
**Plastics — Epoxy resins —
Determination of degree of
crosslinking of crosslinked epoxy
resins by differential scanning
calorimetry (DSC)**

*Plastiques — Résines époxydes — Détermination du degré
de réticulation des résines époxydes réticulées par analyse
calorimétrique différentielle (DSC)*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO 14322:2012), of which it constitutes a minor revision.

The changes compared to the previous edition are as follows:

- the title has been updated (DSC has been added at the end);
- [Clause 2](#) has been updated;
- the subclauses under [7.2](#) have been renumbered;
- editorial changes have been applied.

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

It is possible to determine the degree of crosslinking of a crosslinked epoxy resin by observing changes in its mechanical, electrical or thermal properties.

However, such an approach is inadequate in cases in which the test sample is to be evaluated as is or is to be examined under various crosslinking conditions. This document provides a method whereby the degree of crosslinking is determined without the need for complicated procedures for preparing, conditioning or configuring the test sample. The degree of crosslinking is determined by comparing the heat of the crosslinking reaction for the test sample with that of a reference sample, using a differential scanning calorimeter.

The advantages of this method are that sample preparation is simple and measurements can be made with very small amounts of sample. For these reasons, this document is useful for investigations of, and in establishing conditions for, crosslinking reactions. It can also be used for production and quality control.

Finally, since epoxy resin systems are highly diverse, the applicability of this document to each resin system needs to be established. A technique to test the applicability to an epoxy resin system is included in this document.

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