
**Plastics — Unsaturated polyester resins —
Determination of hydroxyl value**

*Plastiques — Résines de polyesters non saturés — Détermination de
l'indice d'hydroxyle*



Foreword

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International Standard ISO 2554 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO 2554:1974), of which it constitutes a minor (editorial) revision.

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Plastics – Unsaturated polyester resins – Determination of hydroxyl value

1 Scope

This International Standard specifies a method for determining the hydroxyl value of unsaturated polyester resins.

In fact, this method determines the difference between the hydroxyl value and the acid value; it is therefore necessary to determine the total acid value separately, in order to calculate the hydroxyl value.

NOTE 1 The hydroxyl value of saturated polyester resins (for example, polyester resin used for the manufacture of polyurethanes and polymeric plasticizers) and of certain types of alkyd resins may also be determined by this method.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2114:1996, *Plastics — Unsaturated polyester resins — Determination of partial acid value and total acid value*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

3 Definitions

For the purposes of this International Standard, the following definitions apply:

3.1 hydroxyl value: The number of milligrams of potassium hydroxide necessary to neutralize the acetic acid which will combine, by acetylation, with 1 g of an unsaturated polyester resin.

3.2 acid value: The number of milligrams of potassium hydroxide required to neutralize 1 g of a test sample under the test conditions.

3.3 total acid value: The acid value corresponding to the neutralization of all carboxyl-terminated groups and free acids and free anhydrides of a polyester.

4 Principle

The hydroxyl groups in the resin are acetylated by reacting an ethyl acetate solution of the resin with acetic anhydride in the presence of toluene-4-sulfonic acid catalyst. The excess acetic anhydride is hydrolysed by a pyridine/water mixture and the resultant acetic acid is titrated with methanolic potassium hydroxide solution.