WHAT'S HAPPENING THERE THAT MAY BE OF VALUE TO US HERE QUALITY PROGRAMS ELSEWHERE

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Summary

Wood preservation quality control programs that in several countries are described along with developing trends that are emerging in this area. Where quality assurance programs exist, third party schemes predominate especially in the US. Trends are towards the development and adoption of ISO 9000 based schemes, where third party inspection provides an essential oversight function. In some countries ISO 9002 is being adopted directly while more prevalent is the adaptation of ISO 9002 as a framework for wood preservation quality assurance in order to provide treaters with more direct guidance and assistance in being able to meet the particular requirements of the industry.

Introduction

Wood preservation has been practiced commercially for some 150 years, and during that time standards for preservatives and treatment processes have been developed in many countries. Until the last ten years each country's standards were essentially independent of all other countries. However, with the rise of free trade agreements such as the European Union, the Australia/New Zealand free trade zone, and NAFTA, initially between Canada and the U.S., harmonization of standards has been broached, and in some cases implemented in order to ease export trade growth between the countries involved. While further harmonization of world wood preservative and treatment process standards is likely, to date quality assurance schemes within the industry have remained either national or non-existent. International trade in treated wood occurs primarily within Australasia and in the European sphere, while treated wood imports into island nations and states is increasing in a reaction to environmental pressures on disposal of treatment waste.

Quality assurance, total quality management, and other such issues relating to quality have become increasingly important across a range of industries. This rise in interest in quality perhaps relates to the growth of Japan's automobile exports during the last 20 years, where attention to quality changed customers' purchasing habits and expectations, and in doing so refocussed other countries automobile industries to quality so that they could compete.

This paper addresses wood preservation quality control programs that exist in several countries, and attempts to identify developing trends that appear to, and/or are likely to, become adopted on this continent in the future.

United States

Quality assurance in U.S. wood treating industry has been strong and approaching universal usage during the last twenty years, with a reliance on treating plant evaluation of wood borings for penetration and retention, coupled with a third party oversight program serviced by independent inspection agencies. Until the early 1990's, this program used the American Wood Preservers' Bureau (AWPB) to provide oversight and a degree of interpretation of the standards promulgated by the American Wood Preservers' Association (AWPA). However, the demise of the AWPB has led to oversight of the standards shifting to the American Lumber Standards Committee (ALSC). Perhaps in part because wood preservation is a new field to ALSC, and also because of their general operational mode, the US preservation industry has seen this oversight role change from interpretation of AWPA standards to implementation of these standards as written. This has caused some problems for the industry and will likely result in modification of some treatment standards in order to reflect the new reality.

United Kingdom

The United Kingdom wood preservation industry is only about 5% of the size of the US industry, but treatment is carried out in relatively many more treating plants than is the case in the US. Many of these plants are very small, and operate on an as-needed basis. Consequently, quality assurance is more problematic. It is estimated that 80% of treatment plants in the U.K. use no quality assurance, with another 15% of plants operating under the voluntary BWPDA nominated treater scheme, and perhaps 5% having independent ISO 9002 registration. It should be noted, however, that the larger plants tend to rely more on quality assurance of their treated product and thus the actual volume of lumber subjected to quality assurance will be higher than appears to be the case in terms of numbers of treating plant.

The Netherlands

Quality assurance in the Netherlands is noteworthy in respect of its relationship to environmental quality assurance at the treating plants. The Netherlands is unique in that many locations have a negative elevation from sea level. Consequently water quality is of paramount importance. The state has mandated that third party monitored rain-runoff - "shower" - tests be carried out to ensure that the treatment chemicals do not leach from the

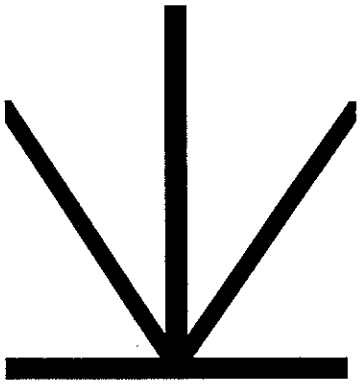
wood after completion of the treatment process. The completion of the process is defined by the actions necessary to meet the stringent levels established for runoff.

Australia

The Australian wood preservation industry faces challenges not unlike those in Canada. The most notable feature of the Australian industry is that it is in period of sustained growth, as the construction industries move from utilizing naturally durable hardwoods, to non-durable plantation softwoods. Australia is akin to Canada also in having relatively strong power devolved to the states (provinces), while the federal government retains relatively similar oversight. The dominant features of standards in Australia over the last decade has been the revision of the Australian wood preservation standard AS1604, which has taken many years, the development and adoption of a six class Hazard Class Standard, and the general harmonization of the Timber Marketing Acts' treatment requirements in Queensland and New South Wales with the federal standard. However, quality assurance has not been universally implemented. No ISO 9002 scheme has been developed nor has the industry adopted a comprehensive quality assurance program. It is possible that in the absence of an Australian Scheme, the Woodmark quality assurance scheme from New Zealand will be adopted in order for Australian treaters to compete with imports from that country.

New Zealand

Wood preservation in New Zealand is unusual in having by far the highest per capita usage of treated wood in the world, and also for the existence for many years of a government mandated, controlled, and inspected quality assurance scheme for treating plants. However, during the 1980's New Zealand changed from being a highly organized and controlled society, to one where government controls, ownership and support were lifted in conjunction with a lowering of the tax burden. One feature of this change was the demise of the Timber Preservation Association, and its control of the industry. In response, the treaters established the Timber Preservation Council Inc., an industry association which develops standards including a six class Hazard Class scheme, but more importantly has developed a quality control scheme that is very closely based on ISO 9002 structures and includes a comprehensive manual for quality assurance within the industry. Compliance, and continued compliance with the quality assurance scheme allows the treater to mark treated products with the Woodmark symbol shown below. This symbol, and the marketing programs associated with it, have become the cornerstone for the rebirth and redevelopment of the New Zealand wood preservation industry, following a period of considerable upheaval and economic disruption. It should also be noted that the Woodmark program is now being promoted in Australia as a key mechanism to increasing exports to that rapidly growing market.



ISO 9002 Based Quality Schemes

If there is a clear trend in quality assurance worldwide, it is the adoption of the ISO 9000 series of standards by many industries, including the wood preserving industry. The cornerstone of these standards is documentation, documentation, and documentation. The standards accept that all work is accomplished by a process, each process has inputs, and outputs are the results of a process. Furthermore, every process involves people and/or other resources, and that quality assurance depends on the measurement of inputs, during process, and outputs.

The criteria used accept that processes are defined and the procedures appropriately documented, processes are fully deployed and implemented as documented, and that processes are effective in providing the expected results.

The British and New Zealand wood preservation quality control schemes share many features. Within the BWPDA Quality Guidance Note, chemical suppliers must be ISO 9001 approved, while treaters need not be ISO 9002 approved. In general, the treaters are required to be self-audited twice per year and supplier-audited twice year. These requirements are consistent with operations under an ISO 9002 program. The BWPDA criteria for inspection and testing require control of the wood preservative, control of the wood supply, and control of the treatment process. In the case of the control of the wood preservative, the approved supplier must operate under ISO 9001, the chemical must be checked on receipt to compare with its specification, and the preservative must be mixed and analyzed as per instructions. Naturally all of these actions must be documented. For the control of the wood supply, the wood should be clean, identified as to species/group, the charge volume should be measured and recorded, and the moisture content measured and recorded. Process controls require the correct selection of the process to be used, selection of solution strength appropriate for the process, detailing of the vacuum and pressure used in the process, recording of these process details, monitoring and control of treatment temperatures, and statistical analysis if required.

Other factors that are included in the scheme, and for that matter all ISO 9002 schemes, are equipment calibrations, documentation of inspections, control of non-conformance product, corrective actions in response to customer complaints, handling, storage, packing, delivery records, quality records retention, quality audits, and personnel training programs.

The quality records form the heart of the documentation and these should include preservative order and delivery notes, preservative concentrate stock records, product Technical Data and MSD sheets, process charge sheets, solution strength records, test and calibration records, treatment certificates, reject records, training records, customer specification records, process operating instructions or manuals, and records of quality audits. Within the area of process charge sheets the requirements are little different from that which many treatment plants used today. The requirements include documentation of the material in the charge, identification of each charge with the treatment cylinder used, the wood volume in a charge, the wood moisture content, the wood species, the process specified, the process parameters used, the preservative absorption obtained and the results of analyses as required.

The New Zealand scheme also lays out the sampling schedules required in different hazard classes. For instance in Hazard Classes H1 - H3 (all above ground uses), following sampling for initial qualification, Level 1 requires sampling every 10th charge of the first 40, Level 2 requires sampling every 20th of the next 80, and Level 3 plateaus at sampling only every 40th charge. Similarly, under the more stringent needs of wood destined for Hazard Classes H4 and H5, sampling schedules require initial qualification, followed by Level 1 with sampling of every 5th charge of the next 20, Level 2 with sampling of every 10th charge of the following 20, and the Level 3 plateau being sampling every 30th charge.

Conclusions

It is apparent that while third party schemes persist, especially in the US, the trend is towards the development and adoption of ISO 9000 based schemes, where third party inspection provides an essential oversight function. It is also apparent that the industry in some countries is adapting the ISO 9002 scheme directly to wood preservation and thus providing the treater with more direct guidance and assistance in being able to meet the particular requirements of our industry while maintaining the level of quality assurance required.