

CHAPTER 4 - PRE-TREATMENT SYSTEMS

Osmose produce a range of high and low pressure treatment systems. This section covers the system(s) for your site only. Cross-reference to Chapter 3 Treatment Standards is necessary and reference to this will be made.

Each System to include where appropriate:

- (i) Preservative Description
- (ii) Ancillary Range
- (iii) Application Method
- (iv) Preparing Treatment Solution
- (v) Checking Solution Strength
- (vi) Treatment Cycles
- (vii) Uptakes
- (viii) Treatment Records
- (ix) Treated Timber – Important User Information
- (x) Technical Data Sheets

MICRO-EMULSION PRESERVATIVES

(i) Preservative Description

Osmose manufacture a range of micro-emulsion preservatives. They are water-based and are intended for use on timbers above the damp proof course level. They are highly effective against wood boring insects and wet and dry rot fungi. Although they are water based, the amount of movement in the timber during treatment is minimal, normally preservative uptake is limited to the outer 3 mm of the wood, only. Whenever the surfaces of wood become wet with water there is always the risk of a small amount of grain raising, and this may become evident if the treated timber is subsequently painted. Optimised formulations of the micro-emulsion range are available to minimise this effect. The preservative is ideally suited to the treatment of general constructional timbers, ie Use Class 1 and 2, and Use Class 3 using the optimised formulations.

More detailed information on your product is given on the technical data sheet. This can be found at the end of this section, should it be missing please request a copy from Osmose.

Micro-emulsions are manufactured to conform to the European Standard BS EN 599-1 1997 Performance of preventive wood preservatives as determined by biological tests.

(ii) Ancillary Range

Colour

Colour tints can be added to give timber an indication of treatment. Advice must be sort from Osmose if this timber is to be over painted.

Antifoam

Antifoam may be required in some plants to reduce foaming of the preservative as it is transferred from vessel to vessel. Where possible this will be engineered out in preference to using antifoam

(iii) Application Method

The following explains the common application process for micro-emulsion preservatives. It is generally referred to as a double vacuum or vacuum low pressure process. The process is carried out in specially constructed automatic plant.

There are six main stages to the treatment process.

Initial Vacuum

The timber is loaded into the treatment vessel (TV) and the door is closed and safely locked. The Initial Vacuum is used to take air out of the timber. The length of this vacuum period and the level which is used will vary according to the specification being followed and will affect how much air is removed from the timber. This in turn affects the final uptake and penetration of preservative. One point to note is that water cannot be removed at this stage, so a long Initial Vacuum is not a substitute for drying the timber properly.

Flooding

Preservative solution is transferred from the Operational Storage Vessel (OSV) to the treatment vessel once the Initial Vacuum period has finished. The vacuum is maintained during transfer so that its effect is not wasted.

Pressure Period

Once the treatment vessel is full the vacuum is released. Two alternative treatments may then be followed.

◆ Double Vacuum Process

The treatment vessel is returned to atmospheric pressure. This increase in pressure forces the preservative into the cells of the timber from which, under the vacuum, air has been extracted. This process gives good penetration into permeable wood, such as Redwood, or can be used where shallow penetration into more resistant timbers such as Whitewood is acceptable.

◆ Low Pressure Process

Here a pressure of 15 psi (or + 1 bar) is created in the treatment vessel as more preservative is actively pumped from storage. This process is designed to provide the required penetration into the more resistant timbers or produce higher loadings in permeable timbers which may later be exposed to a high decay hazard. A choice must be made concerning how long pressure is held, as required by the specification.

Initial Drain

At the end of the pressure period the pressure is released and the preservative transferred back to the OSV.

Final Vacuum

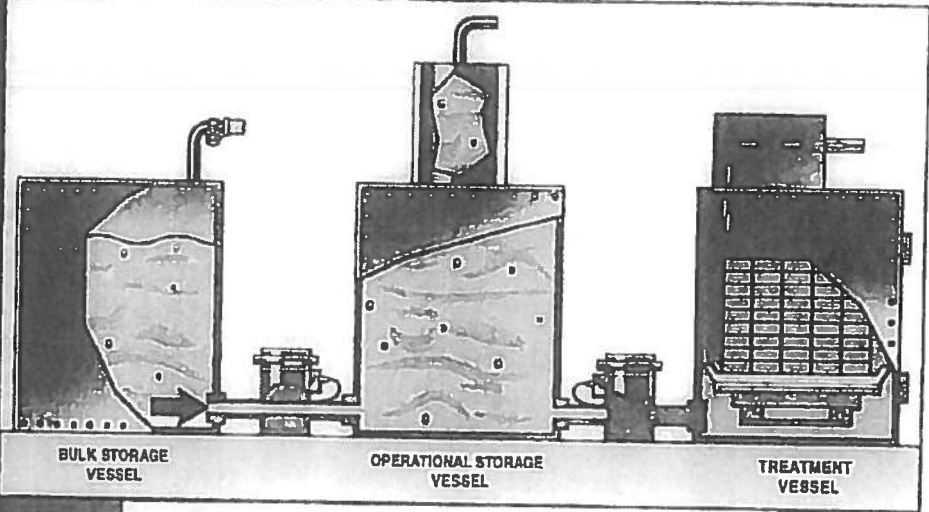
A Final Vacuum is applied to the timber both to remove any excess of preservative from the surface layers of the wood and to reduce dripping of the treated timber at the end of the process. As the vacuum is released, air rushes back into the treatment vessel and into the surface cells of the wood, carrying with it some of the residual preservative fluid on the wood surface, sloping the wood on the trolley will also help some of the residual preservative to be blown off the wood and back into the vessel.

Final Drain

During the final vacuum period, preservative still dripping from the timber is collected and pumped back to the OSV. This draining of the treatment vessel will continue until no significant quantities of free preservative fluid remain. Following the purging of the treatment vessel, the door may then be opened and the treated timber removed. The OSV will be topped up from the Bulk Storage Vessel (BSV) before the start of the next charge.

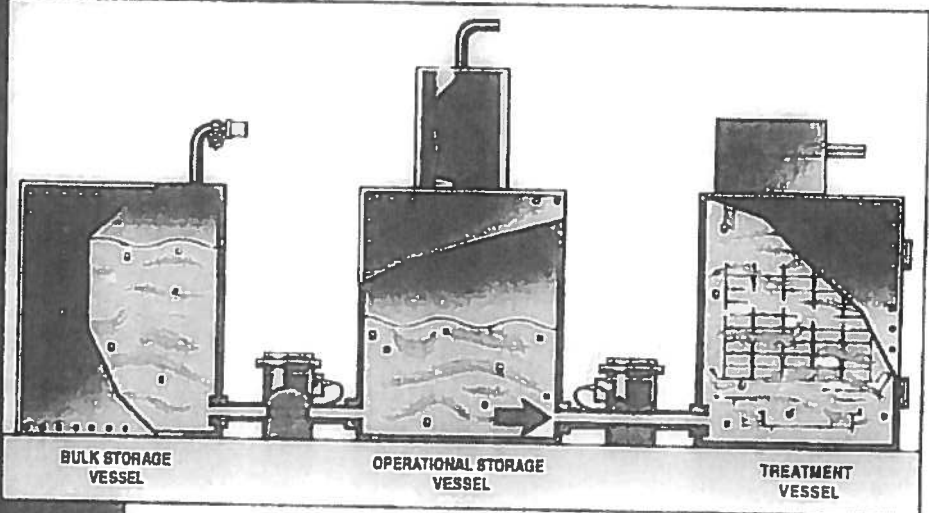
1) Process Start/Initial Vacuum

1



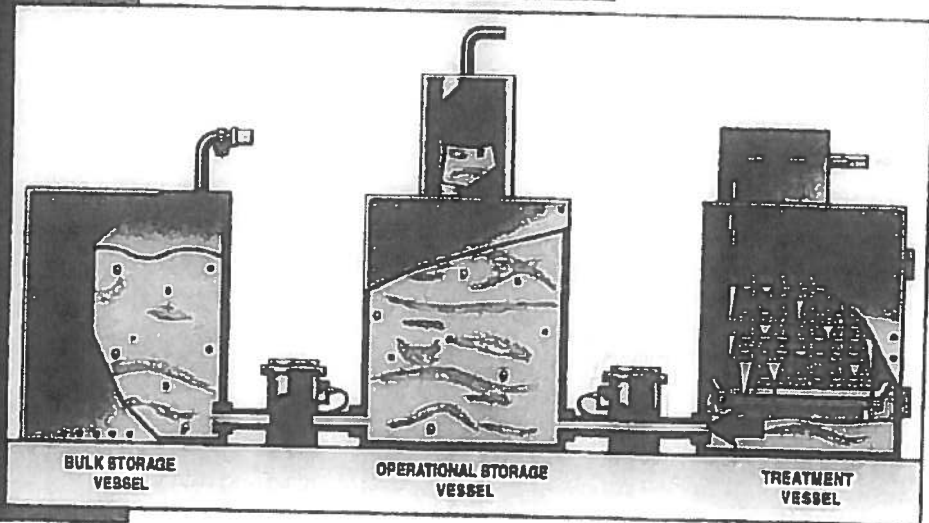
2) Flooding/Pressure

2



3) Drain/Final Vacuum/Process End

3



(iv) Preparing Treatment Solution

All Osmose's micro-emulsions are supplied ready to use, no mixing or dilution is necessary. The preservative is delivered by bulk tanker directly into the Bulk Storage Vessel (BSV), thus minimising both operator exposure and possible loss to the environment. Detailed off loading procedures are given in Chapter 6(i) Receipt of Bulk Preservative Deliveries.

Adding Antifoam

The application rate will vary from plant to plant and advice will be given on a site specific basis

(v) Checking Solution Strength

All Osmose's micro-emulsions are manufactured in accordance with BS EN 9001 quality management system, and as explained above no further blending of the product occurs. It is therefore not necessary for site operators to check the solution strength. Osmose do carry out their own routine quality check on preservative from customers plants.

(vi) Treatment Cycles

BS 8417 requires timber to be treated to achieve a level of penetration and retention according to the Use Class. A particular service life may also be required. Please see Chapter 3 Treatment Standards for more information. Osmose will provide a series of recommendations for each product group. These recommendations will take the form of suggested treatment cycles for a particular Use Class and timber species.

Customers using these products may have to demonstrate that the timber process carried out actually achieved the required chemical retention and penetration. Osmose can assist with this by carrying out the complex analysis to demonstrate compliance. The treatment recommendations for these products are given on the following pages through a series of information sheets, should your product not be included please contact Osmose.

Below is a table of standard treatment cycles for the application of micro-emulsions. These can be adjusted up or down to achieve the desired retention.

| CYCLE | INITIAL VACUUM | | PRESSURE | | FINAL VACUUM | |
|--------------------------------------------------------------------------------------------------------------|----------------|----------|-------------|----------|--------------|----------|
| | Level | Duration | Level | Duration | Level | Duration |
| | mm mercury | minutes | psi | minutes | mm mercury | minutes |
| A | 250 | 3 | Atmospheric | 3 | 625 | 20 |
| B | 250 | 5 | 15 | 5 | 625 | 20 |
| E | 125 | 10 | 15 | 40 | 625 | 20 |
| F | 550 | 3 | Atmospheric | 3 | 625 | 20 |
| APPROXIMATE CONVERSION: 1 bar = 15 psi = 1 Kg/cm ² - 30 in. mercury = 765mm mercury = 100 kPa. | | | | | | |



Information Sheet: IS/60

TREATMENT CYCLES FOR THE APPLICATION OF PROTIM E406 and E415

The UK timber treatment industry has for many years worked with a suite of British Standards for the application of preservatives. These Standards contain "process" specifications for treatment, detailing treatment cycles with process parameters matched to different timber species and end uses.

European Standards (or Norms, coded in the UK as BS ENs) have recently been developed which specify the desired end result of the treatment rather than the process needed to achieve it. They do not set treatment criteria for specific timber commodities but instead relate the end result to the Use Class in which the timber will be used (ie the risk of fungal decay in use).

Treatment criteria are clarified for the UK market in the new British Standard BS 8417:2011 Preservation of wood - Code of practice.

In developing new preservative formulations, Koppers have therefore designed treatment cycles which will achieve the desired end result appropriate to each product.

Protim[®] E406, and E415 are micro-emulsion water-based wood preservatives for the treatment of constructional timber components above damp-proof course (DPC) level. These components would normally fall into Use Classes 1, 2 and 3. Components in UC3 are also required to be coated.

Use Class

To determine the treatment cycle required to achieve the desired uptake and penetration, the Use Class of the timber commodity must first be determined.

| Use Class | Principal Biological Agency | Examples |
|-----------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Insects | Internal, with no risk of wetting, eg: All Pitched Roof Timbers except Tiling Battens and Valley Gutter Members. Floorboards, Architraves, Internal Joinery, Skirtings All Timbers in Upper Floors not built into solid external walls. |
| 2 | Fungi (plus insects in certain examples) | Internal, with risk of wetting, eg: Tiling Battens Timbers in Pitched Roofs with high condensation risk Timber Frame Panels Timber in Flat Roofs Ground Floor Joists Sole Plates (above DPC) See Treatment Cycle guidance overleaf Timber Joists in Upper Floors built into external walls. |
| 3 | Fungi | External, above damp-proof course (DPC), eg: Roof Soffits and Fascias, Bargeboards Cladding. Valley Gutter Timber |



Treatment Cycle

Once the Use Class is determined, select the following treatment cycle.

| Use Class | Cycle |
|-----------|------------------------------|
| 1 | A |
| 2 | F |
| 3 | B (Redwood) E (Whitewood) |

Soleplates are at greater risk of wetting so the decay hazard is higher than for other components in Use Class 2. For this end use the preservative retention should be derived from Use Class 3. Alternatively, to help differentiate this material, Koppers Celcure products, which are green in colour, may be used.

Processors may need to demonstrate that the process used achieves, on average, the required loading and penetration specified. Koppers will assist customers in fulfilling this requirement.

Cycle Settings

| Protim Cycle Designation | Initial Vacuum | | Pressure | | Final Vacuum | |
|--------------------------|---------------------|---------------------|--------------|---------------------|---------------------|---------------------|
| | Level mm mercury | Duration minutes | Level psi | Duration minutes | Level mm mercury | Duration minutes |
| A | 250 | 3 | Atmospheric | 3 | 625 | 20 |
| B | 250 | 5 | 15 | 5 | 625 | 20 |
| E | 125 | 10 | 15 | 40 | 625 | 20 |
| F | 550 | 3 | Atmospheric | 3 | 625 | 20 |

APPROXIMATE CONVERSIONS 1 bar = 15 psi = 1Kg/cm² = 30 in. mercury = 765mm mercury = 100kPa

ADDITIONAL INFORMATION

Koppers Performance Chemicals provides a range of products and technologies for the treatment, protection and enhancement of timber. Information and advice is available on all aspects of our products from the Technical Services Department.

For more information visit www.kopperspc.eu

Or contact: kpc@koppers.eu
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(vii) Uptakes

The following table gives anticipated uptakes when treating 35 – 38 mm planed Whitewood.

| USE CLASS | CYCLE | UPTAKE LITRES/m ³ |
|-----------|-------|------------------------------|
| 1 | A | 10 - 12 |
| 2 | F | 12 - 14 |
| 3 | E | 18 - 22 |

For information on other section sizes please contact your area manager. In principle when the section size increases the uptake will go down. When treating Redwood, uptakes will be more variable due to different proportions of sapwood and heartwood present, and if used for joinery different section profiles will also affect uptakes

Treatment Records

In order to maintain control of your treatment operation you should keep accurate records of what you do.

Completed charge sheets will help Osmose Service and Engineering Staff to diagnose any treatment problems you may have and, of course, can be used (in conjunction with Treatment Certificates) to assure your customers of the quality of the treatment carried out. Finally, accurate records enable your company to calculate the cost of the treatment process over a period of time and so charge a realistic rate for the service.

Treatment Charge Sheet

Each sheet is individually numbered so that it may easily be traced. Complete a sheet for each charge, as shown below.

Before Starting The Treatment Process

- ◆ Enter the name of your company and the date, where shown.
- ◆ Record the type of preservative treatment to be applied and the Use Class.
- ◆ Record the details of the timber to be treated. This includes:
 - Customer name or internal job number.
 - Description (ie planed or sawn).
 - Timber species, or commercial mixture (eg SPF or Hem-fir).
 - Sizes (cross section) of timber - full details are not needed for complex mouldings
 - Moisture Content - this should be tested before the timber is loaded for treatment using an electrical moisture meter.
 - Volume, measured in cubic metres.
- ◆ Record the Treatment Cycle to be used. This may have been specified to you or you may have established it yourself as described earlier.
- ◆ Once the timber is safely loaded the process can now begin.

Following The Treatment Process

- ◆ Where appropriate, enter the total absorption gauge reading in the box at the bottom of the sheet. (Precise absorption values may not be easy to establish per charge and may only be realistically determined over a longer period).

The total absorption gauge reading after the first charge of the day can be less than the actual usage (on the BSV). This is due to slight gauge variations caused by temperature fluctuations, fluid aeration, etc on that first charge.

- ◆ Retain the charge sheet for your records

(See overleaf for completed example).

Treatment Certificate

Treatment certificates are used to certify that timber has been treated to the required specification. The certificate should be completed using information from the relevant charge sheet and the example shown is based on the charge sheet, overleaf.

- ◆ Complete the certificate as follows:
- ◆ Enter your company name and address on the certificate.
- ◆ Enter the date of issue on both the certificate and stub. Add your customers name to the stub.
- ◆ Enter the treatment schedule and Osrose preservative used on both the stub and certificate, as shown.
- ◆ Number the certificate and record the number on the stub
- ◆ Finally, record the charge sheet number on the certificate and stub. This will make it possible to trace the treatment detail if requested. Where appropriate, enter the delivery note number on the certificate

You must not complete a treatment certificate if the treatment carried out did not conform to the required specification.

PROTIM SOLUTIONS Osmose
TIMBER TREATMENTS

Customer: *W. T. Hunt* Job No.: *1520*

Process: *Am L.E.L.S. Timber Charge* Charge: *530902*

Preservative: *E 415* Solution Strength: *(value obscured)*

Treatment Cycle: *F* Date: *7-1-02*

| Customer | Job No. | Process | Charge | Preservative | Solution Strength | Date | Treatment Cycle |
|-------------------|-------------|----------------------------------|---------------|--------------|-------------------------|---------------|-----------------|
| <i>W. T. Hunt</i> | <i>1520</i> | <i>Am L.E.L.S. Timber Charge</i> | <i>530902</i> | <i>E 415</i> | <i>(value obscured)</i> | <i>7-1-02</i> | <i>F</i> |

PROTIM SOLUTIONS Osmose
TIMBER TREATMENTS

Customer: *W. T. Hunt* Job No.: *1520*

Process: *Am L.E.L.S. Timber Charge* Charge: *530902*

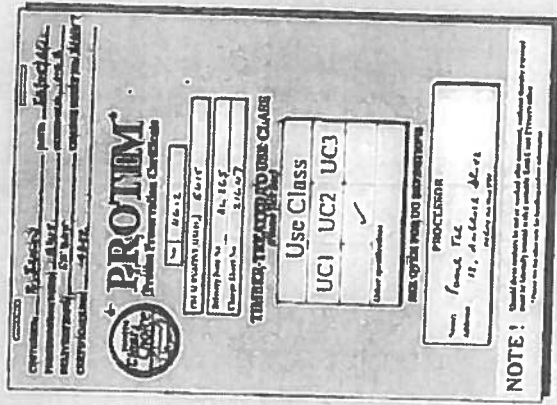
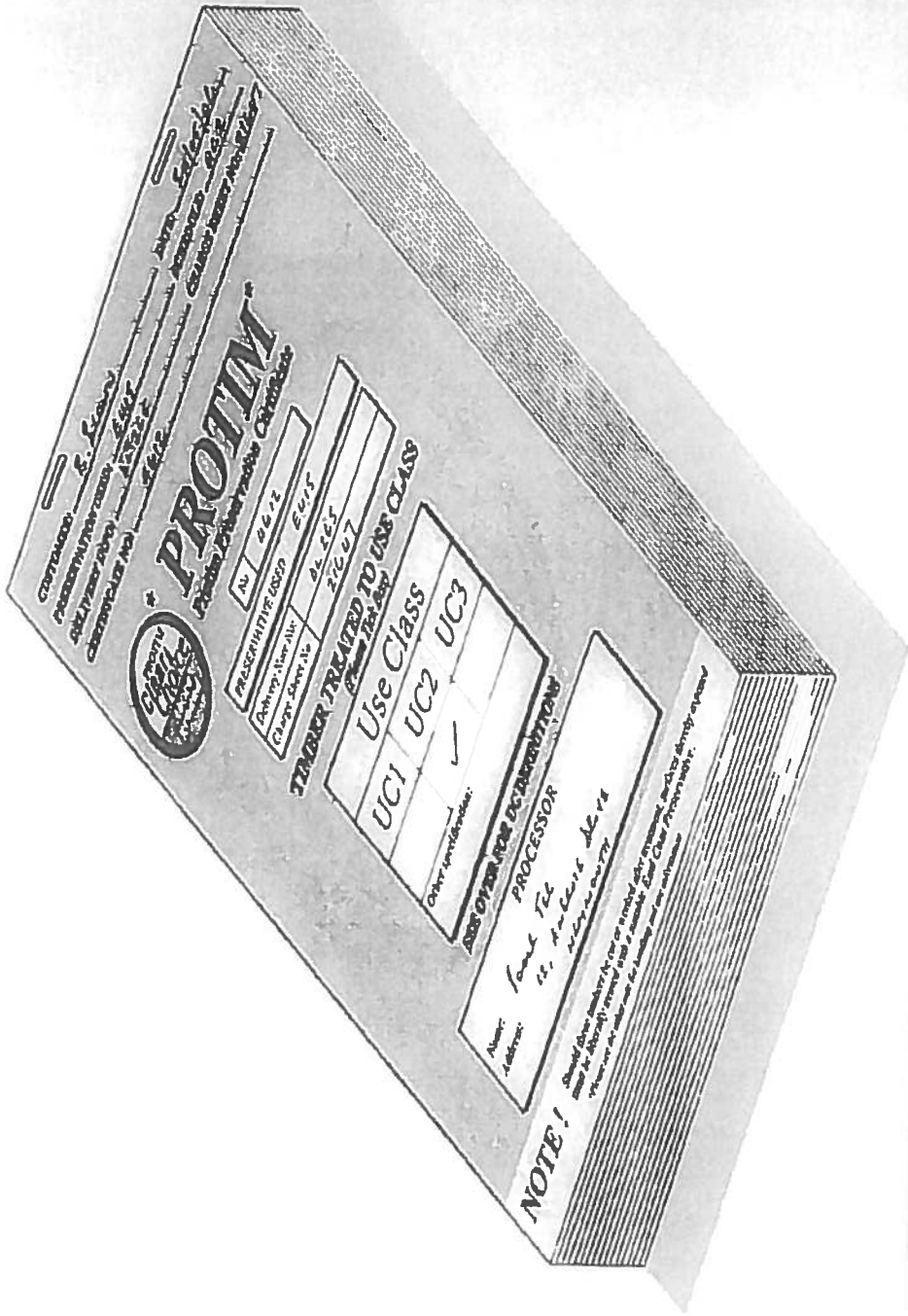
Preservative: *E 415* Solution Strength: *(value obscured)*

Treatment Cycle: *F* Date: *7-1-02*

| Customer / Job No. | Description | Species | Site | Final Gauge Reading |
|------------------------|--------------|--------------|----------------------------------|---------------------|
| <i>W. T. Hunt 1520</i> | <i>Plank</i> | <i>White</i> | <i>SS - 89 mm 1120 / 1.8</i> | <i>1</i> |

Plant Operator's Signature: *[Signature]*

Charge Sheet



Preservation Certificate

(ix) Treated Timber – Important User Information

Please see Information Sheet: The User's Guide to Preserved Wood





Information Sheet: IS/80

THE USER'S GUIDE TO PROTIM E406 PRESERVED WOOD

What is Protim E406 Preserved Wood ?

Protim E406* preserved wood has been preserved by the correct application of Protim E406 wood preservative and then allowed to dry.

Properly treated Protim E406 preserved wood is protected against attack by wood decaying fungi and wood destroying insects

Protim E406 preserved wood is suitable for internal and external applications which are out of ground contact and above the damp-proof course, including doors, window frames, surrounds and frames.

Timbers exposed to weathering must be given the additional protection of a durable and well maintained surface finish

IMPORTANT INFORMATION

Wear gloves when working with wood. Wear a dust mask and goggles when cutting or sanding wood. Wash work clothes separately from other household clothing before re-use.

Only preserved wood that is visibly clean and free of surface residue should be used.

Some preservative may migrate from the treated wood into soil/water or may dislodge from the treated wood surface upon contact with skin. Wash exposed skin areas thoroughly.

If wood is to be used in an interior application and becomes wet during construction, it should be allowed to dry before being covered or enclosed.

Mould growth can and does occur on the surface of many products, including treated or untreated wood, during prolonged surface exposure to excessive moisture conditions. To remove mould from treated wood surfaces, wood should be allowed to dry. Typically, mild soap and water can be used to remove remaining surface mould.

Preserved wood should not be used where it may come into direct or indirect contact with drinking water.

Do not use preserved wood under circumstances where the preservative may become a component of food, animal feed or beehives.

Do not use preserved wood as mulch.

Do not burn preserved wood (see Disposal). All sawdust and construction debris should be cleaned up and disposed of after construction.

Effective Use of Preserved Wood

Cutting

Preserved wood should not be cut or otherwise reworked as this will expose unpreserved wood

Any surface exposed by drilling or cutting must be re-treated with an approved (i.e. by the UK Health and Safety Executive) cut end preservative. Failure to re-treat may reduce the effectiveness of the preservative treatment. Rip-sawing, thickening and planing are not permitted unless the timber is subsequently re-preserved to the original specification.

If cutting cannot be avoided, then precautions should be taken to keep airborne dust levels below the Workplace Exposure Limit for Wood Dust. In particular, avoid inhalation of dust when using high speed cross-cut saws or mechanical sanders

Metal Fastenings and Hardware

Certain metal products (including fasteners, hardware and flashing) may corrode when in direct contact with wood exposed to water. Use fixings and other hardware which are in compliance with building regulations for the intended use. Use fixings, hardware or any metal products as recommended by their manufacturer.

Protim E406 can be used in close association with bituminous felts

Finishing

The compatibility of glues and mastics should be checked before application. Always follow the product manufacturer's recommendations

If you desire to apply a paint, stain, clear water repellent or other finish to your preservative treated wood, we recommend that you apply the finishing product to a small test area to ensure that it provides the intended result, before proceeding



Disposal

Do not burn preserved wood. All sawdust and construction debris should be cleaned up and disposed of after construction. Protim E406 preserved timbers which are no longer usable, such as cut ends, broken boards, sawdust, or preserved timber material taken out of service, may be disposed of in landfills or burned in commercial or industrial incinerators or boilers in accordance with national and local regulations. Do not allow wood waste which contains preservative to be used for animal litter.

Biocidal Product Regulation (EU 528/2012) Article 58 Information

Protim E406 preserved wood is a 'treated article' which incorporates biocidal products. Wood correctly preserved with Protim E406 is protected against wood destroying insects and wood rotting fungi.

Contains: Permethrin, Propiconazole, Tebuconazole

ADDITIONAL INFORMATION

Protim E406 preserved wood products are produced by independently owned and operated wood preserving facilities. Koppers Performance Chemicals provides a range of products and technologies for the treatment, protection and enhancement of timber. Information and advice is available on all aspects of our products from the Technical Services Department.

For more information visit www.kopperspc.eu

Or contact kpc@koppers.eu
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(x) **Technical Data Sheets**

Should your product data sheet not be present please contact Osmond





PROTIM[®] E406

Technical Data Sheet
TDS1962

Fungicidal and Insecticidal Wood Preservative

DESCRIPTION

PROTIM[®]E406 is a water-based, micro-emulsion wood preservative containing two fungicides and an insecticide

Protim E406 is highly effective against wood destroying insects, such as the Common Furniture Beetle and wet and dry rot fungi.

Protim E406 preserved wood is suitable for roof timbers, timber framing, carcassing, and internal and external timber projects that are above damp proof course / ground level. For use on wood out of ground contact or out of surface water contact. Timbers exposed to weathering should be given the additional protection of a well-maintained surface finish.

Protim E406 is suitable for all types of timber and is non-corrosive to metals.

Protim E406 is supplied ready-for-use and must not be diluted. It is applied to timber in an industrial, controlled, vacuum pressure impregnation treatment process or by closed immersion. For use only as a wood preservative and by Industrial operators.

PROPERTIES

| | |
|-------------------------------|--------------------------------|
| Colour: | Colourless/pale straw coloured |
| Odour: | Characteristic |
| Flash Point: | Non-flammable |
| Density (g/cm ³): | 1.0 |
| pH: | 6.5 – 8.5 |

RECOMMENDATIONS FOR USE

Timber

The timber to be preserved shall be clean and dry to allow penetration of the liquid, and not decayed by fungi or attacked by insects

Wood-working (e.g. planing, profiling) should be carried out before treatment. At the time of treatment the timber moisture content must be below the fibre saturation point (approximately 28% m/m) and should be at the moisture content appropriate for the end use of the preserved timber.

Preservative Application

Protim E406 should be applied using low pressure vacuum impregnation plant operated, in accordance with the Koppers Plant Operations Manual, to give an appropriate level of uptake and penetration into the wood

Uptake

Uptake varies according to wood species, the condition of timber treated and the application method used. Approximately 15-40 litres/m³ may be expected. Contact Koppers for further information.

Drying of Freshly Treated Wood

Treated wood must be held until surfaces are dry within a bunded area on a site which is maintained to prevent loss of treatment product to the environment

Treated timber will dry naturally, but to minimise the drying period, tightly bound packs should be stickered and then allowed to stand in a well-ventilated area

Timber which still has preservative liquid on its surfaces, or within a pack, must not be despatched.

PACKAGING and STORAGE

Supplied in 200 litre drums, IBC, or by bulk tanker. Must only be kept in original packaging. Keep container tightly closed. Keep in a safe place. Store in a cool, well ventilated area. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children. The floor of the storage room must be impermeable to prevent the escape of liquids.

PROTIM E406 PRESERVED WOOD

DESCRIPTION

Protim E406 preserved wood has been preserved by the correct application of Protim E406 wood preservative in an industrial, controlled treatment process using vacuum pressure impregnation or closed immersion, and then allowed to dry.

Protim E406 preserved wood is protected against wood rotting fungi and wood destroying insects.

See the "User's Guide to Protim E406 Preserved Wood" for additional and important information.

COMPATIBILITY

Timber treated with Protim E406 is non-corrosive to metals and so can be used in association with metal fixings. It can also be used in close association with bituminous felts.



If you desire to apply a paint, stain, clear water repellent or other finish to your preservative treated wood, we recommend following the manufacturer's instructions and label of the finishing product. Before you start, we recommend that you apply the finishing product to a small test area before finishing the entire project to ensure that it provides the intended result, before proceeding.

DISPOSAL

Preserved timbers which are no longer usable such as cut ends, broken boards, sawdust, or treated timber material taken out of service, may be disposed of in landfills or burned in commercial or industrial incinerators or boilers in accordance with national and local regulations. For up to date information please contact the Technical Services Department.

SAFETY INFORMATION

Wear suitable protective clothing, gloves and eye / face protection.

Do not breathe aerosol.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

After contact with skin, wash immediately with plenty of water.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid release to the environment. Refer to the Safety Data Sheet.

Safety Data Sheet available for professional user on request.

PRECAUTIONS

PROTIM E406

The handling and safety precautions shown on the Protim E406 product label must be understood and followed. Use only as a wood preservative, and as described on the label. The product is supplied ready for use and must not be diluted.

The (COSHH) Control of Substances Hazardous to Health Regulations 2002 may apply to the use of this product at work. Engineering control of operator exposure must be used where reasonably practicable in addition to the following items of personal protective equipment. However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

Wear suitable protective clothing (coveralls), and impervious gauntlets and eye protection when using the product and during maintenance of treatment equipment. Avoid excessive contamination of coveralls and launder regularly.

Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Avoid the formation or spread of mists in the air. Do not breathe aerosol.

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Protect cuts and abrasions by means of a waterproof dressing. When using, do not eat, drink or smoke. Wash splashes from eyes and skin immediately with water. Wash hands and exposed skin before meals and after use.

Do not contaminate watercourses or ground. Dispose of surplus chemical, contaminated materials (including sawdust) and the empty container safely using a method approved by the waste disposal authority.

See the product label and the Safety Data Sheet for further information.

Handling Precautions – Freshly Treated Wood

If freshly treated timber is visibly wet with the preservative, then impervious clothing such as impervious gauntlets, impervious footwear and an impervious apron should be worn when handling the recently treated timber.

Wash splashes from eyes and skin immediately with water. Do not eat, drink or smoke whilst handling freshly treated timber. Wash hands and exposed skin before eating, drinking, smoking and after work. Protect cuts and abrasions by means of a waterproof dressing.

ADDITIONAL INFORMATION

APPROVAL

Protim E406 is approved by the UK Health and Safety Executive under The Control of Pesticides Regulations 1986 (as amended), for use as directed HSE No. 8367. Use only in accordance with the directions on the label. The approval holder and marketing company in the UK is Protim Solignum Limited. Protim E406 contains propiconazole, tebuconazole and permethrin. Always read the label. Use pesticides safely.

Protim E406 treated wood products are produced by independently owned and operated wood preserving facilities.

Koppers Performance Chemicals provides a range of products and technologies for the treatment, protection and enhancement of timber. Information and advice is available on all aspects of our products from the Technical Services Department.

For more information visit,

www.koppersperformancechemicals.com

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CHAPTER 6 - OPERATING WORK PROCEDURES

We need to identify the different operations involving preservatives and treated timber that take place during the working day. Safe and correct work procedures should be followed in each situation, including the use of appropriate safety clothing, where necessary.

The following pages detail the recommended work procedures for the operations listed below.

- (i) Receipt of bulk preservative deliveries.
- (ii) Handling and storing containers.
- (iii) Preparation of timber for treatment
- (iv) Operating the treatment plant.
- (v) Loading and unloading timber
- (vi) Storage of treated timber
- (vii) Cleaning debris from the treatment vessel.
- (viii) Routine plant maintenance and servicing
- (ix) Hot work on tanks and pipes.
- (x) Plant and product protection during winter
- (xi) General workplace housekeeping.
- (xii) Waste management (Information Sheet).
- (xiii) Emergency procedures.
- (xiv) Plant security.
- (xv) Personal protective equipment.

(i) Receipt Of Bulk Preservative Deliveries

- ◆ The receiving company should have a named representative on site at the time of delivery to supervise unloading (for example, to ensure unloading into the correct tank and confirm delivery volume). These details must be confirmed by the named representative by signing the delivery procedure ticket before off-loading commences.

Note: The customer is responsible for the goods once they leave the vehicle.

- ◆ The company representative should be familiar with the procedures to be followed in the event of an accident (including spillage).
- ◆ Smoking and naked lights are forbidden during unloading.
- ◆ Spilling and splashing (including splash loading into tanks) must be avoided as far as possible. Any staff engaged in the handling of preservative solutions should wear suitable protective clothing such as overalls, gloves and boots (plus goggles where there is any risk of splashing).
- ◆ Tank filling points must be within a bunded or contained area. Where sites have dedicated tanker off loading areas, these must be used. No preservative must be lost into surface drains or foul sewer. Reasonable access must be provided on site for the unloading tanker. An effort should be made to minimise the length of tanker hose necessary for unloading. Following discharge residual dripping from the hose should be collected and contained.
- ◆ First aid materials suited to the potential emergencies should be readily available nearby.
- ◆ Bulk storage vessels should be fitted with a high level alarm and be tested prior to discharge, and the fill line valve closed after discharge.
- ◆ A product label should be displayed next to the tanker filling point.
- ◆ Should the high level alarm be activated, the level switch should be removed and cleaned as soon as the fluid level has dropped sufficiently. This is to ensure any residue from the preservative does not prevent it functioning next time. Suitable protective clothing must be worn when carrying this out.



(ii) Handling and Storing Containers

- ◆ Containers should be kept in a locked, marked, well ventilated and bunded store.
- ◆ For stability, containers should not be stacked more than two high and always store containers upright.
- ◆ Damaged containers shall be placed in or remain within the bunded store. Spillage's shall be dealt with according to the guidelines set out in emergency procedures.
- ◆ Staff handling containers shall be supplied with appropriate protective clothing, namely protective boots, overalls, impervious gloves and apron.
- ◆ Decanting of preservative for resale is forbidden. Decanting of chemicals is not permitted other than for mixing purposes.
- ◆ Only a competent driver should use a forklift for moving containers.
- ◆ For the winter months, the store area should be kept above 3°C and if storing water repellent, above 5°C.

(iii) Preparation Of Timber for Treatment

To ensure timber is properly treated it must be prepared correctly. The following items are important in achieving this:

Moisture Content

Treatment to BS 8417 requires the treater to achieve a particular level of penetration and retention according to the environment in which the timber is placed, ie the Use Class. The Standard does not stipulate how this is achieved or at what moisture content the timber should be. It is recognized that when the timber is freshly felled that moisture levels will be high and this would adversely affect treatment retentions and particularly penetrations. The sapwood of freshly felled timber cannot be penetrated with preservative because the cell lumens are blocked with water. There will always be some water in the wood which has soaked into the walls of the cells but at moisture contents below 28% there is no water in the cell lumen to block the passage of preservative. You can measure moisture content with an electrical moisture meter. Make sure that the probes are at least 25 mm long so that you get a realistic measure of the moisture content inside the wood. The timber should ideally be at the moisture content appropriate for its end use, possible splitting as the timber dries further after treatment may expose untreated timber.

If using dyes then moisture content levels above 28% will adversely affect the colour achieved in the wood, both in uniformity and the colour itself.

Surface Quality

All the bark must be removed from the timber, bark is waterproof and if it is not removed it will prevent the preservative from penetrating the wood. The same principle applies to anything else which may restrict penetration, such as paint, polishes, mud or ice. (Timber cannot be treated if it is frozen!). Timber should not be treated if it already shows signs of attack by wood-destroying fungi or insects, staining fungi would be acceptable within the agreement of the customer.

Sawdust Removal

As far as practical, timber should be loaded into the plant free from sawdust. Sawdust may affect the treatment quality causing preferential treatment into it, and this will be particularly evident when using dyes.

Sawdust washed off within the treatment process will also eventually cause engineering problems and may result in sludge formation in the tanks

Stickers

Effective treatment can only be achieved if preservative is allowed free access to the surfaces of the wood. To this end it is important to place thin stickers/spacers between rows. For PAR timbers this should be at least every 2 - 4 rows. For sawn timbers every 2 – 6 rows should be sufficient. Stickers will also help to drain excess preservative out of the pack during the treatment process, and reduce run off in the dripping area.

Pack Banding

It is essential that packs be banded to ensure they remain stable whilst being moved to and from the treatment plant and during the treatment process as well.

The bands used must not be applied too tightly so that they reduce the penetration of preservative during treatment, which will produce areas of paler coloured wood, and in some cases untreated wood.

Pack Covers

Covers must not be put on packs before treatment. They will create pockets that will affect the application of preservative and they will trap surplus preservative within or on top of the pack, giving a significant exposure risk to the operator during unloading.

Covers will also considerably reduce the drying of the wood after treatment. Loose material from covers could also be pulled into plant pipework and valves during the vacuum sequence.

(iv) Operating The Treatment Plant

Full operating instructions for the plant system can be found in Chapter 7, the following general procedures must be followed.

- ◆ When operating the plant control panel or completing charge records, remove any potentially contaminated items such as impervious apron or gloves
- ◆ Do not eat, drink or smoke in the treatment area.
- ◆ Wash hands or exposed skin before meals, before using the toilet and after work
- ◆ Avoid putting hands, pens and pencils into your mouth during work
- ◆ Keep insides of protective equipment clean.

After work:

- ◆ Take off overalls and footwear. Do not go home wearing work boots.
- ◆ Change work clothes when you get home.
- ◆ Launder clothes / overalls regularly. (Overalls should not be laundered at home).

(v) Loading and Unloading Timber

- ◆ Make sure that timber loaded onto the bogies is safe and that packs are stable. When loading packs on top of each other use bearers which are at least the width of the packs.
- ◆ Have one bearer at the bottom of a pack thicker than the other. This will help solution to drain from the tilted packs in the treatment vessel.
- ◆ Strap down every pack on to the bogie and ensure all loose strap ends are secure.
- ◆ Do not stack beyond the width of the bogies. Take particular care not to hit the plant door frame during loading as this may badly damage the door seal.
- ◆ Do not let any pieces of wood become loose in the vessel. A jammed piece of wood can cause a long delay in unloading and is dangerous.
- ◆ Keep other people clear when moving the bogies in or out of the vessel.
- ◆ Do not use loose timbers to push the bogie into the vessel with the fork lift. The timber may break or slip out and cause injury to somebody.
- ◆ Wear splashproof coveralls and gloves when handling bogies and loading equipment likely to be contaminated with preservative.
- ◆ When unstrapping freshly treated timber wear an impervious apron in addition to overalls (or an impervious coverall), impervious gloves and goggles to guard against splashing.

(vi) Storage of Treated Timber

Timber after treatment must be stored in a dedicated dripping area adjacent to the plant, that will allow run off to be directed back into the treatment area. Storing packs on a slope initially will help to remove excess preservative quickly. Impervious clothing must be worn when working in this area.

To allow timber to dry quickly it is important to allow good natural ventilation. A positive air flow is essential, storing packs too closely together or in enclosed areas will increase drying times. Timber must remain in this area until it is drip free and surface dry.

MOULD GROWTH ON TREATED WOOD PRODUCTS

What are mould growths on treated wood products?

Moulds can grow in the water layer on wet or damp timber surfaces. The growth is often "fluffy" and may be white, green, black, brown or even brightly coloured depending upon the mould species and the presence of spores. Moulds feed on free sugars and starches naturally present in the sapwood and dissolved in the water layer on the surface of drying wood, and on deposits of detritus that collect on the surface of stored timber. Some timber species, such as Scots pine, are more susceptible to mould growth than others. Surface moulds do not decay or affect the structural strength of the wood and do not permanently disfigure the wood.

The conditions that promote the growth of surface moulds

Surface moulds can develop on both untreated wood and on wood which has been preservative treated. Mould growth is promoted by timber remaining wet over long periods of time. The longer treated or untreated timber is stored under damp conditions the greater the risk of mould growth.

Given the right conditions, surface moulds can develop on wet or damp timber surfaces. The conditions that promote the rapid growth of surface moulds are:

1. Wet or damp timber
2. Humid, still air conditions
3. Warmth

It should also be noted that timber with visible mould should not be put through the treatment plant, as spores removed during the treatment process may remain viable and be spread to otherwise clean timber. These same conditions which encourage mould will also encourage the growth of sapstain / bluestain fungi which do cause permanent discolouration to the wood and this discolouration can penetrate well below the timber surface. Staining of timber occurs in freshly felled timber and may result when seasoned timber becomes wet, but the practices described in the following section will help to minimise this potential problem.

What can be done to reduce the risk of mould growth?

If the timber surface is kept dry, mould will not be able to grow. Most moulds can be brushed from the surface of wood or will eventually weather off, but initial prevention must be the priority. Timber products should be stored such that they are protected from wetting by rain, where practical, and are in a well-ventilated drying situation. Packs of timber should be well stickered to allow good air flow through the packs.

Stock rotation procedures should be adopted to ensure movement of older material from site and any timber that develops mould should be isolated from clean stock. If present on site, this would only act as a ready source of spores for the infection of new timber.

Further sources of mould growth include logs in direct contact with soil, or a sawmill that generates large quantities of sawdust which may be contaminated and carry the infection quickly to clean surfaces.

Minimising mould growth

Timber should not be treated with the wraps already fitted. (Apart from trapping moisture in the wood, there is also the significant environmental and safety hazard of wraps carrying free liquid out of contained and controlled areas).

Rotation of timber stocks should be optimised on a first in / first out basis.

If the timber surface is kept dry, mould will not be able to grow.



For more information contact your local Environment Agency:

England and Wales

Environment Agency Customer Contact Centre on 08708 506506
www.environment-agency.gov.uk

Scotland

Scottish Environmental Protection Agency on 01786 457700
www.sepa.org.uk

Northern Ireland

Northern Ireland Environment Agency 028905 69360
www.ni-environment.gov.uk

Important information

Koppers does not recommend that treated timber is burned in a domestic environment and should never be burned in household stoves, on open fires or barbeques.

It should be noted that the burning of trade waste on an open fire may be prohibited and may lead to prosecution

¹ Wood Preservative and Preservative-treated Wood Wastes – Re-use, Recycling, Disposal: A guide to the Regulations and Classification of Waste 2004 Wood Protection Association

ADDITIONAL INFORMATION

Koppers Performance Chemicals provides a range of products and technologies for the treatment, protection and enhancement of timber. Information and advice is available on all aspects of our products from the Technical Services Department

For more information visit www.kopperspc.eu

Or contact: kpc@koppers.eu
Telephone: +44 (0) 1628 486644
Emergency: +44 (0) 1628 890907

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(vii) Cleaning Debris From the Treatment Vessel

No one must enter the treatment vessel at any time without management permission. Entry into confined spaces must be in accordance with company procedures.

Plants using solvent based preservative must be ventilated before entry by leaving the treatment vessel door open for a minimum of 2 hours, and for plants using water-based preservative a minimum of 20 minutes.

In such circumstances the procedure and "permit to work" certificate shown overleaf are the minimum standard required by the Health & Safety Executive. Such documented procedures must always be used for an entry into confined spaces.

Where this delay is not practicable, the level of protection necessary for early entry will be significantly greater. If immediate entry into the treatment vessel is unavoidable, it should be assumed that the Confined Space Regulations apply, and staff entering vessels must then wear a full face mask with external air supply.

The permit to work would require.

- ◆ Wearing approved and regularly maintained respirator with appropriate filter.
- ◆ Authorisation to enter by a responsible person.
- ◆ Where practicable, wearing a belt with a rope securely attached.
- ◆ A person keeping watch outside and capable of pulling him out is holding the free end of the rope.

POSSIBLE LAY-OUT FOR A PERMIT-TO-WORK CERTIFICATE

| PLANT DETAILS WORK TO BE DONE | ACCEPTANCE OF CERTIFICATE | I have read and understood this certificate and will undertake to work in accordance with the conditions in it. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| WITHDRAWAL FROM SERVICE The above plant has been removed from service and persons under my supervision have been informed Signed _____ Date _____ Time _____ | COMPLETION OF WORK The work has been completed and all persons under my supervision, withdrawn. Signed _____ Date _____ Time _____ | I have read and understood this certificate and will undertake to work in accordance with the conditions in it. |
| ISOLATION The above plant has been isolated from power and the hand valve between the OSV and TV has been closed & locked off Signed _____ Date _____ Time _____ | REQUEST OF EXTENSION The work has not been completed and permission to continue is requested Signed _____ Date _____ Time _____ | The work has not been completed and permission to continue is requested |
| CLEANING The above plant has been unused and the door left open for not less than 2 hours (solvent system), 20 minutes (water based system) Signed _____ Date _____ Time _____ | EXTENSION I have re-examined the plant detailed above and confirm that the certificate may be extended. Further precautions: The plant must not be re-entered by same personnel Signed _____ Date _____ Time _____ | I have re-examined the plant detailed above and confirm that the certificate may be extended. |
| CONDITIONS Entry limited to maximum 5 minutes. A half cartridge mask with suitable filters must be worn. See footnote. Second person to be in attendance throughout entry-period, equipped to effect rescue, if necessary, from outside the vessel. Signed _____ Date _____ Time _____ | RETURN TO SERVICE I accept the above plant back into service. Signed _____ Date _____ Time _____ | Further precautions: The plant must not be re-entered by same personnel |
| I CERTIFY THAT I HAVE PERSONALLY EXAMINED THE PLANT DETAILED ABOVE AND SATISFIED MYSELF THAT THE ABOVE PARTICULARS ARE CORRECT Signed _____ Date _____ Time _____ | THE PERMIT-TO-WORK IS NOW CANCELLED. A NEW PERMIT WILL BE REQUIRED IF WORK IS TO CONTINUE. Signed _____ Date _____ Time _____ | THE PERMIT-TO-WORK IS NOW CANCELLED. A NEW PERMIT WILL BE REQUIRED IF WORK IS TO CONTINUE. |

Note: For organic solvent plant the filter must conform to EN141 with an A1 classification. For waterbased plant if there is a mist or vapour present the filter must conform to EN143 with a P3 classification. The EN141/A1 filter can be used in combination to help remove nuisance odour.

(viii) Routine Plant Maintenance and Servicing

The procedures listed overleaf, which occupy very little time, are recommended as the best method of keeping the equipment at all times in good serviceable condition and avoiding unnecessary breakdown. Such breakdowns could be expensive in both replacement costs and loss of production.

Use copies of the record sheet to plan and record your daily, weekly and monthly maintenance. Plants do vary, and all items may not be appropriate to your plant. Simply mark these items N/A (not applicable). If in doubt ask an Osmose engineer on his next visit.

- ◆ Staff involved in the maintenance of the treatment plant must have received adequate training and information concerning the hazards of the products in use and the required safety procedures.
- ◆ Personal protective equipment, including respirators where necessary, shall be provided and used. Where there is any risk of splashing from preservative, goggles and an impervious coverall should be worn.
- ◆ Before removing any pumps, valves or section of pipework (including filters), care must be taken to isolate the item from chemical storage tanks.
- ◆ If there is any doubt about the safety of the plant it shall be safely shut down and company management informed of the situation.
- ◆ Before any entry into tanks or confined spaces refer to 'cleaning debris from the treatment vessel' overleaf.
- ◆ Before undertaking any hot work on pipes or tanks, refer to the following section, (ix) Hot Work on Tanks and Pipes.
- ◆ It is recommended that plants are regularly serviced. Full plant servicing can be carried out by an Osmose engineer. For full details and costs contact our Engineering Division.

(ix) Hot Work On Tanks And Pipes

Hot work should not be carried out without following strict, documented procedures. Management permission is essential before carrying out such work.

HOT WORK PERMIT NO.:

Location

Description of Work :

Date :

Time Started :

Time Finished :

PRECAUTIONS

TICK

- | | |
|------------------------------------------------------------------------------------------------------|-----|
| 1. Remove flammable materials from the work area | [] |
| 2. Have appropriate fire extinguishers ready for use | [] |
| 3. Mark off hot work area with boundary tape. | [] |
| 4. Have fire protection plans ready for use. | [] |
| 5. Check for flammable vapours (particularly in tanks) before starting hot work. Purge as necessary. | [] |
| 6. Before starting and after finishing, an inspection is to be carried out by the authorised person. | [] |
| 7. Specification of additional safety measures: | |

Signatures / Date

Fire Watch Required :-

- | | | |
|----------------------------------------------------------------|-----------------------------------------------------------|-----|
| a) Person to whom permit is issued | a) Continual supervision | [] |
| b) Person carrying out the above check on precautions | b) Occasional Supervision (every minutes) | [] |
| c) Person issuing permit | c) Spot Checks/No. | [] |
| | Date/Signature of person carrying out Fire Watch | |

(x) Plant and Product Protection During Winter

Plant

During the winter period, plant and equipment must be given protection from the effects of cold. It is unlikely that bulk product in storage vessels would freeze, but any narrow pipelines where fluid is not moving should be protected. This would include, in particular:

- ◆ any site tubes on tanks
- ◆ vacuum system
- ◆ smaller dimensional pipework usually associated with pressure lines
- ◆ compressed air lines
- ◆ mains water supply lines

Plant buildings offer good direct protection from prevailing winds that cause short term extreme temperatures. Vulnerable pipework should be lagged or heat tracing applied. Vacuum systems should have anti-freeze added, and air and moisture should be routinely drained out of the compressed air system.

Thermostatically controlled heaters can be used in control system rooms. If plant equipment does freeze do not use naked flame to thaw it out, use warm air only.

Product

Working solution stored in bulk, should not freeze except in extreme conditions or, as detailed above, in small volume pipework, and the precautions listed should minimize this. Additives should be kept and stored above 3°C.

(xi) General Workplace Housekeeping

- ◆ Preservative contamination in relatively small quantities may not always be visible to the naked eye. Care must be taken not to spread traces of preservative into areas which would otherwise be clean - for example, the Operator's office and control panel, rest and eating rooms, company office, etc.

Always remove unnecessary protective clothing to avoid spreading contamination and observe good hygiene procedures.

- ◆ Soak up any slight spillage of preservative with sawdust, industrial absorbent granules or other suitable absorbent material. Collect and store in closed containers prior to disposal in accordance with the requirements of the local waste disposal authority.
- ◆ Any unavoidable dripping must be contained and its spread around yard surfaces prevented
- ◆ Store any full or empty containers neatly and in accordance with the previous section on handling containers.
- ◆ Keep area dry, do not use the bund for storage of rain water, store in separate tanks.
- ◆ Keep walkways clear. Restrict access of unauthorised people to the plant. Ensure signs are clearly displayed to this effect.

A GUIDE TO PRESERVED WOOD WASTE

KOPPERS PRESERVED WOOD WASTE

Koppers preserved wood waste can be generated from a number of sources, e.g. off-cuts, shavings or sawdust generated during construction, or older wood being taken out of service. The preserved wood may be considered as hazardous waste depending on the product with which it has been treated.

Preserved wood treatments

The Wood Protection Association has considered the range of different treatments in the context of the Hazardous Waste List from the EC Hazardous Waste Directive†. From this it concluded that, with the exception of timber treated with Chromated Copper Arsenate (CCA) and Creosote based products, timber which has been correctly treated with preservative should not be classified as hazardous.

If you are disposing of a significant quantity of preserved wood, it is recommended that this material be segregated from other waste and be disposed of using a registered waste contractor. All producers of waste have a duty of care to ensure that their waste is disposed of correctly and this will include accurately describing your waste to enable waste management companies to dispose of it appropriately.

Wood treated with either Celcure* (ACQ), Protim* (Micro-emulsion and LOSP) or MicroPro* treatments contain levels of dangerous substances below the threshold concentration stated in waste guidance published by the Environment Agency and is therefore non-hazardous waste. A suitable European Waste Catalogue (EWC) code to describe wood treated with these products is:

EWC 17 02 01: Wood

Any CCA or Creosote treated timber contain levels of dangerous substances above the threshold concentration and are therefore classified as hazardous waste. A suitable European Waste Catalogue (EWC) code to describe wood treated with these products is:

EWC 17 02 04: Glass, plastic and wood containing or contaminated with dangerous substances

(Note: In Scotland, Hazardous Waste is known as Special Waste)

Burning off-cuts of preserved wood in industrial incinerators

Although treated timber is classified as non-hazardous according to waste legislation, there are restrictions on burning preserved wood.

Burning of wood waste is regulated by an Environmental Permit and the requirements of the Waste Incineration Directive (WID).

There are some exemptions to complying with the WID. However Celcure, Protim and MicroPro preserved wood contain either small amounts of heavy metals or trace quantities of halogenated organic compounds and therefore the requirements of WID will apply.

The WID requires minimum technical requirements and strict control over incinerator operating conditions and gas temperatures. It also requires continuous and periodic monitoring of emissions by the operator, with overchecks made by the Environment Agency, including frequent plant inspections.



Treated wood must therefore be stored in conditions which allow it to dry:

- Timber must be well slickered to allow effective air movement through the packs.
- Ideally without pack wraps
- If wraps are used, they must cover the top of the pack only and no more than 25% of the sides of the pack
- If wraps are used, they should ideally be made of a vapour permeable material
- If protection from UV degradation is important, stock should be stored under cover

The use of a solution sterilant for wood preservative solutions

A solution sterilant may be required in some wood preservative treatment solutions because unused solution is returned to the storage tank for re-use. Repeated use of the solution to treat timber, particularly on sites processing timbers with a high sapwood and sap content, extracts soluble nutrients (particularly sugars) from the wood into the solution, in which microorganisms can grow

For information on the use of solution sterilant for wood preservative solutions, contact Koppers.

ADDITIONAL INFORMATION

Koppers Performance Chemicals provides a range of products and technologies for the treatment, protection and enhancement of timber. Information and advice is available on all aspects of our products from the Technical Services Department.

For more information visit www.kopperspc.eu

Or contact: kpc@koppers.eu
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(xiii) Emergency Procedures

The loss of preservative fluid into drains or watercourses can cause serious environmental damage and lead to prosecution. In particular, the Environment Agency (SEPA in Scotland) has identified the industrial use of preservative as a key area of concern and has not been slow to take action, where necessary. A spillage is normally defined as an uncontrolled loss of treatment fluid outside a bunded or controlled area. However, the same procedures should be followed, as appropriate, for a loss of fluid which is contained.

Companies should have clearly defined instructions for dealing with an emergency, which should be included at each site in the Emergency Response Plan. These procedures should identify the responsibility of site personnel and give contact numbers for the emergency services. Procedures should be in place to protect surface water drains and to prevent product leaving site.

More general procedures are given on the Osmose Emergency Action Poster, a copy is included on the following page.

EMERGENCY ACTION

Osmose

Water/Emulsion Based Wood Preservatives

GENERAL PROCEDURES

No smoking.

Keep non-essential persons away.

Summon Emergency Services if necessary and contact Osmose immediately

Wear Protective Equipment when dealing with spill preservative.

SPILLAGE

Shut off leaks if this can be done without personal risk, wear suitable protective equipment.

Preservative solution is harmful to animal and plant life. It is also toxic to fish and other aquatic life forms.

Contain the spillage, particularly avoiding contamination of drains and waterways. If possible, pump any immediately removable liquid into suitable containers.

Absorb remaining liquid using a suitable absorbent material.

(Use sparingly to avoid creating excessive quantities of contaminated waste.)

It may be possible to use the bund containment zone as a temporary holding area.

Immediately inform management, and the Environment Agency, (SEPA in Scotland) if drains or waterways are contaminated.

All waste produced must be disposed of through an authorised waste contractor.

FIRE

Only trained personnel should attempt to deal with a fire and only if there is no risk to themselves or others.

The product is non-flammable, but toxic fumes may be given off in a fire. Stay upwind of fire involving preservative or treated timber.

Call the fire services.

If firefighting water becomes contaminated with the product, the water must be contained for recovery and safe disposal.

FIRST AID

If swallowed - Do not induce vomiting, rinse mouth with water and give milk or water to drink. Obtain medical help immediately

If splashed in eyes - Immediately flush eyes thoroughly with plenty of water and seek medical help

If splashed on skin - Remove soaked clothing immediately and wash skin thoroughly and seek medical help

If inhaled - Move patient into fresh air immediately. If breathing difficulties are apparent obtain medical help immediately

Details of active ingredients are given on the product labels.

For further information contact Osmose.

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Telefax: (01628) 476757 or
481276 (Sales)

An Osmose Company

(xiv) Plant Security

In order to minimise the risk of damage or preservative loss through vandalism, the following arrangements must be ensured.

- ◆ Basic site design should comply with the Wood Protection Association's Code of Practice for the Safe Design & Operation of Timber Treatment Plant. Ensure tank sight gauges are tamper-proof.
- ◆ Follow the shut down procedure.
- ◆ Padlock isolating valves.
- ◆ Switch off power supply to plant control panel. (Where possible, also isolate at a point remote from the plant).
- ◆ Prevent unauthorised entry into site.
- ◆ Ensure any manhole covers on tank are securely fixed down.

(xv) Personal Protective Equipment

The following table gives a summary of when and where the different items of safety equipment should be worn when treating timber. See the Osmose "Safety on Site" poster for further details. Records should be kept of the issue and maintenance of protective equipment. A COSHH risk assessment would identify the appropriate PPE for each work activity.

| Working Activity | Protective Equipment | | | | | |
|---------------------------------------------|-------------------------------------------------------|----------|-----------------|-------|-------------------------------|-------|
| | Impervious Coverall | Overalls | Gauntlet Gloves | Apron | Goggles | Boots |
| Operating Plant (minimal risk of exposure) | | ✓ | | | | ✓ |
| Handling Preservative Containers | | ✓ | ✓ | ✓ | When mixing or decanting ✓ | ✓ |
| Maintaining Plant | ✓ | | ✓ | | (If splash risk) ✓ | ✓ |
| Unloading & Handling Freshly Treated Timber | ✓ May be required depending on condition of timber | ✓ | ✓ | ✓ | ✓ | ✓ |
| Entering Treatment Vessel* | ✓ | | ✓ | | ** ✓ | ✓ |
| Opening & Closing Vessel Door | | ✓ | ✓ | ✓ | ✓ | ✓ |

NOTES:

- * Although respiratory protection is unlikely to be required when the Operator is opening the vessel door, Osmose would recommend the use of a disposable respirator or half face mask to reduce exposure to a minimum and would advise the Operator to step away from the door area until any residual mist has cleared. Mechanical venting of the vessel before the door is fully opened is a standard feature of recent plants and can be retrofitted to older equipment.

Respiratory protection requirements for entry into the treatment vessel are covered in detail in 'cleaning debris from the treatment vessel'.

- ** A full face mask may be required for entry into tanks.