

This is a preview of "ISO 5667-1:2020". Click here to purchase the full version from the ANSI store.

Third edition
2020-12

Water quality — Sampling — Part 1: **Guidance on the design of sampling programmes and sampling techniques**

Qualité de l'eau — Échantillonnage —

*Partie 1: Recommandations relatives à la conception des programmes
et des techniques d'échantillonnage*



Reference number
ISO 5667-1:2020(E)

This is a preview of "ISO 5667-1:2020". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of "ISO 5667-1:2020". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General safety precautions	1
4.1 Safety of Personnel	1
4.2 General environmental considerations	2
5 Design of sampling programmes	2
5.1 General	2
5.2 Sampling personnel	3
5.3 Broad objectives for the design of sampling programmes	3
5.4 Specific considerations in relation to variability	5
5.5 Identifying the sampling location	5
6 Characteristics and conditions affecting sampling	6
6.1 General	6
6.2 Variations from normal sampling conditions	7
7 Standards for sampling from water	7
7.1 General standards in the 5667 series	7
7.2 Standards outside the 5667 series that provide guidance on sampling programmes in specific areas	8
7.3 Standards within the ISO 5667 series providing specific guidance on the sampling of a range waters	9
8 Time and frequency of sampling	13
8.1 General	13
8.2 Water quality management programmes	13
8.3 Quality characterization programmes	13
8.4 Programmes for investigation of causes of contamination	13
8.5 Statistical considerations	14
8.5.1 Establishment of sampling programmes	14
8.5.2 Random and systematic variations of water quality	14
8.6 Duration of sampling occasion and composite samples	15
9 Flow measurements and situations justifying flow measurements for water quality purposes	15
9.1 General	15
9.2 Direction of flow	16
9.3 Velocity of flow	16
9.4 Discharge rate	16
9.5 Flow profile	16
9.6 Cross-sectional area	17
9.7 Justification for flow measurements in water quality control management	17
9.7.1 Treatment plant loads	17
9.7.2 Dilution effects (flux calculations)	17
9.7.3 Mass flow calculations	17
9.7.4 Transport of contaminants and rates of recovery	17
9.7.5 Flow-related parameters	17
9.7.6 Groundwaters	18
9.8 Methods available for flow measurement	18
10 Current sampling techniques	19
10.1 General	19
10.2 Spot samples	19
10.3 Periodic samples (discontinuous)	20

This is a preview of "ISO 5667-1:2020". Click here to purchase the full version from the ANSI store.

10.3.1	Periodic samples taken at fixed time-intervals (time-dependent) or constant time constant volume (C.T.C.V.)	20
10.3.2	Periodic samples taken at fixed flow-intervals (volume-dependent) or constant time variable volume variable time (C.T.V.T.)	20
10.3.3	Periodic samples taken at fixed flow-intervals (flow-dependent) or constant volume variable volume sampling (C.V.V.V.)	20
10.4	Continuous samples	20
10.4.1	Continuous samples taken at fixed flow rates (time-continuous samples)	20
10.4.2	Continuous samples taken at variable flow rates (flow-continuous samples)	20
10.5	Series sampling	20
10.6	Composite samples	21
10.7	Large-volume samples	21
11	Passive sampling	21
12	Sampling equipment for physical or chemical characteristics	22
12.1	General	22
12.2	Sampling containers	22
12.2.1	General	22
12.2.2	Types of sample container	23
12.3	Equipment for spot sampling	24
12.4	Sampling equipment for sediments	24
12.4.1	Grab or dredge sampling	24
12.4.2	Core samplers	24
12.5	Sampling equipment for dissolved gases and volatile materials	24
12.6	Sampling equipment for radioactivity characteristics	25
12.7	Sampling equipment for biological and microbiological characteristics	25
12.8	Automatic sampling equipment	25
12.9	Sampling equipment for passive sampling	26
12.10	Sampling equipment for suspended sediments	26
13	Quality assurance and quality control of environmental water sampling and handling	26
13.1	General	26
13.2	Sources of contamination	27
13.3	Control or prevention of contamination	27
14	Transport to, and storage of samples at, the depot or laboratory	28
15	Sample identification and records	28
15.1	General	28
15.2	Data management	29
15.3	Samples that might be used for legal purposes	29
Annex A	(informative) Diagrams illustrating types of periodic and continuous samples	30
Annex B	(informative) Diagrams illustrating types of field paperwork and labels etc	33
Annex C	(informative) Alternative and emerging sampling techniques	35
Annex D	(informative) Preparation of sampling equipment	37
Bibliography	38

This is a preview of "ISO 5667-1:2020". Click here to purchase the full version from the ANSI store.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 6, *Sampling management*.

This third edition cancels and replaces the second edition (ISO 5667-1:2006), which has been technically revised. The main changes compared to the previous edition are as follows:

- incorporation of updated references;
- addition of a section on variation from normal sampling conditions;
- expansion of [Clause 7](#) on sampling from specific types of water;
- introduction of a clause on passive sampling;
- incorporation of sample container provisions in [Clause 12](#);
- expansion of [Clause 15](#) to address data management;
- addition of annexes on field documentation, emerging sampling techniques, preparation of sampling equipment.

A list of all parts in the ISO 5667 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.