



International
Standard

ISO 6350

**Lignins — Determination of dry
matter content — Oven-drying and
freeze-drying methods**

*Lignines — Détermination de la teneur en matières sèches —
Méthodes par séchage à l'étuve et par lyophilisation*

**First edition
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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*.

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Introduction

This document describes methods for the determination of dry matter content in lignins by oven-drying or freeze drying.

In general, freeze-drying is preferred over oven-drying at 105 °C, especially for kraft lignins in the sodium form, in order to preserve the integrity of the sample. In a study on the effect of drying on lignin solids^[1], kraft lignins - particularly hardwood lignins - in the base form (also referred to as sodium form) were most affected by oven-drying. In some cases, the solids contents of oven-dried samples were over four percentage points lower than those of the corresponding freeze-dried samples.

When drying samples prior to the determination of other lignin properties, only the freeze-drying method is acceptable. Water interferes with certain lignin analyses^[2,3], and oven-drying might lead to changes in lignin structure as a result of, for example, decomposition or condensation reactions. Thus, any residual water is removed from the test specimen through lyophilization (freeze-drying). In addition, freeze-drying prevents the loss of volatile organic compounds (VOC's) which can be determined separately if required.

Several related procedures for the preparation of biomass for compositional analysis and for the determination of solids and extractives in biomass have been published by the National Renewable Energy Laboratory (NREL)^[4-7]. However, the procedures described in this document are specifically applicable to lignins.

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