

# PRESERVATIVE TREATED WOOD

## – A SUSTAINABLE CHOICE



### South African Wood Preservers Association



A construction material provided and renewable by Nature, with predictable performance, that captures carbon from the atmosphere and locks it away for decades, with low energy demand and a feel-good appeal appreciated by almost everyone – **that's treated wood.**

Wood is part of the bioeconomy, can be sourced responsibly, is a flexible and adaptable material that can be used efficiently and aligns with the concept of a circular economy. At the end of its life wood can be reused in an ongoing process of uses, recycling or recovery of energy. Wood is consequently one of the few truly renewable construction materials.

Wood offers a simple way to reduce the CO<sub>2</sub> emissions through:

- **the carbon sink effect of the forests;**
- **the carbon storage effect of wood products; and**
- **substitution for carbon-intensive materials.**

Not only is the production and processing of wood energy efficient, giving wood products a low carbon footprint, but wood can often be used to substitute other materials like steel, aluminium, concrete or plastics, which require large amounts of energy to produce.

Every cubic metre of wood used as a substitute for other building materials reduces CO<sub>2</sub> emissions to the atmosphere by an average of 1.1 tonnes (t). If this is added to the 0.9 t of CO<sub>2</sub> stored in wood, each cubic metre of wood saves a total of 2.0 t CO<sub>2</sub>. Based on this, an increase in buildings whose main structural components are made of wood, will produce significant CO<sub>2</sub> savings as prescribed by the Kyoto Protocol\*.

#### WOOD PROTECTION

The natural durability of wood is limited to the heartwood, but this depends on the species, growth conditions and

provenance. Apart from a very few, mostly tropical hardwood species, most untreated wood is vulnerable to biodeterioration by fungal decay and wood destroying insects. These biological agencies also degrade the sustainability credentials of untreated wood leading to early failure in service, premature release of CO<sub>2</sub> and economic loss, more characteristic of a linear economy than a desirable circular economy.

Commercially important wood species are typically derived from locally grown well-managed forests delivering high growth rate material. Due to high demand, modern processing practices are designed to maximise wood production yield, meaning it is impractical and uneconomic to exclude sapwood.

The sapwood of all species are susceptible to insect and fungal attack, and requires protection against insect attack and, in prolonged wet conditions, fungal attack. If non-durable, heartwood may also require protection depending on the wood species, the conditions of use and the service life required. Most South African grown commercially important species of pine and eucalyptus are non-durable and requires preservative pre-treatment.

In recognising the short life of untreated wood when used in exposed applications and conditions, e.g., agriculture, marine and freshwater areas, structures and fencing, and the inconvenience and cost of failure, humankind has from antiquity attempted to prolong the life of wood. The discovery of the biological causes of wood damage and decay, coinciding with the start of the Industrial Revolution, led to the development of effective treatments. This has culminated in the preservatives and processes available now for many uses of treated wood that meet the health, safety and environmental requirements of today's regulatory regime.



\*International Institute for Environment and Development, Using Wood Products to Mitigate Climate Change, 2004

## SUSTAINABILITY

Sustainability is often defined as meeting the needs of the present without compromising the ability of future generations to meet theirs\*\*.

For true sustainability, we need to integrate the goals of a high quality of life, health and prosperity with social justice and maintaining the earth's capacity to support life in all its diversity. These **social, economic** and **environmental** goals are interdependent and mutually reinforcing, and are recognised widely as the three aspects of sustainability.

Only through balancing social, environmental and economic aspects can we achieve true sustainability. Both treated wood and the biocides used in wood protection conforms to the principles of sustainability and for clarity these are addressed separately.

## SUSTAINABLE USE OF BIOCIDES

Products containing biocides, such as wood preservatives, are a family of products intended to destroy or control harmful or unwanted organisms (such as fungi and insects) that have detrimental effects on the environment, on animals, on humans, their activities or the products they use or produce. Biocidal products are used in a wide variety of ways by both industrial and professional users as well as by the public.

Sustainable use can be defined for biocidal products as the objective of reducing the risks and impacts of the use of biocidal products on human health, animal health and the environment.

## Treated Wood – A Sustainable

**Choice** shows how economic, environmental and social aspects of use of biocides in wood protection deliver sustainability.

Wood preservatives were among the first biocidal products to be subject to regulation and standardisation in respect of these characteristics and consequently are now accepted as both

effective and safe, if and when used correctly and appropriately.

## TREATED WOOD AS A SUSTAINABLE MATERIAL

Treated wood is the material of choice in every situation where its characteristics make it suitable. With such protection, designers have the choice of the foremost renewable and sustainable material.

When structures come to the end of their life, treated wood may be segregated for cascading and recycling to extend the useful life of the material. Even when disposal eventually becomes the only option, energy generation by burning certain types of preservative treated timber, returns carbon to the atmosphere where it is turned back into wood by trees using the energy of sunlight. As the amount of CO<sub>2</sub> emitted from combustion is no more than the amount previously stored, burning wood is carbon neutral – a truly circular economy.

## Treated Wood – A Sustainable Choice

The full brochure uses four typical use-scenarios to demonstrate the sustainability characteristics of treated wood – wood for construction, railway sleepers, poles for electricity, telecommunications, landscaping and decking. It also sets out the Circular Economy credentials of treated wood and highlights the importance of best practice and education of designers, specifiers, installers and users and how the treated wood industry leads in developing guidance and programmes to assist these groups in optimising sustainable use of treated wood.



SAWPA would like to thank the European Institute for Wood Preservation (WEI-IEO) and the European Wood Preservative Manufacturers Group (EWPM) for allowing the use of information contained in their executive summary of the complete brochure.

The complete brochure – Treated Wood – A Sustainable Choice can be downloaded from [www.wei-ieo.eu](http://www.wei-ieo.eu) or [www.ewpm.org](http://www.ewpm.org)

For more information on wood preservation and preservative treated timber visit [www.sawpa.co.za](http://www.sawpa.co.za) or contact us at [admin@sawpa.co.za](mailto:admin@sawpa.co.za) or +27 11 974 1061



\*\*BS ISO 20400:2017 Sustainable procurement – Guidance