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## ANY OTHER BUSINESS

### Findings on improved prewash procedures for solidifying or high-viscosity substances (paraffin waxes)

Submitted by the Netherlands

#### SUMMARY

*Executive summary:* This document summarizes the results of the initiative by the Netherlands on improved prewash procedures for solidifying substances or high-viscosity substances in order to improve the effectiveness of tank washings of paraffin waxes assigned to pollution category X and Y

*Strategic direction, if applicable:* 6

*Output:* Not applicable

*Action to be taken:* Paragraph 16

*Related documents:* MEPC 73/INF.14 and resolution MEPC.315(74)

#### Introduction

1 This document is submitted in accordance with the provisions of the *Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev.2), taking into account resolution A.1111(30) on *Application of the Strategic Plan of the Organization*.

2 The Committee will recall that MEPC 74 adopted resolution MEPC.315(74), amending regulation 1, regulation 13, and appendices IV and VI to MARPOL Annex II concerning cargo residues and tank washings of persistent floating products with a high viscosity and/or high melting point in specific geographical areas. The amendments entered into force on 1 January 2021.

3 The work on this resolution was done under strategic direction 6 "Ensure regulatory effectiveness", output number 6.10 "Review of MARPOL Annex II requirements that have an impact on cargo residues and tank washings of high viscosity, solidifying and persistent floating products and associated definitions, and preparation of amendments" with a target completion year of 2019.

4 The amendments in resolution MEPC.315(74) contribute to the goal of cleaner seas. In the specified geographical areas, residues of persistent floating products shall be delivered to port reception facilities. This will prevent discharges of those residues to sea, where the discharged residues are either ingested by fish, sea mammals and birds, or washed to shore. The latter has resulted in high cleaning costs of beaches and coastlines in the Netherlands.

5 Regulation 13.7.1.4 of MARPOL Annex II states that for "substances assigned to category Y, that are persistent floaters with a viscosity equal to or greater than 50 mPa·s at 20°C, and/or a melting point equal to or greater than 0°C, as identified by '16.2.7' in column 'o' of chapter 17 of the IBC Code, a prewash procedure as specified in appendix VI to this Annex shall be applied". Section C of appendix VI to MARPOL Annex II states that for purposes of prewash procedures, persistent floaters to which regulation 13.7.1.4. applies, shall be treated as solidifying or high-viscosity substances.

### **Dutch initiative**

6 Paraffin wax substances fall under the new MARPOL Annex II discharge requirements for persistent floaters. These substances have been found washed upon a number of Dutch beaches. Approximately, 10 to 50 m<sup>3</sup> of paraffin is removed annually with an extreme volume of more than 100 m<sup>3</sup> in 2017. On average over €148,000 per year (from 2007 to 2017) is spent by the Dutch national government to clean the beaches from paraffin and properly dispose of it.

7 While discussions were ongoing at IMO regarding the concerns arising from the discharge of cargo residues, specifically with respect to tank washings of persistent floating products, the Netherlands decided to anticipate the stricter discharge requirements for paraffin waxes on a national level. The rationale for this was to attempt to further reduce the volume of paraffin wax substances ending up the Dutch coastlines and beaches.

8 An essential part for realizing an encompassing discharge of the residues of paraffin waxes to port reception facilities was the development of an improved prewash procedure for paraffin waxes to clean the tanks more effectively.

9 Furthermore, an incentive scheme was developed with the aim to stimulate maximum delivery of wash water containing paraffin wax substances of category X and Y to port reception facilities. This scheme stimulated unloaded ships to apply the improved prewashing procedure. The improved prewash procedure is voluntary. However, all ships, which unloaded paraffin wax in the concerned Dutch ports, have participated in this initiative.

10 The outcome of the Dutch initiative was an improved unloading and washing strategy in the concerned Dutch ports. This was considered successful as hardly any paraffin waxes were found on the Dutch coastline since the initiative came into effect. The improved prewash procedure regarding paraffin waxes in the Netherlands is described in more detail in the annex to this document. In the view of the Netherlands, this improved prewash procedure could contribute as well to other cargoes with similar physical properties.

### **Dutch findings**

11 The Netherlands believes that solidified paraffin waxes would not have been found on Dutch beaches in the amounts mentioned in paragraph 6 if the ship's crew would carry out adequate stripping procedures at all times. After inspecting several ships calling to the ports of Rotterdam and Moerdijk to unload paraffin waxes, the Netherlands learned that cargo tanks frequently were not stripped. The reason for not stripping was that the ship's crew didn't want to risk a clogged stripping line. Freeing the line is a difficult and time-consuming process. The

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Netherlands also learned that most crew members did not know how to correctly perform a stripping procedure for solidifying cargoes. Furthermore, the Netherlands discovered that the mandatory prewashes that were carried out appeared to be ineffective. The solidified paraffin wax remaining in the cargo tanks couldn't be removed by using the standard prewash procedure (through cleaning cycle(s) or through using the Q-formula regardless of the K-factor).

12 In addition, inspections showed that, even when the unloading was done in accordance with MARPOL Annex II, remaining quantities of paraffin wax exceeded the stripping quantities. Inspections of several cargo tanks showed that the "relative" cold ballast water promoted the clotting process of the cargo on the tank walls and bottom. This led to excessive amounts of solidified paraffin wax remaining after the unloading and stripping of the cargo tanks. The Netherlands also noticed large quantities of paraffin wax remaining on tank tops, due to "relative" cold temperatures. Quantities of 6 and up to 12 cubic meters per tank have been found.

13 This was another indication that the standard unloading and stripping procedure was not effective. The standard prewash procedure proved to be inadequate to remove the solidified residues for both category X and Y substances. The only option for the ship's crew was to manually remove the solidified residues from the tank, followed by a prewash. This procedure is labour intensive and costly due to caused delay of the vessel in the port. This was the starting point to develop an improved unloading and prewash procedure that was low cost and effective.

14 An improved prewash procedure for paraffin waxes of pollution category X and pollution category Y was developed in close cooperation between experienced MARPOL surveyors and a captain of a ship with knowledge of the transport of paraffin waxes and the cleaning of cargo tanks. This resulted in a time-driven washing procedure which was then applied in the ports of Rotterdam and Moerdijk. Essential elements in this improved procedure are heating up the cargo tanks properly and washing the cargo tanks with very hot water for a sufficient amount of time. After cooling down, the tanks were inspected and found sufficiently cleansed.

15 If the improved prewash is prepared properly and adequately communicated with the crew, the procedure will take the same amount of time as a "standard" prewash procedure. The Netherlands wants to emphasize the fact that, regardless of the amount of solidified cargo remaining and whether the tanks are stripped or not, this prewash procedure will significantly reduce the amount of paraffin wax ending up discharged into the sea.

#### **Action requested by the Committee**

16 The Committee is invited to note the information provided in this document.

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## ANNEX

### IMPROVED PREWASH PROCEDURE FOR PARAFFIN WAXES

To more effectively prewash paraffin waxes of pollution category X and pollution category Y, the following procedure should be carried out:

- 1 Cargo must be unloaded at a temperature of at least  $> 10^{\circ}\text{C}$  above melting point.
  - 2 As soon as the tank is empty, hot water shall be entered in the tank until the heating coils are flooded.
  - 3 The heating coils shall be operated in order to heat up the tanks to melt the wax which is attached to the tank walls.
  - 4 The tanks and tank walls should be heated with steam for at least 1 to 2 hours.
  - 5 Subsequently the tanks and tank walls shall be washed with hot water ( $> 60^{\circ}\text{C} - 80^{\circ}\text{C}$ ) (as normal prewash procedures do not inflict sufficient effect, hot water must be used).
  - 6 A time factor of at least 45 minutes for washing per tank shall be used instead of the regular K-factor.
  - 7 Adjacent ballast water tanks should be kept empty (if possible).
  - 8 Collection tanks must be heated and effluent must be unloaded to Port Reception Facilities or a terminal and subsequently prewashed as well in accordance with the above mentioned procedure.
  - 9 After unloading the washing water, the tanks should be ventilated to allow for visual inspection.
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