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PREVENTION AND RESPONSE
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Agenda item 15

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**FOLLOW-UP WORK EMANATING FROM THE ACTION PLAN TO ADDRESS
MARINE PLASTIC LITTER FROM SHIPS**

**Proposed amendments to the criteria for the identification of harmful
substances in package form – Classification of plastic pellets**

**Submitted by Cook Islands, Jamaica, Monaco, Norway, Palau, United Arab Emirates,
Vanuatu, ICS, SPREP and WSC**

SUMMARY

Executive summary: This document proposes measures that will reduce the environmental risks associated with the shipping of plastic pellets in packaged form

*Strategic direction,
if applicable:* 4

Output: 4.3

Action to be taken: Paragraph 26

Related document: MEPC 77/8/3

Introduction

1 At its seventy-seventh session, the Marine Environment Protection Committee had for its consideration document MEPC 77/8/3 (Sri Lanka) informing the Committee about the largest acute plastic pollution event to have ever happened when the **MV X-Press Pearl** sunk and 11,000 tonnes of plastic pellets were released into the sea, off the shore of Colombo, Sri Lanka. The document also suggests several actions that aim to prevent future incidents and improve the response to incidents involving the loss of plastic pellets at sea.

2 Because of time constraints, the document was not considered by the Committee but referred to PPR 9 for further consideration, with a view to advising the Committee on how best to proceed.

The loss of containers at sea

3 There are more than 6,000 ships carrying containers around the world and according to a survey prepared by the World Shipping Council (WSC), approximately 226 million containers were transported internationally by sea in 2019. The WSC has also estimated that an average of 1,382 containers are lost at sea each year.

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4 The loss of containers at sea represents a serious safety challenge and a major risk to the marine environment, as semi-submerged containers represent a risk for safe navigation and the containers can contain dangerous goods and substances that are harmful to the marine environment. The recovery of lost containers and mitigating damage arising from the containers and their contents can be difficult and time-consuming, and the containers can also be difficult to locate.

Transport of plastic pellets by sea

5 Plastic pellets are a raw material in the manufacture of plastic products and are defined as primary microplastic due to their small size (diameter under 5 mm). They come in different forms including pellets, flakes and powders. Hereafter, we will refer to all these forms as plastic pellets. Plastic pellets consist of various types of polymers, such as polyethylene, polypropylene, polystyrene and polyvinyl chloride, and can be produced as a virgin material or through the recycling of plastic waste. They may also contain chemical substances, known as additives, like flame retardants, pigments, stabilizers, antioxidants, softeners and plasticizers. Many of these substances are hazardous to the marine environment, for instance nonylphenol which is an endocrine disrupter.

6 As the raw material for plastic consumer products, vast quantities of plastic pellets are continuously being transported around the world. It has been estimated that pellets are the second-largest source of microplastics in the ocean, by weight, after tyre dust and it has been projected that around 230,000 tonnes of plastic pellets originating from a multitude of sources, including releases from plastics production facilities and transportation end up in the oceans every year.

7 Most, if not all, plastic pellets transported by sea are shipped in containers, but in principle, pellets could also be transported in bulk if there is a business case for such transport. If there is an incident with a bulk carrier loaded with plastic pellets that are accidentally lost at sea, the environmental impact would be huge and irreversible. The co-sponsors are not aware of an entry in the IMSBC Code for plastic pellets or any tripartite agreements established for the purpose of transporting such substances in bulk. However, the co-sponsors believe the Committee should consider the acceptability of transporting plastic pellets in bulk, taking into account the amount of plastic pellets that could be released to the sea following an incident with a fully laden bulk carrier and the devastating and permanent environmental impacts a spill would have.

Environmental hazards associated with plastic pellets

8 When released into the environment, plastic pellets can be mistaken for food and eaten by seabirds, fishes, marine mammals and other species. As many pellets have a low density, they will float in the water and can be spread over a large area by wind and currents. Plastic pellets are also highly persistent pollutants and will continue to circulate in ocean currents and wash ashore for decades and when not cleaned up, they will ultimately break down into nanoplastic particles whose hazards are more complex and to a large degree unknown.

9 It has been reported that plastic pellets can accumulate toxic substances on their surfaces, this can be substances present in seawater such as PCBs or DDEs, but also toxic materials released during an incident, and as such serve as both a transport medium and a potential source of toxic chemicals in the marine environment. It has also been reported that biological material can become attached to pellets, causing them to become heavier and sink. Further, pellets can transport and spread harmful organisms including pathogenic bacteria and viruses attached to the surface.

10 Cleaning up after a spill of plastic pellets is very challenging, time-consuming, expensive and labour-intensive, and it is normally only possible to remove a small amount of the pellets from the environment. Further, areas that have previously been cleaned up might be contaminated again, and new areas may become contaminated since the pellets move around with the wind and currents. When deposited on sand, the pellets easily mix with sand due to tidal changes and sand movements. When the pellets are deposited on the backshore, pellets mix with coastal vegetation making their recovery almost impossible without removing the vegetation.

Harmful substances carried by sea in packaged form

11 MARPOL Annex III contains the regulations for the prevention of pollution by harmful substances carried by sea in packaged form. The definition of harmful substances is as follows:

"Harmful substances are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code) or which meet the criteria in the appendix to this Annex"

12 The substance classification categories and criteria for "Environmental hazardous substances (aquatic environment)" (Marine pollutant) contained in section 2.9.3 of IMDG Code are identical to those provided in the appendix to MARPOL Annex III and contains the following two categories:

- .1 "(a) acute (short-term) aquatic hazard": according to provision 2.9.3.2.3 of the IMDG Code, acute aquatic toxicity "means the intrinsic property of a substance to be injurious to an organism in a short-term aquatic exposure to that substance"; and
- .2 "(b) long-term aquatic hazard" (chronic toxicity): according to provision 2.9.3.2.4 of the IMDG Code, chronic aquatic toxicity "means the intrinsic property of a substance to cause adverse effects to aquatic organisms during aquatic exposures which are determined in relation to the life cycle of the organism".

13 The section in the Code referred to above also describes the OECD Test Guidelines that should be used when determining either acute or chronic aquatic toxicity. However, the current test guidelines and the criteria for the identification of harmful/environmental hazardous substances are developed for liquid chemicals or solid chemicals that dissolve in water and are not able to determine and recognize solid substances like plastic pellets as hazardous to the marine environment.

14 In the view of the co-sponsors, one measure to reduce the environmental risks associated with the shipping of plastic pellets in packaged form would be to amend the criteria for the identification of harmful substances in MARPOL Annex III to ensure that plastic pellets are identified as a harmful substance.

15 The criteria for the classification of solid bulk cargoes as harmful to the marine environment are set out in appendix I to MARPOL Annex V. The criteria are mainly based on the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) but include an additional parameter in sub-paragraph .7:

"Solid bulk cargoes containing or consisting of synthetic polymers, rubber, plastics, or plastic feedstock pellets (this includes materials that are shredded, milled, chopped or macerated or similar materials)"

16 Plastic pellets would thus be classified as harmful to the marine environment according to MARPOL Annex V and would be declared as such on the cargo declaration form for solid bulk cargoes if transported in bulk.

17 However, the criteria as set out in appendix I to MARPOL Annex V is intended to classify solid bulk cargoes that are harmful to the marine environment in order to prohibit the discharge of such cargo residues into the sea and they therefore serve a different purpose than the identification of harmful substances in MARPOL Annex III.

18 In the view of the co-sponsors, a new criterion or parameter in the appendix to MARPOL Annex III should lead to a classification of smaller plastic substances that represents a hazard to the marine environment when discharged in the sea since they can contribute to the spread of invasive species and represent a hazard to fish, seabirds and marine mammals which can feed on or swallow them, and which will persist in the environment and eventually breaks down to nanoplastics.

19 The co-sponsors therefore propose an amendment to the appendix to MARPOL Annex III by including a new criterion, as follows:

"(c) Plastic pellets, granules, nurdles, flakes and powders"

How will classification of plastic pellets reduce the risk of accidental discharge?

20 If plastic pellets are identified as a harmful substance and classified as a marine pollutant according to the IMDG Code, it shall be transported under the entry: "UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.", unless there is a specific entry in class 9 or if they have any additional properties meeting the criteria of any of the classes 1 to 8.

21 If plastic pellets were classified as a marine pollutant and transported as UN 3077, they would have to be carried in accordance with the provisions of MARPOL Annex III and the IMDG Code. Below is a brief summary of some of requirements that would apply in accordance with MARPOL Annex III:

- .1 packages shall be adequate to minimize the hazard to the marine environment, having regard to their specific contents;¹
- .2 packages containing a harmful substance shall be durably marked or labelled to indicate that the substance is a harmful substance, in accordance with the relevant provisions of the IMDG Code;
- .3 each ship carrying harmful substances shall have a special list, manifest or stowage plan setting forth, in accordance with the relevant provisions of the IMDG Code, the harmful substances on board and the location thereof. A copy of one of these documents shall be made available before departure to the person or organization designated by the port State authority; and

¹ The General provisions for the packing of dangerous goods in packagings, including IBCs and large packagings are set out in section 4.1.1 of the IMDG Code and if transported in flexible IBCs (big bags); these must be approved according to the provisions set out in chapter 6.5 of the IMDG Code and be sift-proof and water-resistant.

- .4 harmful substances shall be properly stowed and secured so as to minimize the hazards to the marine environment without impairing the safety of the ship and persons on board (regulation 6 of MARPOL Annex III).²

22 Overall, the co-sponsors believe the above measures will reduce the risk of accidental discharge of plastic pellets as it would raise awareness, set minimum standards for acceptable packaging and recommend a more protected stowage of containers containing plastic pellets.

Liability and compensation

23 Compensation for damage caused by hazardous and noxious substances in connection with their carriage at sea is regulated by the International Convention on Liability and Compensation for Damage in Connection with the carriage of Hazardous and Noxious Substances by Sea (HNS). The HNS Convention applies to dangerous, hazardous and harmful substances, materials and articles in packaged form as covered by the IMDG Code.

24 The Convention has not entered into force yet, and as of 26 October 2021 only five Member States have ratified or acceded the Convention. However, when the Convention enters into force, a classification of plastic pellets as a harmful substance subject to the provisions of MARPOL Annex III would be advantageous as it would be regarded as HNS and be covered by the Convention.

25 The co-sponsors regard the entry into force of the HNS Convention as essential in order to ensure that valid claims following pollution and other damages caused by ships are promptly met and urges all Member States to place a high priority on working towards the implementation of the HNS Convention, with the aim of ratification of the HNS Convention. The co-sponsors also suggest that the Sub-Committee considers any appropriate activities the Organization can initiate in order to facilitate the entry into force of the Convention.

Action requested of the Sub-Committee

26 The Sub-Committee is invited to consider the information and proposals contained in this document and especially to:

- .1 consider the acceptability of transporting plastic pellets in bulk;
- .2 agree to the draft proposed amendments to the appendix to MARPOL Annex III, as proposed in paragraph 19, in order to include a new criterion that will identify substances such as plastic pellets, granules, nurdles, flakes and powders as harmful substances;
- .3 agree that CCC 9 should be instructed by MEPC 78 to develop and issue, as a short-term measure, a circular with appropriate measures that will reduce the environmental risks associated with the shipping of plastic pellets in packaged form, using the draft circular as set out in the annex to this document as a basis; and
- .4 consider and recommend appropriate activities the Organization can initiate to encourage Member States to ratify the HNS Convention.

² In provision 7.1.4.2 in the IMDG Code, there are specific stowage requirements for marine pollutants as follows: "Where stowage is permitted on deck or under deck, under deck stowage is preferred. Where stowage on deck only is required, preference shall be given to stowage on well-protected decks or to stowage inboard in sheltered areas of exposed decks."

ANNEX

DRAFT PROPOSED CCC CIRCULAR

SHORT-TERM MEASURE TO REDUCE THE ENVIRONMENTAL RISKS ASSOCIATED WITH THE SHIPPING OF PLASTIC PELLETS IN PACKAGED FORM

1 The Sub-Committee on Carriage of Cargoes and Containers (CCC), at its eighth session (19 to 23 September 2022), considered matters related to the shipments of plastic pellets, flakes, granules, nurdles and powders (collectively referred to as plastic pellets in this circular).

2 In this connection, the Sub-Committee noted the accident involving the **MV X-Press Pearl** where several tons of plastic pellets were released to the sea causing an unprecedented and devastating plastic pollution that will have an irreversible impact on the marine environment.

3 The Sub-Committee also noted that plastic pellets currently do not meet the criteria for the identification of harmful substances in packaged form as set out in the appendix to MARPOL Annex III, but that the Marine Environment Protection Committee, at its seventy-eighth session, had agreed in principle to review the criteria for the identification of harmful substances with a view to including an additional new criterion that will recognize plastic pellets as a harmful substance.

4 As a short-term measure in order to reduce the environmental risks associated with the shipping of plastic pellets in packaged form pending the permanent classification of plastic pellets as a harmful substance and a marine pollutant, the Sub-Committee agreed that the shipments of shipping plastic pellets should comply with:

- .1 the General provisions for the packing of dangerous goods in packagings, including IBCs and large packagings as set out in section 4.1.1 in the International Maritime Dangerous Goods Code (IMDG Code); and
- .2 the stowage requirements of marine pollutants as set out in 7.1.4.2 of the IMDG Code, with a recommendation to stow containers under deck or inboard in sheltered areas of exposed decks.

5 Member States are invited to bring the above information to the attention of shippers, terminal operators, shipowners, ship operators, charterers, shipmasters and all other entities concerned, requesting that additional care and appropriate action be taken during shipments of plastic pellets in packaged form.