Tanalith™ E

WOOD PRESERVATIVE

General Information Relating to Environmental Permit Applications for TANALITH E

The following information is intended as a general guide for Lonza Wood Protection customers to prepare and support environmental permit applications in relation to the use of TANALITH E wood preservative within their timber treatment operations. It is the customer's responsibility to prepare these applications and detailed guidance and advice may be needed from industry consultants.

1| DRAWINGS

Drawings that are usually required for permit applications are as follows:

a. Overall site plan showing building to house the treatment plant. Customer to provide.

b. Plant layout with storages and timber holding areas and kerbed containment areas. Lonza to provide any drawings for new plant, customer to provide drawings for existing plant.

c. Site drainage plan showing drains in and around the treatment plant area.

Customer to provide and may require a survey to be completed to produce a drawing.

2| TREATMENT PROCESS

Overview

TANALITH E pressure treated timber is timber which has been high pressure impregnated with TANALITH E wood preservative under controlled conditions in a vacuum pressure timber impregnation plant. A typical treatment facility will consist of a high pressure treatment vessel and storage tanks for TANALITH E and water with associated mixing systems.

TANALITH E is a waterbased wood preservative that contains copper and organic biocides (triazoles). When impregnated into the timber the preservative components bond with the wood structure and cannot easily be removed.

TANALITH E pressure treated timber gives long term protection against fungal and insect attack, including termites, for both in and out of ground contact, interior and exterior applications.

Following are the basic treatment process stages and emissions from each stage:

i. Timber is loaded onto bogies ready for loading into the treatment vessel.

ii. The bogie is loaded into the vessel and the autoclave door is closed and locked.

iii. Once the treatment vessel is confirmed lock and other pre-checks completed an initial vacuum in the treatment vessel is created. Most plants use a liquid ring vacuum pump so emissions from the vacuum pump outlet will be air and water vapour. Emission monitoring shows negligible release of other components.

iv. The treatment vessel is flooded with TANALITH E preservative whilst still under vacuum.

v. Application of hydraulic pressure within the treatment vessel forces TANALITH E preservative into the timber cell structure.

vi. Pressure is released and TANALITH E preservative is pumped back to the storage. Air will be displaced from the storage tank as the preservative is returned.

vii. A final vacuum is then applied to remove excess TANALITH E preservative from the timber. Emissions will be air and water vapour. Emission monitoring shows negligible release of other components.

viii. Vacuum is released and recovered TANALITH E preservative is pumped back to storage.

ix. Treated timber is removed from the treatment vessel and stored in the timber holding area until drip dry. Any dripping of preservative is recovered back to the treatment plant.

3| RELEASE POINTS TO AIR, LAND AND WATER

Air

TANALITH E wood preservative is typically used as a 3% w/v working solution in water. The high percentage of water combined with the special formulation of the TANALITH E product means that releases to atmosphere are negligible.

TANALITH E does contain a constituent, monoethanolamine (MEA), which as a pure component is classified as a VOC. However, the component is chemically bound within the formulation and also within the structure of the treated timber so is not a cause for concern in terms of atmospheric emissions.

A Lonza document **11 12 12 MEA emissions.pdf** covers all of the above but confidential to Lonza Wood Protection as it contains commercially sensitive information about the product formulation but explains how the MEA is complexed and bound within the product and also the treated timber.
A copy can be provided with the application **ONLY IF** this information is not placed on the public register.

Point releases

The main release point is the vacuum pump(s) exhaust, giving displacement of air with an initial high flow rate from the treatment vessel containing some water vapour and trace amounts of product components. Atmospheric monitoring on treatment plant installations has shown negligible emissions.

Preservative storage tanks on filling

Displacement of air. Atmospheric monitoring on treatment plant installations has shown negligible emissions.

Fugitive emissions from treated timber packs during drying.

Atmospheric monitoring above packs showed negligible emissions.

Land

Any TANALITH E preservative packaging or waste treated timber disposed of through approved outlets.

Concentrated TANALITH E product is provided by Lonza Wood Protection either by controlled bulk tanker deliveries straight into site bunded storage tank or by intermediate bulk containers (IBCs) produced by Schutz who operate a collection service for empty IBCs for later re-use or recycling therefore reducing any environmental impact for packaged products.

Water

Timber treatment operations are designed on the basis of total containment. A typical TANALITH E treatment facility will consist of a high pressure treatment vessel and storage tanks for TANALITH E and water plus associated mixing systems. The treatment and storage of tanks for TANALITH E are all contained within a bunded area.

The kerbed plant area is designed to ensure any preservative dripping from the treatment process or from freshly treated timber is safely contained and then recovered back in to the process.

Timber is stored within the treatment plant building until drip free and safe to remove to final storage and holding prior to sale.

4| PLANT DESIGN FOR MINIMISING ENVIRONMENTAL IMPACT AND ENSURING SAFE OPERATION

Electricity usage

Generally treatment plants are fitted with pumps utilising the latest motor types to ensure maximum efficiency. The plant is controlled so that pumps only run when required and once a set point is reached the pump is stopped and only starts again as required to get the process back to set point. This applies to the vacuum and pressure pumps in particular.

Water recovery (where applicable)

Treatment facilities can be designed with water storage tanks that will harvest rain water from the building roof and store this ready for use in mixing up the dilute preservative for use in the treatment process. A town's water top up is usually available and this can be controlled via the Lonza Auto-Treater control system to ensure there is always a minimum amount of water available for operation whilst maximising the available volume for rain water collection and use. This approach minimises the use of town's water and in high rainfall periods it is unlikely any town's water will be used.

Efficient preservative

TANALITH E preservative is one of the most effective and efficient products on the UK market for wood preservation. Its efficacy is such that product retentions are low and therefore the amount of product required to be impregnated in to the wood is also minimised. This has the added advantage of reducing processing times and therefore electricity consumption. Use of Auto-treater control system also optimises the amount of preservative injected in to the timbers which also helps to reduce post treatment dripping.

Tilting (if applicable)

Treatment vessels can be designed with a tilting facility which is activated on final vacuum and allows excess preservative to run off the timbers in the vessel during final vacuum and be recovered back to the work tank. This helps to minimise post treatment dripping in the timber holding area for recovery back to the plant.

Door Safety (if applicable)

Treatment plant door can be hydraulically operated to unlock/lock and open / close therefore removing the need for manual handling and risk of injury. The door is operated from a local operator control panel and the operator has to be in full attendance as all switches are of a "Dead-Mans" switch type to ensure the operator has to be in attendance for the system to operate.

The system ensures operator safety as the door hydraulics will not operate unless the vessel empty signal has been activated and the control system has also cross checked the storage tank level is back above expected levels before allowing the operator to open it. The first step in the opening sequence is to open the "low level test cock device" which also shows if the treatment vessel is empty as a further check before the door is opened.

Doors are fitted with safety devices recommended in the Wood Protection Association CoP for Timber Treatment installations, including an anti-burst device to hold the vessel door if hydraulically full of liquid.

Auto-Treater Safety (If applicable)

Auto-Treater, Lonza Wood Protection's, timber treatment and management control system for the timber treatment plant closely monitors the operation of the plant and should a deviation occur the system will shut the plant down and go into alarm mode. Once in an alarm mode the plant will not restart without operator intervention to investigate the problem, clear the alarm and then restart the process once satisfied it is fine to do so.

5| BUILDING DESIGN FOR MINIMISING ENVIRONMENTAL IMPACT AND ENSURING SAFE OPERATION

Timber treatment facilities are usually housed within a designated building with an appropriate bund area for the safe containment of all fluids.

Freshly treated timbers will be stored within the building until drip free, typically 24-48 hours, and the floors are designed with falls to direct any product dripping back to specially constructed channels (if applicable) that will take any preservative back to a point where it can be recovered back in to the process and re-used.

6| RELEASE MONITORING

There should be no requirement for release monitoring to air, and is not undertaken at any timber treatment sites in the UK. The dilute water based preservative in use does not pose a risk to the environment in terms of atmospheric release.

There should be no releases to water or land as treatment plant operations are designed by Lonza Wood Protection on a total containment basis.

7| PRODUCTION CAPACITY

To establish an annual production capacity for your timber treatment operation you will need to determine the following information:

Number of charges each day allowing for cycle times and change over times and the normal working hours each day (A)

Number of working days in each year (B)

The maximum charge volume for your plant in cubic metres (rule of thumb for a 2m diameter vessel is vessel length gives an equivalent max charge volume in cubic metres) (C)

The annual production (cubic metres) of each treatment plant would then be A x B x C.

An example is as follows:

Normal Working hours: 08:00 - 17:00

Average cycle plus timber change over times means that 3-4 charges per day will be typical in the above working day.

250 working days a year.

The maximum charge volume for a 2m diameter x 12.5m long treatment vessel will be approximately 12m³.

Therefore production of 48m³/day or approx. 12,000m³/yr at 250 days running time will be possible.

8| SUPPORTING INFORMATION

You may wish to supply other supporting information with the application such as:

Site specific planning restrictions.

Site specific work practices.

Proximity to local water sources or SSSi (Site of Special Scientific Interest) sites.

Lonza Information Sheet No.2 - Information on the High Pressure Treatment Process for TANALITH E Wood Preservative.

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Lonza Wood Protection is a business of Arch Timber Protection, a Lonza company.