



BSI Standards Publication

Lignins — Determination of carbohydrate composition in kraft lignin, soda lignin and hydrolysis lignin

National foreword

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carbohydrate composition in kraft
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Foreword

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

There is a rapidly-growing worldwide interest in developing novel applications for lignin as a replacement for fossil-based raw materials in products including carbon fibre, adhesives, thermoplastics, resins, composites, and various chemicals. In addition, the use of lignin in these and other applications will offload recovery boilers in pulp mills, allowing more efficient recovery of pulping chemicals and increased pulp production. These benefits translate into reduced environmental impact and improved sustainability owing to the use of renewable materials.

In order to ensure harmonization of testing practices among lignin producers and to facilitate trade, the use of international standard methods is needed to characterize the lignin raw material for a wide range of properties such as general composition, functional groups, molecular weight distribution, particle size, structural features, and thermal behaviour and stability.

The carbohydrate composition - the contents of the five principal, neutral monosaccharides; arabinose, galactose, glucose, xylose and mannose - provides chemical information about the main polysaccharides in lignin. The total content and composition of carbohydrates also provide an indication of the purity of the lignin isolated from the kraft pulping process (kraft lignin) or the soda pulping process (soda lignin), or that obtained by hydrolysis of biomass (hydrolysis lignin).

The methods described in this document are based on those described in other publications^{[1][2]}. Although the principle is similar to that described in ISO 21437^[3] and other related methods^{[4][5][6]} for the determination of carbohydrates in pulp, the properties and end-use applications of lignin, as well as several steps in the testing procedure, including sampling, sample preparation, and others, are different from those of pulp.

