 Cure time

The coating shall be allowed to cure for a minimum period of 1 hour after application of the final coating layer and completion of lining, 1 hour before the application of subsequent coats, if required.

A period of 1 hour should also be allowed before carrying out a camera survey.

4. Return to service

4.1 Visual check

After 1 hour or the minimum cure period, following CCTV checking, the pipeline can be returned to service.

5 Product storage.

Acothane Wasteseal should be stored in the original sealed containers at temperatures between 5°C and 32°C. Product should be used within 24 months of the date of manufacture

6. Disposal of waste and spillage

The unreacted Part A and Part B components constitute hazardous waste and should be dealt with accordingly. Full details are given in the respective Material Safety Data Sheets

Appendix 1

Mix ratio	By volume 4:1 (Part A : Part B) By weight 100: 20.0 (Part A : Part B)
Colour	Pack A Dark Grey Pack B Dark Amber Mixed material Dark Grey
Specific gravity at 20°C	Pack A 1.55 Pack B 1.23
Application temperature	+3°C and greater dew point ...
Lining rig temperature	60°C – 80°C
Heated umbilical hose	Required.
In line static mixer	Approved types:- 32 element
Lining application heads	Recommended types for normal applications.
Nitrogen/dry gas blanketing of materials in rig storage tanks	Pack 'A' - recommended Pack 'B' – required
Pot life at 20°C	90 – 120seconds
Coating properties	Ready to CCTV 60 minutes minimum Recoat/repairable 60 minutes minimum
Cure time at minimum substrate temperature	Recommission 1 hour minimum
Shelf life	'A' Component – 24 months from date of manufacture 'B' Component – 24 months from date of manufacture Products shall be stored in dry conditions where the temperature range of 5°C to 32°C can be achieved. Keep in the original sealed containers until required for use.
Pack sizes	Pack 'A' 160L Pack 'B' 160L
Disinfection levels	N/A