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**Shipbuilding — Shipboard incinerators —
Requirements**

iTeh STANDARD PREVIEW
Construction navale — Incinérateurs de bord pour navires — Exigences
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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.

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.

International Standard ISO 13617 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*.

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Shipbuilding — Shipboard incinerators — Requirements

1 Scope

This International Standard lays down the requirements for shipboard incinerators.

Directives which appears in the consolidated 1991 edition of MARPOL 73/78) which are relevant to the IMO publication only, and

— paragraph 10.2 which is relevant to the IMO certification procedure only;

2 Requirements

Requirements are those stated in the following document originating from the International Maritime Organization (IMO), which is adopted as an International Standard:

b) take all instances where the word "should" is used to be requirements (and "may" a possibility).

Resolution MEPC.59(33), *Revised guidelines for the implementation of Annex V of MARPOL 73/78*, adopted on 30 October 1992.

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3 Revision of Resolution MEPC.59(33)

For the purposes of international standardization, the following should be assumed:

It has been agreed with the International Maritime Organization that Technical Committee ISO/TC 8 will be consulted in the event of any revision or amendment of Resolution MEPC.59(33) adopted on 30 October 1992. To this end, ANSI will act as a liaison body between IMO and ISO.

a) ignore

— the two first pages (text of the IMO resolution itself and an indication of Amendments to the

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ANNEX 2

RESOLUTION MEPC.59(33)
adopted on 30 October 1992

REVISED GUIDELINES FOR THE IMPLEMENTATION OF
ANNEX V OF MARPOL 73/78

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(c) of the Convention on the International Maritime Organization concerning the function of the Marine Environment Protection Committee,

RECOGNIZING that Annex V of the International Convention for the Prevention from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) provides regulations for the prevention of pollution by garbage from ships,

RECOGNIZING ALSO the necessity of providing guidelines to assist Governments in developing and enacting domestic laws and regulations which give effect to and implement Annex V of MARPOL 73/78,

RECOGNIZING FURTHER that Part IV (Garbage) of the Guidelines on the Provision of Adequate Reception Facilities developed by the Organization in 1978,

BEING AWARE that the Committee, at its twenty-sixth session, modified the above guidelines for garbage and developed guidelines for the implementation of Annex V of MARPOL 73/78 which were incorporated in the publication "MARPOL 73/78, Consolidated Edition, 1991",

BEING ALSO AWARE that the Assembly at its seventeenth session adopted resolution A.719(17) on prevention of air pollution from ships, and requested the Committee and the Maritime Safety Committee to develop environmentally based standards for incineration of garbage and other ship-generated waste,

HAVING CONSIDERED the recommendations by the Sub-Committee on Ship Design and Equipment at its thirty-fifth session and the Sub-Committee on Bulk Chemicals at its twenty-second session regarding the standard specification for shipboard incinerators,

1. ADOPTS the Revised Guidelines for the Implementation of Annex V of MARPOL 73/78; and
2. RECOMMENDS the Governments to implement the provisions of Annex V of MARPOL 73/78 in accordance with the revised guidelines.

ANNEX

REVISED GUIDELINES* FOR THE IMPLEMENTATION OF
ANNEX V OF MARPOL 73/78

The guidelines contained in MARPOL 73/78, Consolidated Edition, 1991, are amended as set out hereunder.

1 to replace paragraph 5.4.7 with the following:

"5.4.7 Shipboard incinerators should be designed, constructed, operated and maintained in accordance with the Standard Specification for Shipboard Incinerators set out in Appendix 2."

2 to amend the present appendix as appendix 1.

3 to add the following as appendix 2:

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* Revised guidelines are to be prepared by the Secretariat incorporating the above amendments to the Guidelines contained in MARPOL 73/78, Consolidated Edition, 1991.

APPENDIX 2

Standard Specification for Shipboard Incinerators

Table of Contents

1	Scope
2	Definitions
3	Materials and manufacture
4	Operating requirements
5	Operating controls
6	Other requirements
7	Tests
8	Certification
9	Marking
10	Quality assurance

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ANNEX

- A1 - Emission Standard for Shipboard Incinerators
- A2 - Fire Protection Requirements for Incinerators and Waste Stowage Spaces
- A3 - Incinerators integrated with heat recovery unit
- A4 - Flue gas temperatures

Standard specification for shipboard incinerators

1 Scope:

1.1 This specification covers the design, manufacture, performance, operation, functioning, and testing of incinerators intended to incinerate garbage and other shipboard wastes generated during the ship's normal service (i.e. maintenance, operational, domestic and cargo associated waste, excluding cargo associated wastes contaminated with Annex II and III substances as defined in the International Convention for the Prevention of Pollution From Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78)).

1.2 This specification applies to those incinerator plants with capacities up to 1,160 kW per unit.

1.3 This specification does not apply to systems on special incinerator ships, e.g., for burning industrial wastes such as chemicals, manufacturing residues, etc.

1.4 This specification does not address the electrical supply to the unit, nor the foundation connections and stack connections.

1.5 This specification provides emission requirements in annex A1, and fire protection requirements in annex A2. Provisions for incinerators integrated with heat recovery units and provisions for flue gas temperature are given in annex A3 and annex A4, respectively.

1.6 This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use, including possible port State limitations.

2 Definitions

2.1 Ship means a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushioned vehicles, submersibles, floating craft and fixed or floating platforms.

2.2 Incinerator means shipboard facilities for incinerating solid wastes approximating in composition to household waste and liquid wastes arising from the operation of the ship, e.g., domestic waste, cargo-associated waste, maintenance waste, operational waste, cargo residues, and fishing gear, etc. These facilities may be designed to use or not to use the heat energy produced.

2.3 Garbage means all kinds of victual, domestic and operational waste excluding fresh fish and parts thereof, generated during normal operation of the ship as defined in Annex V to MARPOL 73/78.

2.4 Waste means useless, unneeded or superfluous matter which is to be discarded.

2.5 Food wastes are any spoiled or unspoiled victual substances, such as fruits, vegetables, dairy products, poultry, meat products, food scraps, food particles, and all other materials contaminated by such wastes, generated aboard ship, principally in the galley and dining areas.

2.6 Plastic means a 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 or the fabrication into a finished product by heat and/or pressure. Plastics have material properties ranging from hard and brittle to soft and elastic. Plastics are used for a variety of marine purposes including, but not limited to, packaging (vapour-proof barriers, bottles, containers, liners), ship construction (fibreglass and laminated structures, siding, piping, insulation, flooring, carpets, fabrics, paints and finishes, adhesives, electrical and electronic components), disposable eating utensils and cups, bags, sheeting, floats, fishing nets, strapping bands, rope and line.

2.7 Domestic waste means all types of food wastes, sewage and wastes generated in the living spaces on board the ship.

2.8 Cargo-associated waste means all materials which have become wastes as a result of use on board a ship for cargo stowage and handling. Cargo-associated waste includes but is not limited to dunnage, shoring pallets, lining and packing materials, plywood, paper, cardboard, wire, and steel strapping.

2.9 Maintenance waste means materials collected by the engine department and the deck department while maintaining and operating the vessel, such as soot, machinery deposits, scraped paint, deck sweeping, wiping wastes, oily rags, etc.

2.10 Operational wastes means all cargo-associated wastes and maintenance waste (including ash and clinkers), and cargo residues defined as garbage in 2.13.

2.11 Sludge oil means sludge from fuel and lubricating oil separators, waste lubricating oil from main and auxiliary machinery, waste oil from bilge water separators, drip trays, etc.

2.12 Oily rags are rags which have been saturated with oil as controlled in Annex I to the Convention. Contaminated rags are rags which have been saturated with a substance defined as a harmful substance in the other Annexes to MARPOL 73/78.

2.13 Cargo residues for the purposes of this standard are defined as the remnants of any cargo material on board that cannot be placed in proper cargo holds (loading excess and spillage) or which remains in cargo holds and elsewhere after unloading procedures are completed (unloading residual and spillage). However, cargo residues are expected to be in small quantities.

2.14 Fishing gear is defined as any physical device or part thereof or combination of items that may be placed on or in the water with the intended purpose of capturing, or controlling for subsequent capture, living marine or freshwater organisms.

3 Materials and manufacture:

3.1 The materials used in the individual parts of the incinerator are to be suitable for the intended application with respect to heat resistance, mechanical properties, oxidation, corrosion, etc., as in other auxiliary marine equipment.

3.2 Piping for fuel and sludge oil should be seamless steel of adequate strength and to the satisfaction of the Administration. Short lengths of steel, or annealed copper nickle, nickle copper, or copper pipe and tubing may be used at the burners. The use of nonmetallic materials for fuel lines is prohibited. Valves and fittings may be threaded in sizes up to and including 60 mm O.D. (outside diameter), but threaded unions are not to be used on pressure lines in sizes 33 mm O.D. (outside diameter) and over.

3.3 All rotating or moving mechanical and exposed electrical parts should be protected against accidental contact.

3.4 Incinerator walls are to be protected with insulated fire bricks/refractory and a cooling system. Outside surface temperature of the incinerator casing being touched during normal operations should not exceed 20°C above ambient temperature.

3.5 Refractory should be resistant to thermal shocks and resistant to normal ship's vibration. The refractory design temperature should be equal to the combustion chamber design temperature plus 20%. (See 4.1)

3.6 Incinerating systems should be designed such that corrosion will be minimized on the inside of the systems.

3.7 In systems equipped for incinerating liquid wastes, safe ignition and maintenance of combustion must be ensured, e.g., by a supplementary burner.

3.8 The combustion chamber(s) should be designed for easy maintenance of all internal parts including the refractory and insulation.

3.9 The combustion process should take place under negative pressure which means that the pressure in the furnace under all circumstances should be lower than the ambient pressure in the room where the incinerator is installed. A flue gas fan may be fitted to secure negative pressure.

3.10 The incinerating furnace may be charged with solid waste either by hand or automatically. In every case, fire dangers should be avoided and charging should be possible without danger to the operating personnel.

For instance, where charging is carried out by hand, a charging lock may be provided which ensures that the charging space is isolated from the fire box as long as the filling hatch is open.

Where charging is not effected through a charging lock, an interlock should be installed to prevent the charging door from opening while the incinerator is in operation with burning of garbage in progress or while the furnace temperature is above 220°C.

3.11 Incinerators equipped with a feeding sluice or system should ensure that the material charged will move to the combustion chamber. Such system should be designed such that both operator and environment are protected from hazardous exposure.

3.12 Interlocks should be installed to prevent ash removal doors from opening while burning is in progress or while the furnace temperature is above 220°C.

3.13 The incinerator should be provided with a safe observation port of the combustion chamber in order to provide visual control of the burning process and waste accumulation in the combustion chamber. Neither heat, flame, nor particles should be able to pass through the observation port. An example of a safe observation port is high-temperature glass with a metal closure.

3.14 Electrical requirements

3.14.1 International Electrotechnical Commission (IEC) Standards, particularly IEC Publication 92 - Electrical Installations in Ships and Mobile and Fixed Offshore Units, are applicable for this equipment.

3.14.2 Electrical installation requirements should apply to all electrical equipment, including controls, safety devices, cables, and burners and incinerators.

3.14.2.1 A disconnecting means capable of being locked in the open position should be installed at an accessible location at the incinerator so that the incinerator can be disconnected from all sources of potential. This disconnecting means should be an integral part of the incinerator or adjacent to it. (See 5.1)

3.14.2.2 All uninsulated live metal parts should be guarded to avoid accidental contact.

3.14.2.3 The electrical equipment should be so arranged so that failure of this equipment will cause the fuel supply to be shut off.

3.14.2.4 All electrical contacts of every safety device installed in the control circuit should be electrically connected in series. However, special consideration should be given to arrangements when certain devices are wired in parallel.

3.14.2.5 All electrical components and devices should have a voltage rating commensurate with the supply voltage of the control system.

3.14.2.6 All electrical devices and electric equipment exposed to the weather should be according to IEC Publication 92.201, Table V.

3.14.2.7 All electrical and mechanical control devices should be of a type tested and accepted by a nationally recognized testing agency, according to international standards.

3.14.2.8 The design of the control circuits should be such that limit and primary safety controls should directly open a circuit that functions to interrupt the supply of fuel to combustion units.