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English Version

**Water quality - Determination of turbidity - Part 1:
Quantitative methods (ISO 7027-1:2016)**

Qualité de l'eau - Détermination de la turbidité - Partie
1: Méthodes quantitatives (ISO 7027-1:2016)

Wasserbeschaffenheit - Bestimmung der Trübung - Teil
1: Quantitative Verfahren (ISO 7027-1:2016)

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European foreword

This document (EN ISO 7027-1:2016) has been prepared by Technical Committee ISO/TC 147 “Water quality” in collaboration with Technical Committee CEN/TC 230 “Water analysis” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.

This document supersedes EN ISO 7027:1999.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 7027-1:2016 has been approved by CEN as EN ISO 7027-1:2016 without any modification.

Water quality — Determination of turbidity —

Part 1: Quantitative methods

*Qualité de l'eau — Détermination de la turbidité —
Partie 1: Méthodes quantitatives*



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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 preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

This first edition of ISO 7027-1, together with ISO 7027-2, cancels and replaces ISO 7027:1999, which has been technically revised.

ISO 7027 consists of the following parts, under the general title *Water quality — Determination of turbidity*:

— *Part 1: Quantitative methods*

The following part is under preparation:

— *Part 2: Semi-quantitative methods*

Introduction

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 carbon black and a blue colour, which can be found in certain polluted waters, slightly affects measurements of turbidity in this region of the spectrum. Air bubbles can also interfere with measurements, but such interference can be minimized by careful handling of the samples.

It is to be investigated whether and to what extent, particular problems will require the specification of additional marginal conditions.

Water quality — Determination of turbidity —

Part 1: Quantitative methods

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This International Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this International Standard be carried out by suitably qualified staff.

1 Scope

This part of ISO 7027 specifies two quantitative methods using optical turbidimeters or nephelometers for the determination of turbidity of water:

- a) nephelometry, procedure for measurement of diffuse radiation, applicable to water of low turbidity (for example drinking water);
- b) turbidimetry, procedure for measurement of the attenuation of a radiant flux, more applicable to highly turbid waters (for example waste waters or other cloudy waters).

Turbidities measured according to the first method are presented as nephelometric turbidity units (NTU). The results typically range between <0,05 NTU and 400 NTU. Depending on the instrument design, it can also be applicable to waters of higher turbidity. There is numerical equivalence of the units NTU and formazin nephelometric unit (FNU).

Turbidity measured by the second method is expressed in formazin attenuation units (FAU), results typically range between 40 FAU and 4 000 FAU.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CIE Publication No. 17, *International Lighting Vocabulary*

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