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INTERNATIONAL STANDARD



3072

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Wool — Determination of solubility in alkali

*Laine — Détermination de la solubilité en milieu alcalin*

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## FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3072 was drawn up by Technical Committee ISO/TC 38, *Textiles*, and circulated to the Member Bodies in October 1974.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	Romania
Belgium	India	South Africa, Rep. of
Bulgaria	Iran	Spain
Canada	Ireland	Sweden
Chile	Israel	Turkey
Czechoslovakia	Japan	United Kingdom
Denmark	Netherlands	U.S.A.
Finland	New Zealand	U.S.S.R.
Germany	Poland	Yugoslavia

No Member Body expressed disapproval of the document.

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This International Standard is based on Test Method IWTO-4-60, drawn up by the International Wool Textile Organization (IWTO).

# Wool — Determination of solubility in alkali

## 0 INTRODUCTION

The solubility of wool in alkali provides a useful index of the extent of the change in its chemical properties brought about by certain agencies. Treatment with acids, oxidizing or reducing agents and exposure to heat or light cause an increase in the solubility, whereas treatment with alkalis or cross-linking agents causes the solubility to decrease. The change in solubility is thus a measure of the severity of the treatment.

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the solubility of wool in alkali.

The method is applicable to wool textiles in any form, namely loose fibre, sliver, roving, yarn or cloth. The test is most useful when an untreated control sample is available and when the nature of the treatment of the sample under test is known, i.e. as a method of control. When the sample has been treated by two agencies having opposite effects on the solubility, the interpretation of the results, even when an untreated control sample is available, is difficult and may be misleading.

## 2 REFERENCES

ISO 1130, *Textile fibres — Some methods of sampling for testing.*

ISO 3071, *Wool — Determination of the pH value of the aqueous extract.*

ISO 3073, *Wool — Determination of acid content.*

## 3 PRINCIPLE

Immersion of the wool in sodium hydroxide solution under specified conditions of time, temperature and volume. Determination of the loss in mass as the difference in the mass of the dry sample before and after treatment.

## 4 REAGENTS

**4.1 Sodium hydroxide**, 0,1 N solution.

**4.2 Acetic acid** solution containing 10 ml of glacial acetic acid per litre.

## 4.3 Dichloromethane

**WARNING.** Dichloromethane is toxic; the room in which extractions are made shall be adequately ventilated.

## 5 APPARATUS

**5.1 Soxhlet extraction apparatus.**

**5.2 Water-bath**, thermostatically controlled at  $65 \pm 0,5$  °C. To ensure uniform temperature, the water must be stirred.

**5.3 Stoppered flasks** with a working capacity of 100 ml, of the same shape and wall thickness.

**5.4 Sintered-glass filtering crucibles**, 30 ml capacity, porosity 1. If possible, these crucibles should have ground glass stoppers. If ground glass stoppers are not available, the crucibles shall be enclosed in weighing bottles for determination of their masses.

**5.5 Filter-flask, filter-pump, and adaptor** to enable the crucibles to be fitted to the filter-flask.

**5.6 Ventilated oven** for drying samples at  $105 \pm 3$  °C.

**5.7 Stoppered weighing bottles** for obtaining the masses of test specimens.

**5.8 Analytical balance**, accurate to 0,000 2 g.

**5.9 Desiccator.**

## 6 SAMPLING

Take a sample representative of the bulk and sufficient to provide wool (free of fat and vegetable matter) for the following test specimens :

- one test specimen of mass approximately 1 g for determining dry mass (see 7.3);
- two test specimens each of mass approximately 1 g for determining the solubility in alkali (see 7.4);
- two test specimens each of mass approximately 2 g for determining the acid content (only required when the sample contains acid — see 7.5).

Useful information on sampling is given in ISO 1130.