BS ISO 24146-1:2024

BSI Standards Publication

Ships and marine technology — Shipboard waste on inland navigation vessels

Part 1: On board management and handling

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee SME/32, Ships and marine technology - Steering committee.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2024

ISBN 978 0 539 05093 6

ICS 13.020.99; 47.020.99

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2024.

Amendments/corrigenda issued since publication

Date	Text affected

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Full document details: BS ISO 24146-1:2024

International Standard

ISO 24146-1

First edition
2024-05

Ships and marine technology — Shipboard waste on inland navigation vessels —

Part 1: On board management and handling

Navires et technologie marine — Déchets à bord des bateaux de navigation intérieure —

Partie 1: Gestion et manutention à bord

Reference number
ISO 24146-1:2024(en)

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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology, S*ubcommittee SC 2, *Marine environment protection.*

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Introduction

Disposal of waste from vessels is of increasing concern to all industry stakeholders, including ports, governments, companies, vessels, and the environment. The management of shipboard waste for sea-going vessels is extensively controlled by the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)[2]. Parties to the MARPOL Convention have implemented regional and national legislation to regulate and enforce provisions for handling ships' waste and for providing adequate reception stations at ports and terminals.

While the focus of public attention is mostly directed at the deep sea ("plastic soup"), inland navigation also plays an important role. Inland waterways are environmentally and ecologically sensitive, especially with respect to the various end uses of the water, including intermodal activities and inland water transport. The permissible levels of discharge into inland waters of polluting substances are incorporated in legal instruments which regulate the environment and ecology, relevant regional or subregional agreements, or stipulated by local authorities. These levels can differ between countries, waterways, or river basins.

Additionally, discharges of wastes on inland waterways can be carried down streams and watersheds and can end up in the ocean.

The system for handling waste which is generated on board inland vessels is rather complex, with requirements varying from region to region. For example, there is a general provision for the separate collection of different types of waste on board vessels, but depending on the river/river basin, the requirements can be vastly different (e.g. rivers of international importance where harmonized rules apply to the whole river, or rivers solely regulated at the national level and/or local level). Consequently, there is no consistent method for handling waste generated on board all inland vessels.

By seeking as much compatibility as possible with existing waste separation schemes on shore, the recognition of waste separation on board vessels can be stimulated.

NOTE Examples of international and regional provisions for the collection, storage and delivery of waste are the Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI)[7], the European Code for Inland Waterways (CEVNI)[8], the US Code of Federal Regulations[12], and the Recommendations on the organization of the collection of waste from vessels operating on the Danube[11].

This document was developed based on ISO 21070 and provides for minimization, management and segregation of waste generated on board inland vessels so that it can be managed on board and offloaded efficiently to the reception stations located at inland ports and on waterways.

To obtain the most efficient management of waste and to reduce the time and resource burden in segregating and handling waste on inland vessels and at inland ports, the concept of waste minimization has been integrated into this document by incorporating the following basic principle: prevention before recycling before energy recovery before disposal.

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Ships and marine technology — Shipboard waste on inland navigation vessels —

Part 1:
On board management and handling

1 Scope

This document provides requirements on the management of waste generated during the operation of inland navigation vessels, including handling, collection, separation, marking, treatment, and storage on board of the vessel. It also describes the ship-to-shore interface and the delivery of waste from the vessel to the reception station.

Small crafts or vessels can use this document to improve their waste management.

This document also provides information for segregating and managing waste that any reception station worldwide can expect from inland navigation vessels and concentrates on:

— prevention/elimination/minimization of waste prior to sailing;

— minimization of waste at the source on the inland vessel;

— waste collection at the source;

— waste segregation on the inland vessel into defined categories that are recognized globally and fit into any of the different waste categorization systems around the world;

— waste minimization once segregated;

— waste storage on board the vessel; and

— health and safety concerns surrounding the handling, storage, and offloading of waste.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

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

3.1 General terms

3.1.1
competent authority
person or organization that has the legally delegated or invested authority, capacity, or power to perform a designated function

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3.1.2
discharge
release, however caused, from a *vessel* (3.1.9) including any escape, disposal, spilling, leaking, pumping, emitting, or emptying

[SOURCE: MARPOL consolidated edition 2022, Article 2 (3)(a)]

3.1.3
hazardous waste
waste (3.1.10) which, due to its nature, physical, chemical or infectious properties, is potentially hazardous to human health and/or the environment during use, handling, storage or transportation, including any material which may require special handling, disposal or recycling techniques to eliminate or reduce the hazard

[SOURCE: ISO 21070:2017, 3.1.3]

3.1.4
inland vessel
inland navigation vessel
vessel (3.1.9) intended solely or mainly for navigation on inland waterways

[SOURCE: UNECE Glossary for IWT, 2022, definition I.I.01]

3.1.5
reception station
vessel (3.1.9), a floating establishment, or a facility on shore approved by the *competent authorities* (3.1.1) for the collection of *waste* (3.1.10) generated on board

Note 1 to entry: Other local, national, regionals regulation may use other terms for reception stations as defined in ISO 21070 such as "port reception facilities."

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.R.01, modified]

3.1.6
recycling
activity of segregating and recovering components and materials for reprocessing

[SOURCE: ISO 21070:2017, 3.1.5]

3.1.7
reuse
activity of recovering components and materials for further use without reprocessing

[SOURCE: ISO 21070:2017, 3.1.6]

3.1.8
small craft
vessel (3.1.9) with a hull less than 20 m long without rudder or bowsprit, except vessels built or equipped to tow, push or propel vessels other than small craft in side-by-side formation and excluding craft authorized to carry more than 12 passengers, ferryboats and pushed barges

[SOURCE: UNECE Glossary for IWT, 2022, definition V.S.10, modified]

3.1.9
vessel
inland navigation vessel, seagoing vessel, or floating equipment

[SOURCE: CDNI, Article 1, g]

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3.1.10
waste
substances or objects which are disposed of, or are intended to be disposed of, or are required to be disposed of, by the provisions of national law

[SOURCE: Basel Convention, 1989, article 2, definition 1]

3.1.11
waterway
inland water open to navigation

Note 1 to entry: It includes rivers, canals, lakes or other stretches of water which by natural or man-made features are suitable for navigation.

[SOURCE: CEVNI chapter 1, section IV, definition 12]

3.2 Terms relating to waste

3.2.1
bilge water
oily water from the engine room bilges, peak, cofferdams, double-hull spaces, or side compartments

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.B.01]

3.2.2
cargo residue
remnants of any cargo material which remain on the deck or in holds following loading or unloading, including loading and unloading excess or spillage, whether in wet or dry conditions or entrained in *wash water* (3.2.20) but does not include cargo dust remaining on the deck after sweeping, or dust on the external surfaces of the ship

Note 1 to entry: This residue is not covered by other annexes to the MARPOL Convention.

Note 2 to entry: This also includes liquid cargo which cannot be pumped out of the cargo tanks or piping by means of the stripping system.

[SOURCE: MARPOL, Annex V, reg 1.2]

3.2.3
cargo-related waste
waste (3.1.10) and wastewater generated on board the *vessel* (3.1.9) and deriving from the cargo

Note 1 to entry: *Residual cargo* (3.2.16) and *handling residues* (3.2.8) are not included in this category.

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.C.01]

3.2.4
contaminated rag
rag which has been saturated with any substance defined as potentially hazardous or harmful to human health and/or the environment

3.2.5
domestic wastewater
wastewater from galleys, dining rooms, washing facilities and laundry facilities, and water containing faecal matter

Note 1 to entry: Domestic wastewater includes both waste types “sewage” and “grey water”, according to the MARPOL Convention.

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.D.01]

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3.2.6
e-waste
electrical or electronic equipment, which is *waste* (3.1.10), including all components, sub-assemblies and consumables which are part of the product at the time of discarding

[SOURCE: Article 3(a) of Directive 2002/96/EC]

3.2.7
garbage
food *waste* (3.1.10), *household refuse* (3.2.9) and *operational waste* (3.2.12), all *plastics* (3.2.14), *cargo residue* (3.2.2), generated during the normal operation of the ship and liable to be disposed of continuously or periodically except those substances which are defined or listed in other annexes to the MARPOL Convention (i.e. excluding Annex V)

Note 1 to entry: Garbage does not include fresh fish and parts thereof generated as a result of fishing activities undertaken during the voyage or as a result of aquaculture activities which involve the transport of fish including shellfish for placement in the aquaculture facility and the transport of harvested fish including shellfish from such facilities to shore for processing.

[SOURCE: MARPOL consolidated edition 2022, Annex V, reg.1.9]

3.2.8
handling residues
cargo which falls on the *vessel* (3.1.9) outside the hold during handling

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.H.01]

3.2.9
household refuse
domestic refuse
on board organic and inorganic household *waste* (3.1.10) and food remains generated from the operation of the *vessel* (3.1.9), except for the components of *oily and greasy waste* (3.2.11), *cargo-related waste* (3.2.3), *residual cargo* (3.2.16), *handling residues* (3.2.8), *sludge* (3.2.18), *slops* (3.2.17) and other *special waste* (3.2.13)

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.H.02, modified]

3.2.10
oily rag
rag that has been saturated with or contains oil

3.2.11
oily and greasy waste
used oils (3.2.19), *bilge water* (3.2.1) and other oily or greasy waste generated from the operation of the *vessel* (3.1.9) such as waste grease collected from runoff from greasers, bearings and greasing facilities, and other non-reusable grease, filters, *oily rags* (3.2.10), and receptacles and packaging for such waste

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.O.01, modified]

3.2.12
operational waste
solid *waste* (3.1.10) (including slurries) not covered by the annexes to the MARPOL Convention other than Annex V, that are collected on board during normal maintenance or operations of a *vessel* (3.1.9), or used for cargo stowage and handling

Note 1 to entry: Operational waste includes, but is not limited to, the following wastes associated with cargo storage and handling: dunnage, shoring, pallets, lining, transit and packing materials, plywood, paper, cardboard, plastic wrapping, and steel strapping.

Note 2 to entry: Operational waste also includes cleaning agents and additives contained in external *wash water* (3.2.20).

Note 3 to entry: Operational waste does not include wastewater, *bilge water* (3.2.1), or other similar *discharges* (3.1.2) essential to the operation of a *vessel* (3.1.9).

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Note 4 to entry: Wooden material can be defined as quarantine waste in certain countries.

[SOURCE: MARPOL, Annex V, reg 1.12]

3.2.13
other special waste
waste (3.1.10) generated from the operation of the *vessel* (3.1.9) other than *oily and greasy waste* (3.2.11) and other than *domestic wastewater* (3.2.5), *household refuse* (3.2.9), *sludge* (3.2.18), and *slops* (3.2.17)

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.O.02]

3.2.14
paper product
product made of paper

EXAMPLE Sheet of paper, box or envelope.

Note 1 to entry: Paper products can include a small amount of adhesives or binding materials.

3.2.15
plastic
solid material which contains as an essential ingredient one or more high molecular mass polymers, and which is formed (shaped) during either the manufacture of the polymer or the fabrication into a finished product by heat and/or pressure

Note 1 to entry: Plastics have material properties ranging from hard to brittle, to soft and elastic.

Note 2 to entry: For the purpose of this document, plastics include plastic in any form, including synthetic ropes, synthetic fishing nets, plastic waste bags, adhesives and binding materials and incinerator ashes from plastic products.

[SOURCE: MARPOL Annex V, reg 1.13]

3.2.16
residual cargo
liquid cargo remaining in the cargo tank or cargo piping after unloading when a stripping system has not been used, and dry cargo remaining in the holds after unloading before manual or mechanical sweepers or suction facilities are used

Note 1 to entry: The stripping system is according to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.R.02]

3.2.17
slops
mixture of *cargo residue* (3.2.2) with *wash water* (3.2.20), rust, or *sludge* (3.2.18) whether or not suitable for pumping

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.S.01]

3.2.18
sludge
residue produced on board the *vessel* (3.1.9) by the operation of an on board sewage treatment plant

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.S.02, modified]

3.2.19
used oil
waste oil or other non-reusable oil from engines, gears and hydraulic or other equipment generated on board

Note 1 to entry: This may be lubricating oils or other oils generated on board.

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.U.02, modified]

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3.2.20
wash water
water from the washing of swept or vacuumed holds or stripped cargo tanks; it also includes ballast water or rainwater from these holds or cargo tanks

[SOURCE: CDNI, Article 5.01]

3.2.21
shipboard waste
waste (3.1.10) and sewage generated on board from the operation and maintenance of the *vessel* (3.1.9)

Note 1 to entry: This includes *oily and greasy waste* (3.2.11) and other *waste* (3.1.10) generated as a result of the operation of the vessel.

[SOURCE: UNECE Glossary for IWT, 2022, definition VIII.W.02, modified]

3.2.22
waste management plan
written procedures for collecting, storing, processing, and disposing of *waste* (3.1.10) on board *vessels* (3.1.9)

[SOURCE: MARPOL Convention, Annex V]

4 Requirements

4.1 General

This clause specifies the minimum requirements for waste treatment or management on board, including waste separation, marking, collecting, storing, and offloading to port reception stations.

While it is recognized that on board waste management should be standardized, it is noted that offloading procedures depend on the ports and reception stations available.

The national, regional and local requirements of waste management can differ for types of vessels, as sea-going vessels can also navigate on inland waterways. Some examples of such situations include where:

— local requirements are more stringent than the requirements of the MARPOL Convention;

— a competent authority introduces for inland waterways pollution control requirements which are more stringent than those applicable to seagoing vessels in specific cases where it is justified due to the ultimate use of the water (e.g. drinking water source);

— local requirements meet the requirements of the MARPOL Convention;

— local requirements are less stringent than requirements of the MARPOL Convention;

— local requirements are not established.

Both vessel owners and inland ports are more aware of the importance of well-organized and managed waste collection and its benefits, especially with respect to health and safety on board vessels, the prevention of pollution and the potential cost benefits for vessel owners and national or local governments.

The following should be considered in order to introduce and develop an efficient waste management system based on prevention, including:

a) regular monitoring of water quality;

b) regular monitoring of port areas;

c) regular inspections to ensure that all local, regional, and national rules and regulations for the prevention of pollution from vessels are complied with;

d) application of precautionary principles and preventative approach; and

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