

標題

MARPOL Annex IV 汚水貯留タンク内の未処理汚水を船外に排出する際の排出速度の承認について

# ClassNK

## テクニカル インフォメーション

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各位

海洋汚染防止条約付属書 IV 第 11 規則によると、貯留タンク内の汚水は船舶が 4 ノット以上の速力で航行している間に適当な排出速度で排出しなければならないとあります。2007 年 7 月 13 日に採択された MEPC.164(56)により第 11 規則が改正され、当該排出速度は、IMO が作成した基準 IMO Resolution MEPC.157(55)に基づいて主管庁により承認されたものとしなければならないこととなりました。この改正第 11 規則は 2008 年 12 月 1 日より適用されます。したがって、貯留タンク内の汚水を、承認された汚水処理プラントを通さずに排出する船舶については、IMO Resolution MEPC.157(55)に従って排出速度表を作成し、船籍国政府の承認を受ける必要があります。

弊会が International Sewage Pollution Prevention Certificate を発行した船舶については、弊会が船籍国政府に代わり当該排出速度表を承認することが可能です。

以下にその手順を示します。

1. MEPC.157(55)に従い排出速度表を作成する。
  - (1) 各状況における最大許容排出速度を次の計算式により算出する。  
 $DR_{max}=0.00926VD^2B$   
DR<sub>max</sub>: 最大許容排出速度(m<sup>3</sup>/h)  
V: 平均航行速度(knots)  
D: 喫水(m)  
B: 船幅(m)
  - (2) 計算結果を表にする。  
平均航行速度は 4 ノットから連続最大速力まで、2 ノットごとに記載する。  
喫水は最低喫水から満載喫水まで、1m 毎に記載する。
  - (3) 排出速度表の例を添付する。
2. 作成した排出速度表を E-mail に添付し、弊会機関部(E-mail アドレス: mcd@classnk.or.jp) に送付する。
3. 弊会機関部において内容を審査し承認印を押印した後、排出速度表を E-mail で返送する。
4. 承認された排出速度表を本船に保管する。

また、日本籍船の排出速度表の承認は国土交通省地方運輸局等で行います。

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#### NOTES:

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なお、本件に関してご不明な点は、以下の部署にお問い合わせください。

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添付:

1. IMO Resolution MEPC.157(55)
2. IMO Resolution MEPC.164(56)
3. 排出速度表の例

**ANNEX 14**

**RESOLUTION MEPC.157(55)  
Adopted on 13 October 2006**

**RECOMMENDATION ON STANDARDS FOR THE RATE OF DISCHARGE  
OF UNTREATED SEWAGE FROM SHIPS**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

NOTING resolution MEPC.115(51) by which the Committee adopted the revised MARPOL Annex IV, which entered into force on 1 August 2005,

NOTING ALSO the provisions of regulation 11.1.1 of MARPOL Annex IV,

RECOGNIZING that untreated sewage that has been stored in holding tanks shall not be discharged instantaneously but that the discharge is to be undertaken at a moderate rate approved by the Administration based upon the standards developed by the Organization,

HAVING CONSIDERED the recommendations made by the Sub-Committee on Bulk Liquids and Gases at its tenth session,

1. ADOPTS the Recommendation on standards for the rate of discharge of untreated sewage from ships, the text of which is set out in the Annex to the present resolution;
2. RECOMMENDS member Governments to accept the rate of discharge based upon the annexed Standards,
3. ENCOURAGES operators of ships that may have high discharge requirements to keep calculations of actual discharges to demonstrate compliance to the Administration and to port or coastal State authorities.

## ANNEX

### RECOMMENDATION ON STANDARDS FOR THE RATE OF DISCHARGE OF UNTREATED SEWAGE FROM SHIPS

#### 1 INTRODUCTION

- 1.1 Regulation 11.1.1 of the revised Annex IV of MARPOL 73/78 requires that untreated sewage, which may be discharged at more than 12 nautical miles from the nearest land, should not be discharged instantaneously but at a moderate rate of discharge when the ship is en route and proceeding at a speed not less than 4 knots, while the rate should be approved by the Administration based upon standards developed by the Organization. This Recommendation provides the standard and guidance for the approval and calculation of a moderate rate of discharge.
- 1.2 A moderate rate of discharge applies to the discharge of untreated sewage that has been stored in holding tanks.
- 1.3 This standard does not incorporate the dilution of sewage with water or greywater into calculations of the discharge rate. Therefore the rate is a conservative estimate and it is recognised that discharges of sewage in accordance with this standard will present a higher level of protection to the marine environment due to mixing prior to the actual discharge in addition to the mixing action of the ship's wake.

#### 2 DEFINITIONS

- 2.1 *Swept volume* means ship breadth x draft x distance travelled.
- 2.2 *Untreated sewage* means sewage that has not been treated by a type approved sewage treatment plant, or that has not been comminuted and disinfected.

#### 3 DISCHARGE RATE

- 3.1 The maximum permissible discharge rate is 1/200,000 (or one 200,000th part) of swept volume as follows:

$$DR_{\max} = 0.00926 V D B$$

Where:

$DR_{\max}$  is maximum permissible discharge rate (m<sup>3</sup>/h)

V is ship's average speed (knots) over the period

D is Draft (m)

B is Breadth (m)

- 3.2 The maximum permissible discharge rate specified in 3.1 refers to the average rate as calculated over any 24 hour period, or the period of discharge if that is less, and may be exceeded by no more than 20% when measured on an hourly basis.

#### 4 APPROVAL OF RATE BY ADMINISTRATION

- 4.1 The Administration should approve the rate of discharge specified in 3.1 based upon the ship's maximum summer draft and maximum service speed<sup>1</sup>. Where sewage is to be discharged at a different combination of draft and speed one or more secondary discharge rates may also be approved<sup>2</sup>.

#### 5 METHOD OF CALCULATION

- 5.1 The calculated swept volume of the ship is to be determined for drafts up to and including the summer draft assigned in accordance with Article 3 of International Convention on Load Lines, 1966.
- 5.2 Where a ship is to discharge sewage from a holding tank using a pump calibrated at a fixed rate, the pump can either be:
- calibrated at a the rate permitted at 4 knots; or
  - calibrated for a specific minimum ship's speed in excess of 4 knots.
- 5.3 Where the intended actual discharge rate exceeds that permissible at 4 knots, the actual discharge rate may need to be reduced or the speed increased. The rate and speed is to be detailed in the approval issued by the Administration.

#### 6 COMPLIANCE WITH THE RATE

- 6.1 Before undertaking a sewage discharge in accordance with this standard, the crew member responsible for sewage operations should ensure that the ship is en route, is more than 12 nautical miles from the nearest land and the navigation speed is consistent with the discharge rate that has been approved by the Administration. Ships with high discharge requirements are encouraged to keep notes of calculations of the actual discharges to demonstrate compliance with the approved rate.

<sup>1</sup> The attention of ship operators and personnel is drawn to the reduction in permissible rate of discharge at reduced draft and/or speed.

<sup>2</sup> Presentation may be tabular, refer to table below. For ships other than those having a high requirement for untreated sewage discharge, such as passenger ships and livestock carriers, the discharge rate criterion will generally not be exceeded at ship speed of 4 knots.

DISCHARGE RATE (m <sup>3</sup> /h)					
SPEED (kt)	4	6	8	10	12
DRAFT (m)					
5	4.63	6.94	9.26	11.57	13.89
6	5.56	8.33	11.11	13.89	16.67
7	6.48	9.72	12.96	16.20	19.45
8	7.41	11.11	14.82	18.52	22.22
9	8.33	12.50	16.67	20.83	25.00

**ANNEX 11****RESOLUTION MEPC.164(56)****Adopted on 13 July 2007****AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1978 RELATING TO  
THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF  
POLLUTION FROM SHIPS, 1973****(Reception facilities outside Special Areas and discharge of sewage)**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

NOTING Article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention") and article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") which together specify the amendment procedure of the 1978 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 Protocol (MARPOL 73/78),

HAVING CONSIDERED proposed amendments to regulation 38.2.5 of Annex I and regulation 11.1.1 of Annex IV to MARPOL 73/78,

1. ADOPTS, in accordance with Article 16(2)(d) of the 1973 Convention, the amendments to Annex I and Annex IV of MARPOL 73/78, the texts of which are set out at Annex 1 and Annex 2 respectively to the present resolution;
2. DETERMINES, in accordance with Article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 June 2008, unless prior to that date, not less than one-third of the Parties or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;
3. INVITES the Parties to note that, in accordance with Article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 December 2008 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with Article 16(2)(e) of the 1973 Convention, to transmit to all Parties to MARPOL 73/78 certified copies of the present resolution and the text of the amendments contained in the Annexes; and
5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL 73/78 copies of the present resolution and its Annexes.

ANNEX 1

**AMENDMENTS TO MARPOL ANNEX I**

**(Reception facilities outside Special Areas)**

Regulation 38.2.5 is replaced by the following:

“all ports in respect of oily bilge waters and other residues that cannot be discharged in accordance with regulations 15 and 34 of this Annex; and”

ANNEX 2

**AMENDMENTS TO MARPOL ANNEX IV**

**(Discharge of sewage)**

Regulation 11.1.1 is replaced by the following:

- “1 the ship is discharging comminuted and disinfected sewage using a system approved by the Administration in accordance with regulation 9.1.2 of this Annex at a distance of more than 3 nautical miles from the nearest land, or sewage which is not comminuted or disinfected, at a distance of more than 12 nautical miles from the nearest land, provided that, in any case, the sewage that has been stored in holding tanks, or sewage originating from spaces containing living animals, shall not be discharged instantaneously but at a moderate rate when the ship is *en route* and proceeding at not less than 4 knots; the rate of discharge shall be approved by the Administration based upon standards developed by the Organization<sup>8</sup>; or”

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<sup>8</sup> Refer to the Recommendation on standards for the rate of discharge of untreated sewage from ships adopted by the Marine Environment Protection Committee of the Organization by resolution MEPC.157(55).



**MAXIMUM DISCHARGE RATE OF UNTREATED SEWAGE IN ACCORDANCE WITH RESOLUTION MEPC.157(55)**

SHIP NAME: XXXXXXXXXXXXX  
 IMO No. XXXXXXXX  
 Breadth: 25.00 m  
 Min. draft: 5.00 m  
 Max. Summer draft: 9.00 m  
 Max. Service speed: 12.0 kts  
 Theoretical max. rate: 25.00 m<sup>3</sup>/h

The calculated discharge rate refers to the average rate as calculated over any 24hour period, or the period of discharge whichever is lower, and is not to be exceeded by more than 20% when measured on an hourly basis.

The permissible rate of discharge is reduced at draft and/or speed. See the table below:

DISCHARGE RATE (m <sup>3</sup> /h)					
SPEED (kt)	4	6	8	10	12
DRAFT (m)					
5	4.63	6.95	9.26	11.58	13.89
6	5.56	8.33	11.11	13.89	16.67
7	6.48	9.72	12.96	16.21	19.45
8	7.41	11.11	14.82	18.52	22.22
9	8.33	12.50	16.67	20.84	25.00