

International Standard



7027

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Water quality — Determination of turbidity

Qualité de l'eau — Détermination de la turbidité

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

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 7027 was developed by Technical Committee ISO/TC 147, *Water quality*, and was circulated to the member bodies in March 1983.

It has been approved by the member bodies of the following countries:

Australia	Iran	Romania
Austria	Iraq	South Africa, Rep. of
Belgium	Japan	Spain
Canada	Korea, Dem. P. Rep. of	Sweden
Czechoslovakia	Korea, Rep. of	Switzerland
Finland	Netherlands	Thailand
Germany, F.R.	New Zealand	United Kingdom
India	Poland	

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Denmark
France

Water quality — Determination of turbidity

0 Introduction

Turbidity in liquids is caused by the presence of undissolved matter. In the case of undissolved, finely dispersed matter, the turbidity may be determined by measuring the attenuation of a radiant flux as it passes through the liquid or by measuring the intensity of diffused radiation. The diffusion of radiation is a property of liquids and can be used to measure turbidity. This International Standard describes both of these methods, together with methods which, although largely superseded since the development of optical turbidimeters, are still used for semiquantitative determinations, for example to obtain information in field work on surface and waste waters.

1 Scope and field of application

This International Standard specifies four methods for the determinations of turbidity of water.

Section one specifies semiquantitative methods, employed for example in field work:

- a) method using the transparency testing tube (suitable for pure and lightly polluted water);
- b) method using the transparency testing disk (especially suitable for surface water).

Section two specifies quantitative methods using optical turbidimeters:

- a) method by measuring diffused radiation, applicable to water of low turbidity (for example drinking water). Depending on the instrument design, it may also be used for waters of higher turbidity;
- b) method by measuring the attenuation of a radiant flux, more suitable for highly turbid waters (for example waste or polluted waters).

Measurements of turbidity can be affected by the presence of dissolved light-absorbing substances (substances imparting

colour). Such effects can be minimized, however, by performing measurements at wavelengths greater than 800 nm. Only a blue colour, which may be found in certain polluted waters, slightly affects measurements of turbidity in this region of the spectrum. Air bubbles may also interfere with measurements but such interference may be minimized by careful handling of the samples.

2 References

ISO 3864, *Safety colours and safety signs*.

CIE Publication No. 17, *International Lighting Vocabulary*.

3 Definitions

For the purpose of this International Standard, the definitions given in CIE Publication No. 17, and the following, apply.

turbidity: Reduction of transparency of a liquid caused by the presence of undissolved matter.

See also clause 7.

4 Sampling and samples

Maintain all glassware that comes into contact with the sample in a scrupulously clean condition. Wash with hydrochloric acid or surfactant cleaning solution.

Collect samples in glass bottles, fit stoppers, and carry out the determinations as soon as possible after collection. If storage is unavoidable, store the samples in a cool, dark room but not longer than 24 h. If the samples have been stored cool, allow to come to room temperature before measurement. Prevent contact between the sample and air and avoid unnecessary changes in the temperature of the sample.