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Ships and marine technology — Marine environment protection — Management and handling of shipboard garbage

Navires et technologie marine — Protection de l'environnement marin — Gestion et manutention des déchets à bord du navire

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

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 21070 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 2, *Marine environment protection*.

Introduction

The discharge of solid waste from shipping is extensively controlled by Annex V of MARPOL (under revision 2010-2011), in conjunction with other regional arrangements such as Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues. Additionally, states parties to the MARPOL Convention have undertaken national implementing legislation to regulate and enforce provisions for handling ships' waste and for providing adequate reception facilities at ports and terminals subject to a party's flag state and port state control authorities. There is also significant international discussion both in the International Maritime Organization (IMO) and other fora on how to manage this issue in the future and best practice has been recommended by various maritime administrations and organizations representing industry.

Present mechanisms for managing and landing the collection of garbage generated onboard ships often fail, as there are no general regulations or International Standards for ships and international ports concerning segregation, handing over procedures and reception facilities. This International Standard goes some way to address this issue, providing a standard for the minimization, management and segregation of ships' garbage, so that it can be handled onboard and landed efficiently to the relevant reception facilities onshore.

To obtain the most efficient management of waste and to reduce the time and resource burden in segregating and handling it on the ship and in the ports, the concept of waste minimization has been integrated into this International Standard by incorporating the following basic principle:

"Prevention before recycling before energy recovery before disposal"

This International Standard concentrates on:

- minimization of waste prior to sailing;
- minimization of waste at source on the ship;
- garbage collection at the source;

- waste segregation on the ship into defined categories that are recognized globally and fit into the many different waste categorization systems around the world;
- waste minimization once segregated;
- waste storage onboard ship; and
- health and safety concerns surrounding the handling, storage and landing of waste.

Both owners and coastal states are increasingly aware of the importance of well-organized and managed waste collection and its benefits, especially with respect to health and safety onboard ships, the reduction of pollution and the potential cost benefits for owners and national governments. This International Standard provides a fixed standard for segregated garbage that any harbour facility worldwide may expect when a ship arrives in port. However, this International Standard does not consider the available various (and numerous) shoreside waste-handling systems that exist, but may give the initial push to build up recycling facilities of solid waste. An International Standard is being developed for the reception of ships' waste by ports that will work in conjunction with this International Standard.

In the future, this International Standard may be expanded to include guidance for the handling of other waste.

Ships and marine technology — Marine environment protection — Management and handling of shipboard garbage

1 Scope

The requirements of MARPOL Annex V set the minimum standard for garbage management that apply to ships. Applicable national and regional regulations exceeding the requirements of MARPOL Annex V will also need to be observed. This International Standard applies to the management and handling of garbage generated onboard ships during the period the garbage will be onboard. The definition of garbage in this International Standard is as defined in MARPOL Annex V. This International Standard contains procedures for the shipboard management of garbage, including handling, collection, separation, marking, treatment and storage. It also describes the vessel-to-shore interface and the delivery of garbage from the ship to the port reception facility.

2 Normative references

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

International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL) Annex I to VI, as amended

3 Terms and definitions

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

3.1 General

3.1.1
discharge
in relation to harmful substances or effluents containing such substances, any release, howsoever caused, from a ship including any escape, disposal, spilling, leaking, pumping, emitting, or emptying

[MARPOL 1973, Article 2(3)(a)]

3.1.2
effluent
discharged liquid (that may contain harmful substances/residues in solution or suspension)

3.1.3
harmful substance
any substance which, if introduced into the sea, is liable to create hazards to human health, harm living resources and marine life, and damage amenities or interfere with other legitimate uses of the sea, and includes any substance subject to control by the MARPOL Convention

3.1.4
hazardous waste
any waste 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

NOTE It includes any material which requires special disposal techniques to eliminate or reduce the hazard.

3.1.5
port reception facility
fixed, floating or mobile port facility for the reception of ship-generated wastes

NOTE For the purposes of this International Standard, this relates to port reception facilities for garbage as defined by MARPOL Annex V, 2006.

3.1.6
recycling
reuse of waste for the same purpose as it was originally designed or as raw material for other purposes, for the production of new products or the conversion into new usable components

3.1.7
waste
useless, unneeded or superfluous matter which is to be discarded

NOTE For the purposes of this International Standard, references to wastes relate to garbage.

3.2 Garbage

3.2.1
cargo-associated waste
all materials which have become wastes as a result of use onboard a ship for cargo stowage and handling

NOTE Cargo-associated waste includes but is not limited to dunnage, shoring, pallets, lining and packing materials, plywood, paper, cardboard, wire and steel strapping.

[MARPOL Annex V Guidelines, 2006, paragraph 1.7.5]

3.2.2
cargo residues
remnants of any cargo material onboard that cannot be placed in proper cargo holds (loading excess and spillage) or which remain in cargo holds and elsewhere after unloading procedures are completed (unloading residual spillage)

NOTE 1 However, cargo residues are expected to be in small quantities.

NOTE 2 Cargo material contained in the cargo hold bilge water is not treated as cargo residues provided that the cargo material is not classified as a marine pollutant in the IMDG Code and the bilge water is discharged from a loaded hold through the vessel's fixed piping bilge drainage system.

[MARPOL Annex V Guidelines, 2006, paragraph 1.7.10]

3.2.3
contaminated rags
rags which have been saturated with a substance defined as a harmful substance in MARPOL annexes other than Annex I

[MARPOL Annex V Guidelines, 2006, paragraph 1.7.9]

3.2.4
domestic waste
all types of food wastes and wastes generated in the living spaces onboard the ship

[MARPOL Annex V Guidelines, 2006, paragraph 1.7.4]

3.2.5
garbage
all kinds of victual, domestic and operational waste excluding fresh fish and parts thereof, 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 MARPOL

[MARPOL Annex V, 2006, Regulation 1.1]

3.2.6
maintenance waste
materials collected by the engine department and the deck department while maintaining and operating the vessel, such as soot, machinery deposits, scraped paint, deck sweepings, wiping wastes, rags, etc.

[MARPOL Annex V Guidelines, 2006, paragraph 1.7.6]

3.2.7
oily rags
rags which have been saturated with oil as controlled in MARPOL Annex I

3.2.8
operational waste
all cargo-associated waste and maintenance waste, and cargo residues defined as garbage in 3.2.5

[MARPOL Annex V Guidelines, 2006, paragraph 1.7.7]

3.2.9
plastic
solid material which contains as an essential ingredient one or more synthetic organic high polymers and which is formed (shaped) during either manufacture of the polymer of the fabrication into a finished product by heat and/or pressure

NOTE 1 Plastics have material properties ranging from hard and brittle to soft and elastic.

NOTE 2 Plastics are used for a variety of marine purposes including, but not limited to, packaging (vapour-proof barriers, bottles, containers, liners, etc.), ship construction (fibreglass and laminated structures, siding, piping, insulation, flooring, carpets, fabrics, paints and finishes, adhesives, electrical and electronic components, etc.), disposable eating utensils and cups, bags, sheeting, floats, fishing nets, strapping bands, rope and line, etc.

[MARPOL Annex V, Regulations 3(1) and 5(2) and Guidelines, 2006, paragraph 1.7.3]

3.3
medical waste
any solid waste that is generated in the diagnosis, treatment or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, including but not limited to isolation wastes, infectious agents, human blood and blood products, pathological wastes, sharps, body parts, contaminated bedding, surgical wastes and potentially contaminated laboratory wastes and dialysis wastes

NOTE 1 Medical waste is distinguished into two categories: infectious and non-infectious.

NOTE 2 Medical waste also includes expired medicine and medical products.

3.4
quarantine waste
any solid or liquid waste determined by local or regional legislation to require special handling, segregation and disposal due to its potential to spread disease, or plant and animal pests when discharged

4 Requirements

4.1 General

This clause specifies the minimum requirements on waste treatment onboard to achieve this International Standard, including waste separation, marking, collecting, storage and handing over facilities.

While it is recognized that storage, segregation and equipment should be standardized, it shall be noted that landing procedures depend on the ports and the port reception facilities available.

4.2 Classification of garbage

The types of garbage given in Table 1 apply to this International Standard.

Table 1 — Types of garbage

Type	MARPOL Annex V category	Description [a]
Plastics	Category 1	Shall be retained onboard and disposed of ashore
Cargo-associated wastes	Category 2	Floating dunnage, lining or packaging material
Wood	Category 2	See Cargo-associated wastes
Paper products	Category 3 or 4	Includes cardboard, and paper packaging, paper products, rags, glass, metal, bottles, crockery, etc. [Category 3 refers to GROUND (shall pass through a 25 mm screen)] Category 4 includes unground materials and certain bulk cargo residues (see below)
Rags	Category 3 or 4	Not contaminated with any harmful material
Glass	Category 3 or 4	May require separation by colours
Metal	Category 3 or 4	Ideally separated into ferrous and non-ferrous
Bottles	Category 3 or 4	See Glass, above
Crockery	Category 3 or 4	Ceramics containing heavy metals or other harmful materials are excluded
Cargo residue	Category 4	See 4.3; Dry cargo residues may include deck or cargo hold sweepings and wash water containing such residues
Food waste	Category 5	Additional regional or national legislations may also apply
Incinerator ash	Category 6	See below [b]
Hazardous waste		Includes oily waste, oily rags, medical waste, batteries, fluorescent lamps, garbage contaminated with hazardous waste, and any other waste that is considered hazardous waste. Some regional or national legislations may require separate identification and handling.

[a] Garbage that is contaminated by another category of garbage shall be handled in accordance with the more stringent disposal requirements that are applicable.

[b] Incinerator ash from plastics products may contain toxic or heavy metal residues and shall be retained onboard and disposed of ashore.

4.3 Cargo residues and cargo-associated waste

Ships shall have procedures in their garbage management plan to deal with cargo residues and cargo-associated waste. There may be specific international and local legislation that has to be taken into account, and the ship shall have procedures in place to ensure that such materials are disposed of correctly.

4.4 Collection and segregation of garbage

4.4.1 General

Garbage shall be regularly collected in the areas where it is generated. At the point of collection, the garbage should be appropriately segregated into types according to Table 1. The garbage shall be transported to a storage site onboard the vessel appropriate for that category (Table 1), where it may be segregated further as necessary.

4.4.2 Collection containers

Collection containers of suitable size, design and number as appropriate for the volume and category of garbage anticipated should be available where the garbage is generated. The collection containers shall also

comply with the applicable safety requirements and shall be easy to transport manually. For hygiene reasons, the containers shall be emptied regularly.

Collection containers shall be marked to clearly identify their use (Table 1 categories) as appropriate. See examples of standardized marking/labelling of collection containers in Table 2.

4.5 Storage

4.5.1 General

Collected garbage shall be appropriately stored onboard until it is disposed of in accordance with the applicable international, regional and/or national legislation.

The capacity of the designated storage site(s) shall be commensurate with the number and size of storage containers required to accommodate shipboard garbage (4.5.2).

4.5.2 Storage containers

4.5.2.1 General

Storage container volumes shall be commensurate with the amounts and categories (Table 1) of garbage anticipated based on factors such as ship type, size and service. Taking into account any potentially hazardous characteristics, the garbage shall be stored onboard only in suitable, appropriately sized containers.

Storage containers may be either built into the ship or movable and shall be marked to clearly identify the use as appropriate. See examples of standardized marking/labelling or storage containers by waste category in Table 2.

The containers shall be marked appropriately by a relevant recognized colour-coded labelling and/or a sign depicting the garbage it contains (Table 2).