

CONTROL REGULATIONS FOR DISCHARGE OF ONBOARD WASTES FROM SHIPS

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ABSTRACT

In Japan, the disposal into the sea of waste from ships is prohibited in principle, except for its disposal in accordance with discharge standards or under emergency conditions as set forth in the Law Relating to Prevention of Marine Pollution and Maritime Disaster. Especially, the disposal of any form of plastics, including but not limited to synthetic ropes, synthetic fishing nets, cups, and bags, is not permitted. These provisions of the law apply to all ships.

INTRODUCTION

Japan introduced regulations on waste discharge from ships by the Law Relating to the Prevention of Marine Pollution and Maritime Disaster (1970). The law went into effect in 1972, when sea areas of discharge and methods of discharge were specified. It was revised in 1988. Annex V of MARPOL 73/78 went into effect on 31 December 1988.

Wastes generated on board ship are classified in two categories: Wastes from the daily life of crews, and wastes arising from the ordinary operation of ships (e.g., fishing and dredging). Regarding wastes from the crews' daily life, the regulations are equivalent to those of Annex V, and the regulations for wastes generated during ordinary operation are in general more stringent than the annex.

OUTLINE OF ANNEX V TO MARPOL 73/78

The garbage subject to regulations under Annex V to MARPOL 73/78 is 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. Excluded are those substances which are defined or listed in other annexes to the present convention. As to garbage disposal outside special areas, sea areas of discharge and methods of discharge are outlined for each category of garbage in Annex V. Regulations of discharge are the toughest on plastics, including fishing nets, rope, and nylon bags. Their discharge is prohibited in all areas. Dunnage, lining, and packing materials which will float must not be disposed of into the sea <25 nmi from the nearest land. Food wastes and all other garbage must not be discharged <12 nmi from land. However, they can be discharged within 3 to 12 nmi of land if they are <25 mm in size. Any garbage generated on board must not be discharged <3 nmi from land. All ships are subject to the regulations irrespective of their type, size, or usage, even a one-man pleasure boat.

HISTORY OF DOMESTIC REGULATIONS

Japan has the Law Relating to the Prevention of Marine Pollution and Maritime Disaster (hereinafter referred to as "the marine pollution prevention law") (see Appendix A) to preserve the marine environment and protect the life, health, and assets of the people. The marine pollution prevention law in principle prohibits discharge of garbage into the sea unless it is required for emergency evacuation or force majeure and unless certain discharging standards are met. Substances subject to discharge regulations are oil, noxious liquid substances, and other garbage generated on ships, maritime facilities, and aircraft. Japan established the Law Relating to the Prevention of Maritime Pollution by Oil from Ships in 1967 to make 54 OILPOL, including a 1962 amendment, into domestic law. This law was replaced by the marine pollution prevention law in 1970 to include a 1969 amendment to 54 OILPOL, regulate discharging of garbage from ships and of oil and garbage from marine facilities, and implement measures for preventing maritime pollution by oil and other substances. In 1976, obligations to deploy oil-skimming ships, measures for prevention of maritime disaster, and the establishment of a maritime disaster prevention center were added to the law. At the same time, it was renamed the Law Relating to the Prevention of Marine Pollution and Maritime Disaster in order to specify prevention of maritime disaster as well as pollution.

In response to the London Dumping Convention, Japan revised the marine pollution prevention law in 1980 to toughen regulations by establishing controls on waste discharge from aircraft and incineration at sea, and a waste discharge confirmation system. Japan also modified the marine pollution prevention law in 1983 to subject not only heavy oil but also light oil, noxious liquid substances in bulk, sewage, and other garbage to controls, introduce controls on structures and equipment of ships, and conduct inspection regarding the new controls in order to abide by MARPOL 73/78.

Japan has in this way gradually enhanced regulations for prevention of maritime pollution in response to an international trend and domestic public opinion, and is ready to further toughen and expand such regulations in the future.

CONTROL OF DISCHARGE OF WASTES

Japan's marine pollution prevention law covers both Annex V to MARPOL 73/78 and the London Dumping Convention to regulate discharge of wastes. Annex V regulates garbage generated offshore, while the London Dumping Convention subjects wastes generated on shore to controls. The scope of garbage for Annex V is different from that for the London Dumping Convention, but the marine pollution prevention law unifies regulations under both. It prohibits discharge of wastes from ships in principle, and allows such discharge for emergency evacuation or force majeure and under certain conditions. The marine pollution prevention law defines "wastes" as leavings or rubbish people do not require, excluding oil, noxious liquid substances, and the like. "Discharge" is defined as any action to set afloat or drop matter into the sea. Japan has the same regulations as those under Annex I to MARPOL 73/78 on oil and under Annex II on noxious liquid substances. The marine pollution prevention law thus regulates all wastes other than oil, noxious liquid substances, and the like. It will eventually cover garbage under Annex V to MARPOL 73/78, sewage under Annex IV, and wastes generated on shore under the London Dumping Convention. The law includes waste-discharging standards in accordance with the London Dumping Convention. Hereinafter, we discuss regulations responding to Annex V under the revised marine pollution prevention law put into effect 31 December 1988 and Japan's original controls on discharge of sewage since 1972. Annex IV to MARPOL 73/78, which deals with sewage, has not taken effect, and regulations under this annex have yet to be implemented internationally.

Garbage generated on ships is divided into two categories. One is related to people's daily life and includes trash and sewage. Another covers garbage linked to routine operations of ships. Human life-related trash and sewage are limited in volume and mostly disposable in the sea. Therefore, only on large ships had such garbage been subjected to regulations on discharge. Until Annex IV and V to MARPOL 73/78 take effect, Japan will continue to separate trash from soil in discharging regulations to satisfy the respective annexes. Regulations on human life-related soil have remained unchanged even after Annex V to MARPOL 73/78 went into effect. Japan's regulations on trash were less stringent than those stipulated in the annex, and Japan revised the marine pollution prevention law to introduce regulations conforming to the annex for all ships irrespective of size or type. Under the new regulations, (1) discharge of wastes is prohibited within a distance of <3 nmi from the baseline for territorial waters, (2) discharge of plastics is totally prohibited, but those burned to powder ashes can be discharged at and beyond a 3-nmi distance from the territorial water baseline, and (3) garbage, whose size must be reduced to <25 mm before discharging under MARPOL 73/78, must be burned to ashes or pulverized by machines meeting certain technical standards before discharge. A type certificate system is established for

the pulverizing machines. These machines are required (1) to reduce the size of any garbage put into them to <25 mm, (2) to perform normal functions despite shaking or vibrations, and (3) to be easy to maintain and clean.

"Ship" is defined under MARPOL 73/78 as a vessel of any type whatsoever operating in the marine environment, and includes hydrofoils, air-cushion vehicles, submersibles, floating craft, and fixed or floating platforms. The ship as defined in the convention thus covers both what is defined as ship and what is defined as maritime facility under the Japanese marine pollution prevention law, so that Japan has subjected both ships and maritime facilities to the same discharging regulations. A ship under the Japanese law is defined as any floating craft used for navigation in the sea. A maritime facility is defined as any structure installed in the sea to house people, treat things, transport things, or stockpile things. It excludes structures which are linked to the shore through fixed facilities for free traffic of people and those connected to the shore for discharging oil or other wastes from the shore. As to garbage generated in relation to routine ship operations, including transportation and fishing, discharging regulations under the Japanese marine pollution prevention law were already tough and almost satisfied requirements under Annex V to MARPOL 73/78. The tough regulations already limited garbage for conditional discharge to what must be disposed of in the sea and prohibited discharging of garbage other than animal waste within 50 nmi of the territorial water baseline. Therefore, Japan made only minor changes in respect to garbage generated as a result of routine ship operations. Regulations on plastics were made as tough as those on human life-related plastic trash, and a distance for prohibiting the discharge of garbage other than animal waste was cut to <12 nmi from the territorial water baseline to conform to Annex V to MARPOL 73/78.

As to garbage generated on maritime facilities in relation to their usual operations, a prohibition against discharging had already been established under the law before the latest revision and has been retained. The garbage discharging standards under the Japanese law were different from those under MARPOL 73/78, and the difference has remained even since Annex V to the convention took effect. But the overall Japanese standards sufficiently fulfill all the requirements under the convention. Furthermore, the Japanese marine pollution prevention law includes independent regulations on discharging of garbage generated on aircraft during flights.

Regulations for discharging garbage generated on ships, maritime facilities, and aircraft under the marine pollution prevention law follow.

CONTROL OF DISCHARGE OF WASTE FROM SHIPS

Daily Life-Related Garbage

Daily life-related garbage is garbage generated in relation to daily life of seamen and other persons on board ships.

Waste Plastics

Sea areas of discharge.--Waters at and beyond 3 nmi from the territorial water baseline.

Method of discharge.--The garbage must be transformed into ashes before discharging. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Food Wastes

Sea area of discharge.--Waters between 3 and 12 nmi of the territorial water baseline and waters within 500 m of ships or maritime facilities engaged in mining mineral resources at or under the sea bottom beyond 12 nmi from the baseline.

Method of discharge.--The garbage must be transformed into ashes or processed by pulverizing machines meeting certain technical standards before discharging. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Sea area of discharge.--Waters >12 nmi from the territorial water baseline.

Method of discharge.--Method of discharge is not limited. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Paper, Wood, and Textile Trash and Other Inflammable Garbage

Sea area of discharge.--Waters between 3 and 12 nmi from the territorial water baseline.

Method of discharge.--The garbage must be transformed into ashes or processed by pulverizing machines meeting certain technical standards before discharge. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Sea area of discharge.--Waters >12 nmi from the territorial water baseline.

Method of discharge.--Method of discharge is not limited. Discharge must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in water.

Metal, Glass, and Ceramic Trash and Other Garbage

Sea area of discharge.--Waters between 3 and 12 nmi of the territorial water baseline.

Method of discharge.--Before discharging, the garbage must be processed by pulverizing machines meeting certain technical standards. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Sea area of discharge.--Waters >12 nmi from the territorial water baseline.

Method of discharge.--Method of discharge is not limited. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Sewage

Sea area of discharge.--All waters.

Method of discharge.--Discharging is free.

Soil

Sea area of discharge.--Port waters, waters within 10,000 m of a low-water line on the coast, Ise Bay, and the Seto Inland Sea.

Method of discharge.--The garbage must be pulverized before discharge. Discharging must be done under the sea surface, during navigation, in small amounts, and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Sea area of discharge.--Waters other than the above.

Method of discharge.--Method of discharge is not limited. Discharging must be done in small amounts and as far as possible from the coast, and efforts must be made to promptly diffuse the garbage in the water.

Note: Discharging of soil is allowed in all waters for ships whose maximum accommodation capacity slips under 100 persons. It is also allowed in all waters for ships whose accommodation capacity is 100 persons or more if soil is processed by soil treatment machines meeting certain technical standards.

Sea areas of discharge (except for sewage and soil) do not include waters within 500 m of ships or maritime facilities which are engaged in mining mineral resources at or under the sea bottom. Discharging of

garbage is prohibited in such waters with the exception of food trash discharged in waters beyond 12 nmi from the territorial water baseline.

Operation-Related Garbage

Operation-related garbage is garbage generated in relation to transportation, fishing, and other usual operations of ships.

Garbage

Garbage with an ignition loss of 15% or less (an ash state of waste plastics) and inorganic garbage (e.g., ore powder generated on ore carriers).

Sea area of discharge.--Waters >50 nmi from the territorial water baseline.

Method of discharge.--Specific gravity must be raised to 1.2. Garbage must not be discharged in powder form. Efforts must be made to sink the garbage to the sea bottom as promptly as possible. Discharge should be avoided in waters where it is expected to affect growth of marine animals and plants.

Note: "Ignition loss" indicates how much the mass of a garbage sample (burned garbage) dried at 105°C for 4 h is reduced after the dried sample is heated at 600°C for 2 h. Garbage with an ignition loss of 15% or less has a weight loss of 15% or less. This percentage indicates garbage which has been burned almost completely.

Plant Garbage

Plant garbage consists of wood chips whose sizes have been reduced to 15 cm or less by pulverizing or cutting (e.g., bark generated on timber carriers).

Sea area of discharge.--Waters >50 nmi from the territorial water baseline.

Method of discharge.--Discharging must be done during navigation and in small amounts. Efforts should be made to diffuse the garbage in waters as promptly as possible. Discharging should be avoided in waters where garbage discharge is expected to affect growth of marine animals and plants.

Animal Garbage

Animal garbage (e.g., livestock which died during transport) (excluding fresh fish and parts thereof).

Sea area of discharge.--Waters >12 nmi from the territorial water baseline.

Method of discharge.--Method of discharge is not limited, but discharge should be avoided in waters where it is expected to affect growth of marine animals and plants.

Fish and Other Marine Animals and Their Parts

Sea area of discharge.--Port waters within 10,000 m of a low-water line on the coast, Ise Bay, and the Seto Inland Sea.

Method of discharge.--Method of discharge is not limited, but discharge should be avoided in waters where it is expected to affect growth of marine animals and plants.

Sewage

Sewage--excluding waste water which does not meet the standards in Appendix B (e.g., waste water used for washing cargo holds or the deck). Waste water used for removing garbage on the deck or other places is classified as sewage. Waste water used for removing garbage accumulated on ships is deemed not sewage but the garbage itself.

Sea area of discharge.--All waters.

Method of discharge.--Method of discharge is not limited. Discharge should be avoided in waters where it may affect growth of marine animals and plants.

Notes: Sea areas of discharge for the first three categories of operation-related garbage do not include waters within 500 m of ships or maritime facilities which engage in mining mineral resources at or under the sea bottom. Discharging is prohibited in such waters.

Subject to restrictions set forth in the first three categories of operation-related garbage is garbage generated in relation to ships' usual activities including transportation, fishing, surveying, observation, and rescue operations. If there are two or more categories of garbage meeting different sets of restrictions, the appropriate regulations will be applied.

REGULATIONS ON DISCHARGE FROM MARITIME FACILITIES

Daily Life-Related Garbage

Daily life-related garbage is garbage generated in relation to the daily life of people on marine facilities.

The same regulations as those for control of discharge of waste from ships are applied to maritime facilities, although discharge of sewage and soil is allowed in all waters. Such discharge should be done as gradually as possible. If garbage is discharged in waters within 500 m of facilities

for mining mineral resources beyond a distance of 12 mi from the territorial water baseline, the garbage must be burned to ashes or processed by pulverizing machines meeting certain technical standards. Discharge of food waste is allowed without such processing if discharge is done as gradually as possible.

Operation-Related Garbage

Discharge is prohibited.

CONTROL OF DISCHARGE FROM AIRCRAFT

Daily Life-Related Garbage

Daily life-related garbage is garbage generated in relation to daily life of people on aircraft.

Sewage and Soil

Sea area of discharge--All waters.

Method of discharge--Free discharge is allowed.

Garbage Other Than Above

Discharging is prohibited.

Operation-Related Garbage

Discharging is prohibited.

APPENDIX A

REGULATIONS UNDER THE LAW RELATING TO THE PREVENTION OF MARINE POLLUTION AND MARITIME DISASTER: MEASURES FOR PREVENTION OF MARINE POLLUTION AND MARITIME DISASTER

- I. Preventive measures.
 - A. Regulations on pollution.
 1. Regulations on discharge at sea.
 - a. From ships.
 - b. From maritime facilities and aircraft.
 2. Regulations on incineration at sea.
 3. Regulations on abandonment of ships.
 - B. Improvement of garbage treatment on ships.
 1. Preparation of manual for the prevention of oil pollution and appointment of oil pollution supervisor.
 2. Preparation of manual for the prevention of pollution by noxious liquid substances and appointment of supervisor for prevention of pollution by noxious liquid substances.
 3. Preparation and maintenance of oil record book.
 4. Preparation and maintenance of noxious liquid substance record book.
 - C. Regulations on structures and equipment of ships.
 1. Structure and equipment standards.
 2. Regular checks and receipt of check certificates.
 - D. Improvement of pollutive substance treatment: The establishment of waste oil disposal facilities and their technical standards.
 - E. Surveillance, patrol, and instruction.
 1. Surveillance and patrol using aircraft and patrol boats.
 2. Lectures, instructions.
 3. Measures after pollution and disaster.

- A. Elimination of pollution.
 - 1. Obligations to report on discharge of oil or noxious liquid substances and vessel-contained noxious liquid substances.
 - 2. Emergency measures.
 - 3. Instructions to eliminate oil, noxious liquid substances, and garbage.
 - B. Establishment of pollution elimination setup.
 - 1. Preparation of discharged oil elimination plans.
 - 2. Obligations to set up equipment for eliminating discharged oil.
 - 3. Maritime disaster prevention center.
 - C. Measures for prevention of marine fire.
 - 1. Obligations to report on discharge of dangerous substances and fire.
 - 2. Emergency measures.
 - 3. Allocation of costs.
 - 4. Disposal of assets.
 - 5. Controls on traffic of ships.
 - D. Technical research and survey.
 - 1. Survey on pollution.
 - 2. Research and development of pollution prevention technology.
 - E. Penalty and administrative measures.
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APPENDIX B

CRITERIA FOR WATER THAT CAN BE DISPOSED OF
AT SEA AS OPERATION-RELATED SEWAGE

Cadmium contents	0.1 mg or less/L
Cyanogen contents	1.0 mg or less/L
Organic phosphorus contents	1.0 mg or less/L
Plumbum contents	1.0 mg or less/L
Hexad chromium contents	0.5 mg or less/L
Arsenic contents	0.5 mg or less/L
Total mercury contents	0.005 mg or less/L
Alkyl mercury contents	Not detected
PCB contents	0.003 mg or less/L
Trichloroethylene contents	0.3 mg or less/L
Perchloroethylene contents	0.1 mg or less/L