
Hydrometry — Functional requirements and characteristics of suspended- sediment samplers

*Hydrométrie — Spécifications de fonctionnement et caractéristiques
des appareils d'échantillonnage pour la détermination des charges
sédimentaires en suspension*



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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.

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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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

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An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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

ISO/TS 3716 was prepared by Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 6, *Sediment transport*.

This first edition of ISO/TS 3716 cancels and replaces ISO 3716:1977, which has been technically revised.

Introduction

Suspended-sediment samplers are used to collect a representative sample of the water-sediment mixture of rivers and streams. Ideally, the sampler should be able to collect samples that represent the mean concentration of suspended sediment or define the horizontal and vertical variation of suspended-sediment concentration so that the mean concentration can be determined. Samplers have gradually evolved from those that collect an instantaneous sample at one point in a stream or river to streamlined samplers that collect time and/or depth-integrated samples. There are a number of different types of samplers available for collecting suspended sediment, including open containers, vertical and horizontal cylinders, bottle samplers, pumping samplers, single-stage samplers, point-integrating samplers and depth-integrating samplers. Some samplers have also been adapted to enable the collection of clean (uncontaminated) samples of trace metal and organic compounds that are commonly associated with suspended sediment in streams and rivers.

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Hydrometry — Functional requirements and characteristics of suspended-sediment samplers

1 Scope

This Technical Specification specifies the functional requirements and characteristics of the different types of suspended-sediment samplers.

NOTE The units of measurement used in this Technical Specification are SI units.

2 Normative references

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

ISO 772, *Hydrometric determinations — Vocabulary and symbols*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 772 and the following apply.

3.1

isokinetic

intake velocity of the suspended-sediment sampler equals the ambient stream velocity

4 Requirements of samplers

In order that the samples taken by a sampler are truly representative of the sediment concentration of a stream at a point of sampling, the ideal sampler should fulfil the following technical requirements.

- a) The sampler shall be streamlined to reduce drag and to minimize disturbances to normal sediment flow.
- b) The velocity of inflow in the mouth of the sampler, nozzle or sampling tube shall be isokinetic or as close as possible to the velocity of the current of water at the sampling point, irrespective of what this velocity may be or irrespective of what the depth of submergence at this point may be. This aspect is most important if large sampling errors are to be avoided.
- c) The mouth/intake of the sampler shall always face into the current at the sampling point.
- d) The mouth/intake of the sampler shall be outside the zone of the disturbances of the flow set up by the body of the sampler and its operating gear, and the flow lines shall be disturbed as little as possible, especially near the mouth.