Wood Protection Developments in Europe.

Drivers for market and consumer change and implications for local wood treatment operations.

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Overview

Life sciences driven company.
Headquarters in Basel (Switzerland).
Sales of CHF 3.584 billion in 2013.
Global Operations.
Global leader.
Lonza Wood Protection

Tried, tested and trusted wood protection

- Tanalith E - Wood Preservative
- Tanalised Timber
- Tanatone - Premium Treated Timber with built-in Colour
- Vacsol - Treated Timber
- Antiblu - Sawn Protected Timber
Tried, tested and trusted fire protection

Why Use Timber?
Key Innovation Drivers
Regulatory Drivers
Performance Drivers
The Future
Why Use Timber?

Natural Beautiful Construction Material

- Sustainable material.
- Low energy to produce.
- Excellent insulator.
- Light yet strong.
- Low impact on environment.
- Recyclable.
- Treatments can improve performance.
The need for innovation

Key Innovation Drivers

- COMPETITION
- CHANGING BUSINESS CLIMATE
- TECHNOLOGY ADVANCES
- CHANGING CUSTOMERS & NEEDS
- REGULATORY ENVIRONMENT
- PERFORMANCE AESTHETICS ENVIRONMENT
Regulatory Drivers

Biocidal Products Regulations (BPR)
Registration, Evaluation, Authorisation of CHemicals (REACH)
Industrial Emissions Directive (IED)

Regulatory Drivers

Biocide Legislation
National legislation.
Different systems in each country in Europe - 27 members of the EU.
2000 – Biocidal Products Directive (98/8/EC) - Aim to harmonise all the different EU national systems.
1st step - review all active substances.
Regulatory Drivers

Biocide Legislation

2nd Step – re-authorise all products.

September 2013 – Biocidal Products Regulations (528/2012).

Current status.

Outcomes.

REACH

Registration, Evaluation, Authorisation of Chemicals (Regulations 1907-2006).

High hazard substances - substances of very high concern - SVHC.

Has impact on treated articles.

Reducing availability of substances in EU.
Industrial Emissions Directive 0210/75/EU (IED)

Rolls up a number of other directives.
Now includes all types of timber preservation processes.
Main change is to incorporate water based preservatives where feasible/practical.
To bring a consistent approach to regulation across Europe.

Implications to Customers
Plant capacity being used to “catch” most sites.
75m³/day based on 24 hour theoretical max throughput using UC1/2 cycles.
Exemption - legal or technical restriction.
Regulatory Drivers

IED

Cost Implications
Permit Process - up to £20,000 per site just to get an initial permit.

On-going annual permit fees plus BAT improvement programme.

Site procedures and documentation - Site condition report approx £10,000.

Inspecting authority to define course of action and recommendations.

Potential significant investment needs for some sites.

Performance Drivers

Modified Timber
Modified Timber

Modified timber is still considered as niche business across Europe.
Finding increasing favour by specifiers.

Main areas of use in Europe are;
• Cladding
• Joinery
• Decking
• Construction

Modified Timber

WPA Wood Modification Group

“Level playing field with preservatives with respect to performance”.

Define technical requirements.

Determine service life estimation, generic data requirements and assessment criteria.
Modified Timber

Durability classification DD CEN/TS 15083-1 (basidiomycetes)

- Class 5 – Not Durable
- Class 4 – Slightly Durable
- Class 3 – Moderately Durable
- Class 2 – Durable
- Class 1 – Very Durable

**Modified Timber**

**Market Potential**

BPR - Minimal impact as not considered biocides.

Fall into REACH requirements.

European recession has had significant impact.

Areas of concern:
- Cost (initial not whole life)
- Fire Performance
- Consistent Quality
- Durability/Performance (experience)
- Treatment Levels (partial, envelope, full)
- Heartwood/Sapwood
Performance Drivers - Preservatives

Preservative Efficacy
Application
Warranties
Aesthetics

Performance Drivers

Preservative Efficacy

PRODUCT

APPLICATION

WOOD PRESERVATIVE

PERFORMANCE
Preservative Efficacy

Penetration Requirement

<table>
<thead>
<tr>
<th>Penetration Class</th>
<th>Penetration Requirement</th>
<th>Analytical Zone</th>
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</thead>
<tbody>
<tr>
<td>NP1</td>
<td>None</td>
<td>3mm from the lateral faces</td>
</tr>
<tr>
<td>NP2</td>
<td>Min. 3mm lateral into the sapwood</td>
<td>3mm lateral into sapwood</td>
</tr>
<tr>
<td>NP3</td>
<td>Min. 6mm lateral into the sapwood</td>
<td>6mm lateral into sapwood</td>
</tr>
<tr>
<td>NP4</td>
<td>Min. 25mm lateral</td>
<td>25mm lateral into sapwood</td>
</tr>
<tr>
<td>NP5</td>
<td>Full sapwood</td>
<td>Full sapwood</td>
</tr>
<tr>
<td>NP6</td>
<td>Full sapwood and min. 6mm into exposed heartwood</td>
<td>Full sapwood and 6mm into exposed heartwood</td>
</tr>
</tbody>
</table>

EN 351-1 “Durability of wood and wood-based products”

Preservative penetration is key to performance.

The NTR are particularly stringent on penetration and it is a key quality criteria of their scheme.

Preservative Efficacy

Standards

Efficacy standards are clearly defined for Europe in EN 599-1 “Durability of wood and wood-based products.

Different requirements have been defined in each country e.g. Nordic (NTR), France (FCBA), Germany (DIBT).

The European standards look at standard organisms and use known field test sites (some are known copper tolerant sites). They do not evaluate aggressive copper tolerant and rogue organisms in the laboratory.
Efficacy

Concerns
- Premature failures.
- Loss of confidence.
- Field trial requirements.
- Industry reaction.

Efficacy Testing Philosophy

More robust performance

ROBUSTNESS TESTING

FIELD TESTING

LAB TESTING

Rigorous testing
Above and beyond standards
Development of BARamine™

Culmination of several years of R&D effort.
Contains a broad range of ingredients.
Improved efficacy.
Improved treatment properties.
Patents pending (2).

CORE PRODUCT
(COPPER + AZOLE)
Application
Preservative Treatment Processes

Treatment processes have been used to great effect worldwide for many years without any significant advances in the technology.

The main advances have been in the control and monitoring of the processes through computerisation/automation.

Incising Developments

The “issues” from a UK perspective.

Not new but the approach over the last 5 years has taken the established technology forwards.

The main advances have been in the intensity of the incising.

Incising allows significant improvement in the treatment of species such as Sitka Spruce and heartwood areas of all species.
Changes to BS8417
(UK treatment criteria)

Update issued mid year affecting 30yr DSL specification
Incising is most probably the only way it can be achieved.

Innovative incising technologies
End User Warranties

Restoring end user confidence.
Warranties.
Caveats.
Attempts for insurance with consequential losses is a difficult concept.

Aesthetics

Colour strike and longevity.
Water repellency
Mould/staining.
Colours

Colour in preservatives has been widely spread for many years.

Variations of brown additives have been increasingly popular.

Dyes.

Pigments.

Consumers looking for wider choice.

Tanatone

Ideal for rough sawn fencing and landscaping timbers.

Use Class 3 Uncoated & Use Class 4

BUILT-IN BROWN COLOUR
Ideal for landscaping, decking, roofing, cladding and log cabins.

Use Class 3 Uncoated & Use Class 4

BUILT-IN COLOUR WITH WATER REPELLENT

Product concept for the addition of colour to timber.

Improved colour strike.

Improved colour longevity.

No effect on preservative penetration.

Multiple colour possibilities.

Low impact on cash flow (minimal solution reservoir).

Increased treatment flexibility.
The Future

Future developments

- BPR Review of active substances.
- Limited number of actives.
- Fewer new actives.
- Product development has to be right.
- Increased costs for approvals.
- Mutual recognition.
- Drive to lower hazard products.
- End user warranties continue to be of increasing importance.
- WPA field trial study.
- Consumer needs.
Thank You