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Water quality — Determination of the chemical oxygen demand index (ST-COD) — Small-scale sealed-tube method

*Qualité de l'eau — Détermination de l'indice de demande chimique en
oxygène (ST-DCO) — Méthode à petite échelle en tube fermé*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15705 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

Annexes A to G of this International Standard are for information only.

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Introduction

The chemical oxygen demand, ST-COD value, of water as determined by this dichromate method can be considered as an estimate of the theoretical oxygen demand, i.e. the amount of oxygen consumed in total chemical oxidation of the organic constituents present in the water. The degree to which the test results approach the theoretical value depends primarily on how complete the oxidation is. The ST-COD test is an empirical test and the effects of any oxidizing or reducing agents are included in the result. Under the conditions of the test, many organic compounds and most inorganic reducing agents are oxidized to between 90 % and 100 %. For waters that contain these compounds, such as sewage, industrial waste and other polluted waters, the ST-COD value is a realistic measure of the theoretical oxygen demand. However, for waters that contain large quantities of other substances that are difficult to oxidize under the conditions of the test, such as nitrogenous and heterocyclic compounds (e.g. pyridine and aliphatic and aromatic hydrocarbons), the ST-COD value is a poor measure of the theoretical oxygen demand. This may be the case for some industrial effluents.

The significance of an ST-COD value thus depends on the composition of the water studied. This should be borne in mind when judging results obtained by the method specified in this International Standard.

Detailed testing has shown good comparison between this method and the method of ISO 6060. However, it should not be assumed that this method is comparable in all cases to that of ISO 6060 without testing, particularly when there is a problem in obtaining a 2 ml representative sample (e.g. samples with high content of suspended solids).