

ISO 5667-1:2020 (E)

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

Contents

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

- 9.7.6 Groundwaters
- 9.8 Methods available for flow measurement
- 10 Current sampling techniques
 - 10.1 General
 - 10.2 Spot samples
 - 10.3 Periodic samples (discontinuous)
 - 10.3.1 Periodic samples taken at fixed time-intervals (time-dependent) or constant time constant volume (C.T.C.V.)
 - 10.3.2 Periodic samples taken at fixed flow-intervals (volume-dependent) or constant time variable volume variable time (C.T.V.T.)
 - 10.3.3 Periodic samples taken at fixed flow-intervals (flow-dependent) or constant volume variable volume sampling (C.V.V.V.)
 - 10.4 Continuous samples
 - 10.4.1 Continuous samples taken at fixed flow rates (time-continuous samples)
 - 10.4.2 Continuous samples taken at variable flow rates (flow-continuous samples)
 - 10.5 Series sampling
 - 10.6 Composite samples
 - 10.7 Large-volume samples
- 11 Passive sampling
- 12 Sampling equipment for physical or chemical characteristics
 - 12.1 General
 - 12.2 Sampling containers
 - 12.2.1 General
 - 12.2.2 Types of sample container
 - 12.2.2.1 General
 - 12.2.2.2 Sample Containers for photosensitive materials
 - 12.2.2.3 Sample containers for dissolved gases, volatile materials or constituents
 - 12.2.2.4 Sample containers for trace organic contaminants
 - 12.2.2.5 Sample containers for microbiological examination
 - 12.2.2.6 Sample containers for biotesting of samples
 - 12.3 Equipment for spot sampling
 - 12.4 Sampling equipment for sediments
 - 12.4.1 Grab or dredge sampling
 - 12.4.2 Core samplers
 - 12.5 Sampling equipment for dissolved gases and volatile materials
 - 12.6 Sampling equipment for radioactivity characteristics
 - 12.7 Sampling equipment for biological and microbiological characteristics
 - 12.8 Automatic sampling equipment
 - 12.9 Sampling equipment for passive sampling
 - 12.10 Sampling equipment for suspended sediments
- 13 Quality assurance and quality control of environmental water sampling and handling
 - 13.1 General
 - 13.2 Sources of contamination
 - 13.3 Control or prevention of contamination
- 14 Transport to, and storage of samples at, the depot or laboratory
- 15 Sample identification and records
 - 15.1 General
 - 15.2 Data management
 - 15.3 Samples that might be used for legal purposes
- Annex A (informative) Diagrams illustrating types of periodic and continuous samples
- Annex B (informative) Diagrams illustrating types of field paperwork and labels etc
- Annex C (informative) Alternative and emerging sampling techniques
 - C.1 In-situ testing
 - C.2 On-site analysis performed by samplers
 - C.3 In line Plunger

- C.4** In line testing performed by automated equipment
- C.5** The use of drones
- C.6** Investigative drones
- C.7** Sampling drones
- C.8** Leak detection dogs

Annex D (informative) Preparation of sampling equipment

Page count: 39