



TIMBER TREATMENT INSTALLATIONS

European Code of Practice for their Safe Design
and Operation

2011



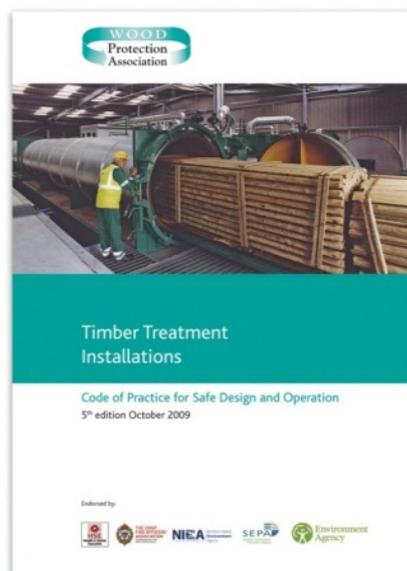
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IEO-WEI
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NATIONAL CODES OF PRACTICE

This Code of Practice is a European code dealing with principles for safe design and operation of timber treatment installations. It does not replace or supersede existing national Codes of Practice. It may be used, however, as a model for national codes where they do not already exist or for updating existing codes to a standard acceptable to national regulatory authorities.

ACKNOWLEDGEMENT

The UK Wood Protection Association (WPA) Code of Practice is endorsed as best practice by UK regulatory authorities. EWPM and IEO-WEI acknowledge with thanks the assistance of the WPA in making its Code of Practice available as a model for the development of this European Code of Practice. The WPA code may be obtained from WPA – contact details at www.wood-protection.org



TIMBER TREATMENT INSTALLATIONS

European Code of Practice for Safe Design and Operation

1. THE SPONSORS OF THIS CODE OF PRACTICE

EUROPEAN WOOD PRESERVATIVE MANUFACTURERS GROUP (EWPM)

The aim of the EWPM is to promote, with integrity, the correct use of wood preservatives including production, transportation, utilisation and disposal.

It acts as an official representative of the industry when approaching authorities, institutions and any other competent body on a European or international level.

EWPM members work towards the improvement of technical guidelines within the industry for the benefit of consumers, specifiers and other stakeholders recognised by it.

IEO-WEI

The IEO-WEI is the European industry trade association representing the pressure treated wood industry.

It promotes the benefits of treated timber whilst representing the wood preservation industries within the European Union.

Its activities are based around wood preservatives, environmental and technical issues and the marketing of finished wood products.

PURPOSE The purpose of this document is to provide generic guidance on environmental, safety and health aspects relevant to all companies in the European Union engaged in the activity of industrial wood preservation. Such guidance is also intended to be useful to those regulatory authorities responsible for regulating the wood preservation industry, for third party inspectors and certification authorities.

The general principles set out in the code are also relevant to the industrial application of fire retardant chemicals.

Most aspects of the design and safe operation of timber treatment installations are regulated by national laws which implement EU directives. This Code of Practice lists the key directives from which the national laws are derived.

2. CHOOSING OR CHANGING YOUR TIMBER TREATMENT OPERATION

Consultation with the relevant regulatory authorities is essential at the earliest stages of site appraisal and selection, process design, selection and development.

The relevant regulatory authorities will advise on the requirement for an authorisation or permit to operate.

Operators of existing and proposed new timber treatment operations are required to consider the Best Available Techniques (BAT) for the industrial wood-preservation sector. BAT is site specific.

Operators of timber treatment plants should ensure that the wood preservative product they intend to use is approved under national regulations and is being applied according to the label instructions.

3. TECHNICAL LITERATURE

The availability of technical literature is an essential requirement for the safe design and operation of timber treatment installations.

As a minimum requirement operators of timber treatment installations should have up to date copies of information covering the following areas:

- The wood preservative product, including its specification, use and the properties of the treated timber
- Material Safety Data Sheets for all products and preparations used at the treatment plant
- A Plant Operation Manual, including information on maintenance and servicing

4. MANAGEMENT SYSTEMS

The implementation of a formal and documented Management System can greatly enhance the safe and efficient operation of a timber treatment installation. It can also be used to save money through reducing waste and raw materials and as a tool to prevent pollution.

Companies who wish to make a commitment to environmental best practice can do this by implementing a Certified Environmental Management System (EMS). The principal documents include ISO 18000, ISO 14001 and EMAS for the Environment.

These systems can be combined with existing management systems, such as ISO 9001:2000 quality management systems to maximise benefits and minimise implementation costs.

Guidance and technical documents on achieving certification are available from national accreditation bodies and sector associations.

Areas in which policy documents, work procedures and process records should be created include:

- Health and safety policy
- Environmental policy
- Risk assessment, including fire safety risk assessment
- Document control (treatment records and stock movements)

- Written scheme of examination (written system whereby safety control devices require examination by a competent person)
- Routine maintenance, periodic servicing and security
- Emergency services
- Safety and environmental auditing (a documented EMS)
- Training records for plant personnel

5. ENVIRONMENTAL PROTECTION

Effective environmental protection at timber treatment installations can be achieved by adopting the following key practical actions:

Product and process

- The principle of total containment should be followed during site design and applied to processing plant, wood preservative storage area and the holding area for treated timber.
- Any waste produced or handled must be disposed of safely in accordance with national regulations.
- Clean uncontaminated rain or surface water shall be diverted away from the plant area.
- Periodically ask your supplier whether there are new or alternate products available which confer a similar level of durability on treated timber but are less hazardous.
- Periodically review the timber treatment process you use in your plant and see if you can optimise further to create less waste.
- It is recommended that the process operator prepares emergency plans and carries out practical exercises to test their effectiveness.

Bunding (containment) of the timber treatment plant and wood preservative storage tanks

- A bund specification should be obtained from a competent person at an early stage in the development of the project proposal
- The treatment plant and its associated loading and / or unloading area and preservative storage tanks, drums or intermediate bulk containers (IBCs) should be located within secondary containment – generally provided by bunding.
- This bunding should be impervious to the preservative chemicals being used and made of, or sealed with, a substance resistant to the chemicals being used.
- It must also be strong enough to withstand the hydrostatic pressure when the bund is full of liquid, stresses induced by differential settlement and thermal shrinkage.
- The site operator should train one or more employees who are able to inspect the bund and report on its condition and to observe any leaks or areas requiring remedial action. The bunds should be periodically inspected and a record kept of each inspection. Ideally the plant bund should contain no liquid or debris so the bund walls and floor can easily be inspected.

Post – treatment containment and conditioning areas

- Process modification, timber packing in the vessel and good carriage design which prevents accumulations of preservative will all help to eliminate or minimise post-treatment dripping.
- A covered and/or contained and impermeable dripping area for freshly treated timber should be provided and be situated adjacent to the plant and the storage tank bund.
- Minimum holding times and other requirements may be required to be met before the treated timber can be moved from the treatment area.
- Operational practices to eliminate the spread of contamination via vehicle wheels or footwear are necessary to ensure environmental containment.

Storage of conditioned timber

- It is recommended that bulk quantities of dry treated timber be stored under cover or on an impermeable surface to prevent possible contamination of surface and / or groundwater.
- Treated timber should be stored according to the instructions given in the wood preservative manufacturer's technical literature.

Waste management

Wastes associated with wood preservation processes may be classed as hazardous waste, and require to be disposed of accordingly.

The European Waste Catalogue (EWC) (Commission Decision 2000/532/EC) contains a list of all types of waste and each waste type is given a 6 figure code. Such wastes are likely to be:

- Redundant preservative solution
- Sludge and debris from tanks
- Sawdust and other materials used to soak up spills
- Redundant containers that still contain residues of the product
- Redundant plant and equipment (prior to decontamination)
- Contaminated water, e.g. rainwater
- Contaminated soil
- Empty wood preservative containers should be disposed of as recommended on the label or by the supplier.

Deliveries of wood preservative product

- A trained representative of the receiving company should authorise and attend the delivery of the product, whether it is to be delivered in bulk quantities or smaller packages and containers.
- Deliveries should be made according to a written supervision procedure that includes a checklist covering all the safety-critical steps in the delivery process.

Other releases to the environment

In certain situations, in addition to potential releases to controlled waters (including surface-water sewers or via foul-water sewers) or to land, process emissions to air may need to be controlled and / or require authorisations under environmental regulation.

6. PLANT AND EQUIPMENT SAFETY: GENERAL GUIDE FOR HEALTH AND SAFETY ASPECTS

- The process of timber treatment requires that consideration is given to the whole operation, including safe storage, handling, use transport and disposal of all materials used, as well as the end product.
- Effective health and safety policies, arrangements and procedures must be prepared and properly implemented. These should cover the provision, use and maintenance of safe plant equipment, systems of work and health, and welfare facilities.
- Appropriate training instruction, information and supervision are required.
- The safe operation of timber treatment plants depends upon sound design, regular maintenance and correct operation by trained competent operators.
- Plants and installations must be designed and constructed so they will be safe and without risk at all times during installation, use, cleaning and maintenance by persons at work.

Risk assessment

- Much recent health and safety legislation reinforces the need for the employer to review and control standards at work. This is to be achieved by the assessment of risks that arise from work activities and then either eliminate or reduce the risks to a reasonable level.

Workplace environment

- The plant area should be maintained in a safe condition to minimise the risk of employees slipping or tripping.
- A system of regular checks should be implemented to ensure that standards are being maintained and sufficient time must be allowed for employees to carry out the necessary housekeeping work.

Treatment Plant Door Safety

If the timber treatment vessel door is not closed and fully locked during the treatment process it may be dislodged and blown open, either by internal pressure or by the weight of the wood preservative solution.

- The process should not be able to be started until the door is fully closed and locked.
- The plant should be equipped with a mechanism to give an indication of the internal pressure and presence of liquid in the vessel before the door is

opened. If gauges are used these should be located next to the door and be easily visible from the door.

Treatment vessel working pressure

Pressure vessels must have a safety relief valve fitted to enable them to be operated safely.

- All vessels should be fitted with a safety relief valve set at a maximum of 10% above the maximum design pressure to act as the over-pressure relief valve unless the vessel design code permits a higher value.
- All vessels should be fitted with a second relief valve or alternative system to control the working-process pressure of the plant and this pressure should not be set above the maximum design pressure of the autoclave.
- In the case of high pressure treatment plants either relief valves or pressure switches may be fitted to control the working pressure of the plant.
- All treatment vessels should be fitted with either a pressure or a vacuum gauge certified and checked on a regular (for example 12 month) basis; that give an accurate indication of the conditions inside the vessel and should be located next to the plant door and any gauges should be easily seen from the vessel door area.

Maintenance and examination

A planned written scheme of maintenance should be prepared by a competent 3rd party inspector and followed.

- It is advisable that this written scheme should cover all protective devices, pressure valves and pipe work that could give rise to danger in the event of failure.
- Records should be kept of all routine maintenance, periodic servicing, examinations and remedial work.

Treatment vessel marking

The following information should be marked clearly on the vessel, or on a plate attached to it.

- The manufacturer's name.
- Serial number to identify the vessel.
- Date of vessel manufacture.
- The standard to which the vessel was built.
- The maximum design pressure and safe working pressure of the vessel.
- The minimum design pressure of the vessel, where it is other than atmospheric.
- The design temperature.
- Test date and test pressure.
- CE MARK

Storage and work tank marking

These vessels should be labelled with information about the product they contain and the appropriate hazard labelling.

Open tanks

Measures should be taken to prevent persons from falling into open tanks or pump wells.

- These include tank covers and the provision of fencing of suitable height.
- Safe systems of work should be provided where access to the tanks is needed, for example to retrieve items that have fallen into it.

Water supply

Mains water may be required to dilute a concentrated wood preservative to its ready for use form.

- There should be a siphon break (which does not include non-return valves as these are not permitted by water authorities) in the water supply pipe to mixing tanks to prevent wood preservative solution from being sucked back into the water mains system as a result of a fall in the water supply pressure.
- A device or system should be fitted to prevent the overfilling of mixing tanks and filling the bund.
- Such a device could also include an 'optional' metering device for pre-setting the water volume when preparing fresh treatment solution or diluting solutions. This minimises the risk of an overflow, even if a filling height shut-off is installed in the tank'.

Occupational health and employee welfare

The treatment site should be a designated area into which no unauthorised person may be allowed to enter.

Control of exposure to substances which are hazardous to health

Employers are required to ensure that the exposure of employees to substances hazardous to health is either prevented, or where this is not reasonably practicable, adequately controlled.

- Risks should be identified and appropriate control measures introduced. These might include engineering control measures and/or adoption of another process.
- Employers should ensure that employees use the protective clothing requirements as described on the wood preservative product label.
- Employees should regularly inspect their personal protective equipment and clothing and should report any defects to their employer without delay.

Manual handling and loading equipment

Manually moving items, for example by pushing or carrying, can potentially lead to injuries such as muscle strain and back pain.

- Such injuries can be eliminated by reorganising or mechanising handling operations.
- Employee training should be provided and continually updated in manual handling, moving aids or in driving fork-lift trucks.

Entry into treatment vessels (autoclave)

This may be necessary to retrieve pieces of wood or other debris from the treatment vessel. A documented permit to work system should be operated and any person who enters the vessel must be trained and competent in the procedures and use of equipment necessary to work inside the treatment vessel. Treatment vessel entry must be done with minimum of two trained personnel with one on standby the means of rescue already in place e.g. harness and rope as a minimum.

Training and staff awareness

Treatment plant operators and management should receive adequate instruction, training and guidance in the safe and efficient use of wood preservatives and be aware of the precautions that need to be observed to avoid exposure to the wood preservative.

Health surveillance

The purpose of health surveillance is to detect as early as possible adverse health effects caused by exposure to hazardous substances.

- Where health surveillance requires regular skin or other inspections these must be carried out by a person who has the necessary knowledge and skill.

Welfare facilities

- Employees should have easy access to suitable and sufficient washing and changing facilities.
- Separate facilities must be provided where workers can rest, eat and drink away from the risk of contamination.

Working alone

Quite often the operator of timber treatment plant works alone or there are times when a contractor is on site working alone. Site operators have obligations to ensure the health and safety of such workers.

Fire precautions

The outbreak of a fire at a timber treatment installation not only involves potential injury to personnel, losses and damage to property but also the risk of causing an environmental pollution.

- Carry out a fire-risk assessment of your workplace, identify and record your findings.
- Decide on the nature and extent of the general and wood preservation plant and process fire precautions that are needed to be provided.
- Employees should receive regular training based on the particular features of the workplace location.

- Damage to watercourses or groundwater may arise from the direct spillage of the wood preservative solution and also from water run-off during fire fighting and procedures should be in place to prevent such an event.
- Electrical equipment (e.g. pumps and switchgear) should either be located in a safe position or be intrinsically safe.

7. EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURES

The following information should be readily available.

- A notice at the site entrance showing the location of relevant emergency instructions.
- An on-site emergency plan that details the necessary action in the event of a spillage or fire. Some sites may need to co-operate with the local authorities in the production of an off-site emergency plan and periodic on-site emergency exercises are recommended.
- An up to date inventory of all wood preservative chemicals and quantities stored on site should be available. The inventory should include a Site Plan that shows the location of such products as well as the on-site drainage system.

Notification of health and safety incidents

There are obligations for site management to report certain accident, disease or dangerous occurrences to the appropriate authorities.

Notification of environmental incidents

Site management is required to report to the relevant authorities all incidents that have the potential to damage the environment, including soakage into the ground.

8. IMPORTANT DIRECTIVES RELEVANT TO THE WOOD PRESERVATION INDUSTRY

Each Member State implements EU legislation in different ways according to national legal requirements and custom and practice.

The following list of Directives is a compilation of important directives of relevance to the wood preservation industry.

HEALTH AND SAFETY

Council Directive 89/654/EEC on the minimum health and safety requirements for the workplace.

Council Directive 89/656/EEC (30/11/89) on the minimum health and safety requirements for use by workers of personal protective equipment (PPE) at the workplace.

Amended by Directive 2007/30/EC

Council Directive 89/655/EEC minimum health and safety requirements for work with display screen equipment.

Amended by Directives

95/63/EC
2001/45/EC
2007/30/EC

Council Directive 89/686/EEC relating to the design of personal protective equipment

Amended by Directives
93/68/EC
93/95/EEC
96/58/EC

Amended by Regulation No. 1882/2003

Council Directive 90/269/EEC on the minimum health and safety requirements for the manual handling of loads when there is a risk, particularly of back injury to workers.

Amended by Directive 2007/30/EC

Directive 2001/41/EC 21st amendment to 76/769/EEC
 2003/34/EC 23rd amendment to 76/769/EEC
 2003/36/EC 25th amendment to 76/769/EEC
 2003/37/EC protection of workers
 (these directives deal with carcinogens and mutagens)

Council Directive 98/24/EC protection of the health and safety of workers from risks related to chemical agents at work.

Amended by Directive 2007/30/EC

Council Directive 2003/10/EC on minimum health and safety requirements regarding exposure of workers of workers to risks arising from physical agents (noise).

Amended by Directive 2007/30/EC

Council Directive 92/58/EEC minimum requirements for the provision of health and / or safety signs at work.

Council Directive 2002/44/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (vibration).

ENVIRONMENT

Waste

Regulation (EC) No. 166/2006 establishment of a European Pollutant Release and Transfer Register (amending the Directive 96/61/EC – the IPPC directive).

Council Directive 2004/35/EC environmental liability with regard to the prevention and remedying of environmental damage.

Directive 2006/12/EC on waste

Directive 2008/1/EC concerning integrated pollution prevention and control

Council Directive 1999/31/EC on the landfill of waste.

Directive 2007/76/EC on the incineration of waste

Council Directive 91/689/EEC on hazardous waste
Amended by Directive 94/331/EEC
Regulation (EC) No. 166/2006

Council Directive 94/62/EC on packaging and packaging waste
Amended by Directive 2004/12/EC
Directive 2005/20/EC

Council Directive 75/349/EEC on the disposal of waste oils
Amended by Directives 1987/101/EEC
91/692/EEC
2007/76/EC

Directive 2002/96/EC on waste electrical and electronic equipment

Air Quality

Directive 2008/1/EC concerning integrated pollution prevention and control.

Council Directive 1999/13/EC on limitations of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

Amended by Directive 2004/42/EC

Water Protection and Management

Directive 2000/60/EC establishing a framework for Community action in the field of water policy.

Directive 2006/118/EC on the protection of groundwater against pollution and deterioration

Council Directive 80/68/EEC protection of groundwater against pollution caused by dangerous substances

Soil protection See also waste and IPPC

CHEMICAL PRODUCTS

Directive 2006/121/EC and amendment Of 67/548/EEC and their adaptation to Regulation No. 1907/2006 regarding Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency.

Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations. Replaced by 1907/2006 from June 09

Council Directive 67/548/EEC relating to classification, packaging and labelling of dangerous substances. Amended by CLP regulations 1272/2008 and will be phased out

Directive 1999/45/EC relating to the classification, packaging and labelling of dangerous preparations. Amended by CLP regulations 1272/2008 and will be phased out

Directive 98/8/EC placing of biocidal products on the market
Amended by Directives 2006/50/EC, 2006/140/EC, 2007/20/EC, 2008/15/EC, 2008/16/EC, 2008/31/EC.

CONTROL OF RISKS

Council Directive 96/82/EC on the control of major accident hazards involving dangerous substances.

Directive 2007/60/EC on the assessment and management of flood risks

INTERNAL MARKET

Directive 97/23/EC on the approximation of laws of the Member States concerning pressure equipment.

Council Directive 87/404/EEC relating to simple pressure vessels
Amended by Directives 90/448/EEC
93/68/EEC

Directive 2006/42/EC on machinery, amending Directive 95/16/EC
Council Decision of 93/465/EEC concerning the modules for the various phases of the conformity assessment procedures and the rules for affixing and the use of CE conformity marking, which are intended to be used in the technical harmonisation Directives.



EWPM was formed in 1977 to create a focus for European wood preservative manufacturers to respond to developments in the standardisation and regulation of their products. It is governed by its Statutes most recently amended in 2008.

The aim of the EWPM is to promote, with integrity, the correct use of wood preservatives including production, transportation, utilization and disposal, by all means including but not limited to:

- taking any appropriate measures which are legal and are the decision of the voting members.
- acting on behalf of members, to promote an agreed position in all technical, scientific, regulatory, health, safety and environmental protection domains which interest the industry, directly or indirectly, with particular regard to Europe.

Wood preservative products supplied by EWPM members are manufactured under Quality Assurance procedures, typically EN ISO 9001:2008

This Code, whilst not statutory, is intended to reassure the regulatory authorities and the public of a company's commitment to comply with current legislation and to the process of continual improvement in health, safety and environmental performance.

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