



**Dricon™**

# Fire Retardant Treated Timber User Guide



## Guidance for Use

This document is designed to assist those using or specifying DRICON fire retardant treated materials. The document gives guidance prior to treatment and supplies information on ancillary properties and use post treatment.

DRICON treatment is available from the Lonza Wood Protection dedicated fire retardant treatment facility at Castleford (UK) and from certain authorised service treatment companies within European markets. Contact Lonza Wood Protection directly for details of these companies.

## Description

DRICON fire retardant treated material is material which has been impregnated with DRICON fire retardant under controlled conditions in a vacuum pressure timber impregnation plant, followed, when required, by kiln drying to return the material to an acceptable or specified moisture content.

DRICON treated material can be kiln dried or air dried depending upon the end use.

DRICON treated plywood can be produced with a stick mark free face on request, depending upon project requirements.

DRICON is an advanced waterborne fire retardant which does not contain halogenated products, formaldehyde, heavy metals or VOCs.

DRICON is a UK Wood Protection Association (WPA) approved status product.

DRICON is classified as INT2 (Interior2) humidity resistant, the highest classification for internal products.

DRICON is the only BBA (British Board of Agrément) certified fire retardant treatment for timber [Certificate N°87/1841 since 1987].

## Preparation of Timber for Treatment

The quality and appearance of the end-product is dependent on the quality and appearance of the substrate prior to processing. Timber and plywood should be presented to the Treatment Centre in a dry and clean condition as follows:

- Timber boarding must be dried to a moisture content of 13-19%, and preferably to its end use moisture content.
- Large cross sectional timber must have a moisture content of 28% or less, and preferably to its end use moisture content.
- Plywood must be dried prior treatment to a moisture content of 15% or less, and preferably to its end use moisture content.
- All inner and outer bark must be removed from solid timber prior to treatment.
- Material should be free from dirt, sawdust, surface coatings, surface water.
- Timber and plywood should not have received any previous preservative treatment.
- Material should be free from all signs of attack by bacteria, blue staining fungi, wood destroying fungi or insects.
- As far as possible, all ripping, profiling and extensive machining should be completed before treatment. See section on post-treatment machining.
- Timber and plywood must be adequately sheeted at all times during transport to and from the treatment plant and on-site.
- For plywood it is assumed that where there is a 'better' face, this presents upwards in the pack and is the face that will receive a stick mark free finish, if required.
- Packs must be adequately banded (not too tight) to avoid degradation during transport and handling and to allow good penetration during treatment. For maximum length and relevant pack size, please contact Lonza Wood Protection or the authorised treatment company.
- Staircases should come in component form, strapped to a pallet.
- All plywood should be Exterior grade (according to EN 636 and EN 314: Part 2 bonding class 3). For other panel product grades, there is a risk of swelling and loss of physical characteristics.
- Supply a minimum 5% extra material with each order to allow for kiln degrade and in-process sampling. Some species will require more of a wastage factor than others. Consult Lonza Wood Protection or the authorised treatment company for further advice.
- Timbers to be machined to close tolerances should be dried down to their estimated service equilibrium.

Slight dimensional changes can occur during treatment and Lonza Wood Protection or the authorised treatment company should be consulted if this may cause a problem.

It is advisable to have representative samples treated prior to carrying out full scale treatments. The client can then be assured of the acceptability of the treated product.

## Treatment of Pre-Glued Assemblies

In general, glued assemblies (including glued laminated timber and plywood) can safely be treated with DRICON providing a suitable waterproof adhesive has been used. Always consult the adhesive manufacturer on the suitability and use of their particular product and

follow the directions of the appropriate regional standards.

The adhesive must be allowed time to gain sufficient strength to tolerate the effect of the vacuum pressure treatment.

Plywood can safely be treated with DRICON provided it is an Exterior grade (according to BS EN 636).

Under previous systems, plywood was graded WBP (Weather and Boil Proof) under an old British Standard BS 1204. This standard has now been withdrawn. Now plywood grades are based on BS EN 636 (Dry, Humid and Exterior classifications), which themselves are based on bonding classes 1, 2 and 3 from BS EN 314 Part 2. Plywood that is BS EN 636.

Exterior grade (BS EN 314 Part 2 bonding class 3) should now be specified. Humid grade (bonding class 2) might be acceptable, but the board manufacturer or supplier should be asked to confirm that Humid grade board can be put through a high vacuum pressure treatment process. Delamination can occur with plywood of grading other than Exterior.

In the case of veneered plywood, veneers and plywood should be treated separately and bonded after treatment. The treatment of veneers is carried out on veneer flitches only, not lay-on veneers.

## Appearance

DRICON treated material may be used internally without a coating. The appearance of timber is not significantly affected by DRICON treatment.

Treatment may leave white deposits on the surfaces, particularly near the end of boards. These can be removed prior to fixing by light sanding followed by wiping with a damp cloth to remove all traces of deposits.

The treatment process can occasionally generate splitting, cracking, cupping or bowing of certain materials. Movements are dependent on species and commodities.

When material is to be used decoratively, if specified and where possible, it will be dried with a sticker mark free face for an architectural finish.

For pre-glued materials, any weaknesses in the glue line may be exaggerated as a result of treatment. This is most noticeable where uneven glue is spread or pre-curing has occurred in manufacture.

Plywood treatment can result in a slight degree of movement of the board.

## Confirmation of Treatment

DRICON treatments are carried out in accordance with BBA requirements and the UK WPA Quality Scheme operating under ISO 9001 Quality and ISO 14001 Environmental standards.

Full details of the DRICON treatment process are recorded for each charge treated. This ensures that the treatment conforms to specification and that the correct treatment procedure has been followed. A Treatment Certificate will be issued on request.

Please note that the treatment process parameters are varied according to the timber species and end use of the treated material commodity, taking into account the required fire performance.

## Post Treatment Storage

Before and after processing, the timbers and plywood must be protected from the weather during storage.

DRICON processed material, being kiln dried, will reach the building site at a pre-specified moisture content and is ready for immediate installation. If the treated material is to be stored on-site, prior to installation, this should be in a building with atmospheric conditions corresponding to its service environment.

If storage in a building is not possible, the treated material must be stored out of ground contact and well protected from the ingress of moisture and dirt by a protective covering (e.g. a tarpaulin or plastic sheeting) whilst allowing it to breathe.

DRICON treated timber and sheet materials are valuable building products and should be stored with care at all times to avoid physical damage and surface disfigurement.

## Post Treatment Machining

As far as possible all cutting, machining, notching and boring is to be carried out prior to treatment.

Fire classification applies to the final form of a material. The fire performance of any rip sawn, thickened, equalised, planed or extensively drilled material will be downgraded. The machined material must be returned to the treatment plant for re-treatment with DRICON. Providing that the cut edges of the treated timbers are butt jointed, timbers/plywoods can be sawn without affecting the fire retardant properties.

## Post Treatment Gluing

It is the end user's responsibility to ensure compatibility of any adhesive to be used. When DRICON treated material is to be bonded, always consult the adhesive manufacturer for suitable recommendations.

In consultation with the adhesive manufacturer, select an adhesive appropriate to the in-service exposure conditions and the load bearing or non-load bearing requirements. The adhesive manufacturer should also inform you on the suitability and use of their particular product and give guidelines to follow the directions of the appropriate regional standards. Prior to bonding, a preparation of the material might be required. Always consult your adhesive manufacturer for appropriate recommendations on surface preparation and specifications during bonding. For your information, the curing time and temperature during bonding might have to be increased.

## Decorative Surface Coatings

DRICON fire retardant treated timber should be installed only where it will not be exposed to precipitation or direct wetting in service. It is the end users responsibility to ensure compatibility of any coating to be used. When DRICON treated material is to be coated, always consult the coating manufacturer for suitable recommendations, and confirmation of adhesion and long term durability characteristics. Coated surfaces will require maintenance in accordance with the coating manufacturer's instructions.

When painting or staining, as with untreated timber, the surface should

be clean and dry throughout the surface. A light sanding and thorough wiping with a damp cloth, or power washing should be performed prior to the application of any finish to provide a clean surface and to smooth any raised grain to optimise adhesion. In the case of rough sawn timber or textured plywood, brush the surface prior to staining.

As with untreated wood, excessive surface moisture can cause finishing problems. The timber surface should be dried to appropriate moisture content prior to finishing. If coating is to be undertaken on site, it is important to take appropriate precautions to protect the treated product from exposure to rain or extreme dampness.

The paint or stain manufacturer's recommendations should be followed taking note of the recommended maximum moisture content. The recommendations on sound painting practices, which are detailed in local standards and Codes of Practice (eg. BS6150 - Code of Practice for the Painting of Buildings – UK), should be followed.

It is important to confirm with the coating manufacturer that the final finish does not downgrade the fire performance, achieved by the DRICON treatment. Highly flammable finishes such as nitro-cellulose based lacquers must not be used.

Always consult your coating manufacturer before applying a coating product to DRICON treated material.

## Metal Fixings and Fittings

Tests data show that corrosion of most metals in contact with DRICON treated materials is no greater than with untreated timber.

It is important to follow the recommendations of the manufacturer of any metal products used for specific advice regarding suitability, desired service life expectations and particular exposure conditions.

DRICON pressure treated timber has a long life expectancy and it is appropriate to use metal fixings and fastenings that will have a comparable length of life.

- Performance of metal fixings is influenced by the environmental conditions including moisture content, temperature, atmospheric pollution, proximity to coastal locations, timber species, as well as the thickness of any galvanising.
- It is good practice to drill pilot holes for fixings, in particular when screwing near the edge or end of a piece of timber.
- Attach connectors/fasteners/fittings after treatment and only after the timber has re-dried to less than 20% moisture content.
- In addition to the above, for internal building timbers, e.g. trussed rafters, it will be necessary to re-dry the timber to a moisture content of 22% or less before assembly and to maintain the timber in this condition during storage and delivery to site as recommended in local standards and Codes of Practice (eg. BS 5268 Part 3 Section 5.5 – UK).
- Galvanising provides a sacrificial zinc barrier. It is important that the specifier is aware that there are many thicknesses of galvanised coating available and the thicker the galvanised coating the longer the expected service life. The level of galvanising should be commensurate with the end use.
- Electroplated metals only provide a thin coating and are unsuitable for exterior applications.
- For exterior use, where the timber is likely to become wet and a long service life is required, greater corrosion resistance will be achieved with use of austenitic grade 316 stainless steel, silicone bronze or copper in preference to other types of fittings.
- To prevent bimetallic corrosion between fastener/connector

components it is important not to mix metals in the same connection. DO NOT mix galvanised and stainless steel components.

- Eurocode 5 (EN 1995-1-1: 2004) gives minimum specifications for material protection against corrosion for fasteners and fixings used in internal building, low hazard situations (Service Classes 1 and 2) where the moisture content of the treated timber will not exceed 20% throughout its service life.
- Fixings and fastenings used on safety critical and load bearing components should be inspected regularly and replaced if necessary.
- Specialist advice should be obtained in the selection of connectors for use in swimming pool buildings. Detailed advice is contained in the Nickel Development Institute document Stainless Steel in Swimming Pool Buildings 1995.

## Durability of Fire Performance

DRICON is a INT2, humidity resistant treatment and the treated timber has low hygroscopicity. It is suitable for interior use with up to 90% relative humidity and for exterior applications under a well maintained coating.

The durability of the reaction to fire performance in accordance with EN 16755\*, classifies DRICON treated timber as DRF Class INT2, the highest classification for an interior product.

\* EN 16755: European standard on Durability of Reaction to Fire Performance - Classes of fire retardant treated wood based product in interior and exterior end-use applications.

## Handling Precautions

DRICON treated timber and sheet materials are valuable building products and should be handled with care at all times to avoid physical damage and surface disfigurement.

Precautions should be taken to minimise exposure of those working with treated wood, especially to wood dusts.

The precautions given below should provide adequate protection.

You should have received the treated timber kiln-dried or in a surface dry condition with no sign of fire retardant fluid on the surface. If this is not the case, the affected timber should be stored open stacked under ventilated conditions and protected from rain and snow to dry before use. If there are signs of dampness due to treatment, then personnel should wear synthetic rubber gauntlets of an appropriate grade and thickness, impervious apron and impervious footwear, when handling the timber. If damp timber has inadvertently been handled then personnel should immediately wash hands and exposed skin, with warm soapy water.

When dried, DRICON treated timber should be handled with the same precautions as untreated wood.

Gloves must be worn to protect the skin against abrasions and splinters. Any cuts and abrasions should be protected by a waterproof dressing. Exposure to dusts must be minimised when power-sawing and machining DRICON treated materials, preferably by extraction systems adequate ventilation or otherwise by personal protective equipment as described below.

Dust masks and eye protection devices must be worn to avoid possible irritation from dust or chips when carrying out permissible cross cutting, notching or boring after treatment. Whenever possible, perform these

operations outdoors to avoid accumulations of airborne sawdust.

Avoid frequent or prolonged inhalation of sawdust. Consult local standards and Codes of Practice (eg. HSE Guide EH40, available on the HSE website [www.hse.gov.uk](http://www.hse.gov.uk)) for further information on workplace exposure limits for wood dust.

In order to prevent injury, care should be taken when lifting or moving timber.

These same precautions equally apply to untreated timber.

## Personal Hygiene

After handling or working with DRICON treated timber, all exposed skin should be washed before commencing other activities, especially eating, drinking, smoking or going to the toilet.

If sawdust accumulates on clothes, clean them before reuse.

Launder soiled clothes separately from other household wash items.

Cuts and abrasions should, in any event, be protected by a water proof dressing and personal hygiene should predominate as a matter of routine.

## Timber in Service

Once DRICON treated timber is installed exposure will be extremely low and there is considered negligible risk to human health.

## End Use Considerations

DRICON treated materials are designed to be used in all interior situations. DRICON pressure treated material is treated to meet the requirements of a particular end use. This end use suitability should be confirmed by the supplier of the treated timber.

It is best practice to prepare the timber as fully as possible prior to treatment to ensure best results.

As far as possible all cutting, machining, notching and boring is to be carried out prior to treatment. Fire classification applies to the final form of a material. The fire performance of any rip sawn, thickened, equalised, planed or extensively drilled material will be downgraded. The machined material must be returned to the treatment plant for retreatment with DRICON.

It is the end users responsibility to ensure compatibility of any adhesive to be used. When DRICON treated material is to be bonded, always consult the adhesive manufacturer for suitable recommendations.

It is the end users responsibility to ensure compatibility of any coating to be used. When DRICON treated material is to be coated, always consult the coating manufacturer for suitable recommendations, and confirmation of adhesion and long term durability characteristics. Coated surfaces will require maintenance in accordance with manufacturer's instructions.

## On-Site Precautions

All sawdust and construction debris should be cleaned up and disposed of after construction as below.

## Waste Disposal

DRICON treated timber, off cuts and end of life timber are classified as hazardous waste and should be consigned through registered waste handlers DRICON treated timber and post treatment processing wastes such as sawdust and offcuts, must not be used for animal litter or bedding or for fuel in barbecues, cooking stoves or grates.

Domestic end users should dispose of any waste treated timber, sawdust or ash through the ordinary waste collection service or at a local authority amenity/disposal site. Local market regulations should be referred to.

Any waste timber, sawdust or redundant timber from commercial or industrial use (e.g. construction sites) should be consigned through registered waste handlers.

## Further Information

For further information DRICON treated timbers or end grain preservatives please contact Lonza Wood Protection using the contact details below.

# Lonza

## Wood Protection

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