



Standard Guide for Selection of Shipboard Incinerators¹

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1. Scope

1.1 This guide covers selection criteria to assist procurers in selecting the appropriate incinerator for their needs.

1.2 This guide is a companion document to Specification F 1323.

1.3 This guide does not apply to incinerator systems on special incinerator ships, for example, for burning industrial wastes such as chemicals, manufacturing residues, and so forth.

2. Referenced Documents

2.1 *ASTM Standards:*

F 1323 Specification for Shipboard Incinerators²

2.2 *Other Document:*

MARPOL 73/78³

3. Selecting the Incinerator Size and Installed Location

3.1 A number of factors will govern the selection of the size and type of shipboard incinerator and full consideration must be given to each. The installed operating location of the unit is of equal importance to ensure low cost operating, ease of charging, ease of cleaning, and so forth. Consideration should be given to the following:

3.1.1 Maximum amount of each type of waste that will be incinerated each day.

3.1.2 The normal number of hours per day that the incinerator will be in operation: loading procedure batch/continuous over operating hours.

3.1.3 Can wet and dry material be loaded into the incinerator so that a large volume of auxiliary fuel is not required?

3.1.4 Can the incinerator be installed on the ship in a location near the major source of refuse so as to minimize the manpower requirements during loading operations?

3.1.5 Will ashes be able to be removed easily if the incinerator is installed in the machinery space or on a lower deck? Will ash removal be manual (shoveling) or semiautomatic (plow)?

4. Estimating Daily Quantities of Waste to Be Incinerated

4.1 *Size of Ship's Crew:*

4.1.1 Galley waste estimate: 2 lb per crew member per day.

4.1.2 Crews quarters waste estimate: 1.5 lb per room per day.

4.2 *Number of Passengers Carried:*

4.2.1 Galley waste estimate: $\frac{3}{4}$ lb per meal served.

4.2.2 Passenger quarters waste estimate: 1.5 lb per room per day.

4.3 *Stores*—Including amount of packages and packages that would add to the ship's garbage.

4.4 Spent oil.

5. Factors for Selection

5.1 *Type of Unit*—Two-stage controlled air, or single-stage, compact high-temperature cyclone incinerator.

5.2 Size of unit (number of people on board).

5.3 Loading considerations (manual loader) (batch or continuous).

5.4 Auxiliary liquid waste capability (sludge oil/waste oil).

5.5 Installation considerations (indoor/outdoor).

5.6 Environmental considerations (in port usage).

5.7 Heat recover options (amount of steam or hot water).

5.8 Ash removal.

5.9 Induced draft fan requirements.

5.10 Modular/package.

5.11 Dimensions/weight.

6. Classification of Shipboard Wastes and Incinerators

6.1 The basis for satisfactory incinerator operation is the proper analysis of the waste to be destroyed and the selection of proper equipment to best destroy that particular waste.

6.2 As a guide, mixtures of waste most commonly encountered have been classified into types of waste, together with the British Thermal Unit (Btu) values and moisture contents of the

¹ This guide is under the jurisdiction of ASTM Committee F-25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.06 on Marine Environmental Protection.

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² *Annual Book of ASTM Standards*, Vol 01.07.

³ Available from the International Maritime Organization, 4 Albert Embankment, London SE1 7SR, UK.