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oSIST prEN ISO 8099-2:2019

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Mala plovila - Sistemi ravnanja z odpadki - 2. del: Sistemi za čiščenje odplak (ISO/DIS 8099-2:2019)

Small craft - Waste systems - Part 2: Sewage treatment systems (ISO/DIS 8099-2:2019)

Kleine Wasserfahrzeuge - Abfallsysteme - Teil 2: Abwasserbehandlung (ISO/DIS 8099-2:2019)

Petits navires - Circuits d'eaux usées - Partie 2: Traitement des eaux usées (ISO/DIS 8099-2:2019)

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Small craft — Waste systems —

Part 2:
Sewage treatment systems

Petits navires — Circuits d'eaux usées —

Partie 2: Traitement des eaux usées

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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).

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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 188, *Small craft*, together with CEN/BT/WG 69, *Small craft*.

A list of all parts in the ISO 8099- 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.

Small craft — Waste systems —

Part 2: Sewage treatment systems

1 Scope

This document specifies requirements for the design, construction, and installation of sewage treatment systems on small craft.

This document does not address waste retention systems, nor accidental discharge prevention of pollutants (oil, fuel, etc.) overboard.

ISO 8099-2 is not intended to address the technical discharge limits of a sewage treatment unit as these are subject to certain international as well as national regulations.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 8099-1:2018, *Small craft — Waste systems — Part 1: Waste water retention*

ISO 228-1:2000, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 9093-1:1994, *Small craft — Seacocks and through-hull fittings — Part 1: Metallic*

ISO 9093-2:2002, *Small craft — Seacocks and through-hull fittings — Part 2: Non-metallic*

ISO 10133:2012, *Small craft — Electrical systems — Extra-low-voltage d.c. installations*

ISO 13297:2014, *Small craft — Electrical systems — Alternating current installations*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
sewage
black water
human body wastes and the wastes, including flushing water, from toilets and other receptacles intended to receive or retain these wastes

Note 1 to entry: This includes any water that comes into direct contact with sewage.

3.2
sewage treatment system
interconnected sanitation equipment including but not limited to the sewage treatment unit, hoses, pipes, tanks and fittings designed for use on board small craft to treat, and dispose of treated sewage

3.3
sewage treatment unit
unit which processes sewage to reduce contaminants (e.g. Nitrogen, Phosphorous, Coliforms, suspended solids etc.) to acceptable levels before discharge

Note 1 to entry: Acceptable levels may be subject to certain regulations, see Annex A.

3.4
accessible
capable of being reached for inspection, removal or maintenance without removal of the permanent craft structure

3.5
readily accessible
capable of being reached for operation, inspection or maintenance without removal of any parts of the craft structure or use of any tools

3.6
sewage holding tank
tank intended to receive and hold sewage or treated sewage

3.7
portable holding tank
holding tank designed and intended to be removed from the craft for the disposal of its contents

4 General requirements

4.1 Any toilet shall be connected solely to a sewage holding tank system (as per ISO 8099-1) or waste treatment system.

4.2 Any through-hull fittings for sewage shall be fitted with valves which are capable of being secured in the closed position.

4.3 The system shall be installed to prevent the emission of vapor and liquids within the small craft.

4.4 The system shall be capable of operation throughout an ambient temperature range of 01 °C to + 60 °C.

If the capacity of the system varies within this temperature range this shall be stated in the owner's manual.

For storage the system shall withstand an ambient temperature of – 40 °C to + 60 °C.

4.5 The system shall be capable of operation, i.e. discharge of sewage from the toilet to the treatment system, when the boat is heeled at all angles up to 20° for monohull sailing craft and 7° for other craft.

4.6 Back siphoning shall be prevented from raw water intakes and discharge outlets up to a heel angle to either side of at least 30° for monohull sailing craft, 20° for other craft and a trimmed condition at the bow or stern of at least 10°.

4.7 Back siphoning of the contents and escape of gas from the treatment system back through the toilet fixture shall be prevented when the boat is heeled at all angles up to 30° for monohull sailing craft, 20° for other craft and a trimmed condition at the bow or stern of at least 10°.

4.8 Escape of sewage from the treatment system to the exterior of the craft shall be prevented when the boat is heeled at all angles up to 30° for monohull sailing craft, 20° for other craft, and to the interior of the craft under maximum anticipated conditions of heel or trim, i.e. 30° for monohull sailing craft, 20° for other craft.

4.9 Electrical components shall meet the requirements of ISO 13297 and ISO 10133.

4.10 The treatment system including all tanks, connecting piping, hoses, and fittings, shall be tested to withstand a pressure of 20 kPa for a period of 5 min without leaking.

In addition, a treatment system that may be exposed to negative pressure for direct pump out by its function shall be tested to a negative pressure of 20 kPa for a period of 5 min.

4.11 The system shall have a clearly labelled warning indication of system malfunction or any inoperability. This shall be visible and/or audible from within each head compartment.

4.12 The system shall be provided with a readily accessible means to disable discharge which shall be capable of being secured in the closed position to avoid accidental discharge

4.13 Each part of the unit that is required by the sewage treatment unit manufacturer's instructions to be serviced routinely shall be accessible in the as installed position of the unit.

4.14 Dilution and/or the use of polluting biocidal compounds shall not be allowed.

4.15 The sewage treatment unit shall be tested by a competent laboratory, for example, one that meets the requirements of ISO/IEC 17025.

5 Materials

Materials shall be resistant to the effects of the following:

5.1 In each case where the recognized facility doubts the ability of a material to withstand exposure to the substances listed in paragraphs 5.2 and 5.3 of this section a sample of the material must be tested.

5.2 A sample referred to in paragraph 5.1 of this section must be partially submerged in each of the following substances for 100 hours at an ambient temperature of 22 °C:

— sewage;

— any disinfectant that is required in the operation of the device;

— any chemical compound in solid, liquid or gaseous form, used, emitted or produced in the operation of the device;

— fresh or salt (3.5 percent Sodium Chloride) flush water;

— toilet bowl cleaners;

— engine oil (SAE/30);

— ethylene glycol;

— detergents (household and bilge cleaning type).

5.3 A sample of the material must be doused 20 times, with a 1 hour drying period between dousings, in each of the following substances:

— petrol;

— diesel fuel;

— mineral spirits;

— turpentine;

— methyl alcohol.

6 Plumbing system

6.1 Hoses and piping

Hoses and piping shall be suitable for use in sewage systems.

Connecting hoses and piping shall be securely fastened in position to prevent damage by abrasion or vibration.

Piping or hose between the toilet and treatment system, shall be as short as practicable and its inner surface shall:

— be smooth and without convolutions to permit free flow of sewage;

— have an inside diameter in conformity with the toilet manufacturer's recommendations; or have a minimum inside diameter of 38 mm, if no recommendations are provided.

6.2 Seacock fitting

Any seacock used for overboard discharge shall be in accordance with ISO 9093-1 and -2.

7 Vent system

The vent system shall:

— be equipped with a suitable odour filter;

— be self-draining;

— terminate on the exterior of the craft and outside of weather enclosures;

— installed as per the manufacturer's requirements.

8 Sewage holding tanks

When sewage holding tanks are separately installed or an integral part of the sewage treatment system they shall meet the requirements listed in ISO 8099-1.

9 Pump-out fitting

When installed, pump out fittings shall meet the requirements listed in ISO 8099-1.

