

TECHNICAL REPORT

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Quality of sawn wood used for the construction of pallets

Qualité des bois utilisés pour la fabrication de palettes



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 11444, which is a Technical Report of type 2, was prepared by Technical Committee ISO/TC 51, *Pallets for unit load method of materials handling*.

This document is being issued in the type 2 Technical Report series of publications (according to subclause G.4.2.2 of part 1 of the ISO/IEC Directives, 1992) as a "prospective standard for provisional application" in the field of sawn wood used for the construction of pallets because there is an urgent need for guidance on how standards in this field should be used to meet an identified need.

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This document is not to be regarded as an "International Standard". It is proposed for provisional application so that information and experience of its use in practice may be gathered. Comments on the content of this document should be sent to the ISO Central Secretariat.

A review of this type 2 Technical Report will be carried out not later than two years after its publication with the options of: extension for another two years; conversion into an International Standard; or withdrawal.

Annex A of this Technical Report is for information only.

Introduction

Components of wooden pallets typically exhibit major differences in physical and mechanical properties between pieces of identical shape, size and species. These differences are caused by natural variations in the growth of a living tree, the anisotropic characteristics of wood, and the manufacturing practices used in the conversion of wood into industrial and consumer products. Each of these differences significantly alters the physical, mechanical and aesthetic properties of wood and wood by-products.

The properties of wooden pallets of like design will vary significantly if the size, frequency, location and type of variation are not controlled. For example, a large knot located above the notch cut into a wooden stringer/bearer can cause potentially catastrophic failure of a pallet in bending, even when the pallet is carrying well below its rated load.

Some of the variations affecting the physical and mechanical properties of wood are a direct result of infestation or plant diseases such as American or European chestnut blight and Dutch elm disease. The unrestricted intercontinental distribution of pallets containing infested wood can and has resulted in the devastation of unresistant timber species.

Reasons for recognizing natural variations in wood in order to control the quality of sawn wood in pallets include:

- assembly of the most cost-effective pallet;
- selection of a superior pallet at minimal cost;
- determination of the life cycle cost between pallets of differing grades and quality;
- prediction of the strength of pallets of like design;
- prevention of potentially dangerous failure;
- control of the spread of plant disease.

The Technical Committee ISO/TC 51 has therefore decided to publish these guidelines, prepared by Working Group WG 5, in the form of a Technical Report.

In view of the way in which current ISO test methods and performance requirements for pallets are specified and the general move by national and international standardization bodies away from specifying strict material quality standards, this Technical Report does not provide grading rules intended to ensure a minimum strength quality of wood. It is essential that it remains possible to meet the performance requirements specified in ISO/TR 10233 using any hardwood or softwood, from any country in the world, by modifying the wood or fastenings content to achieve the required performance.