

MARINE ENVIRONMENT PROTECTION
COMMITTEE
67th session
Agenda item 3

MEPC 67/3/1
20 August 2014
Original: ENGLISH

RECYCLING OF SHIPS

Comments on the Report of the Intersessional Correspondence Group on Ship Recycling

Submitted by China

SUMMARY

Executive summary: This document provides comments on the asbestos issue in the report of the Intersessional Correspondence Group on Ship Recycling based on the analysis of national detection standards of various countries

Strategic direction: 7.1

High-level action: 7.1.2

Planned output: 7.1.2.1

Action to be taken: Paragraph 12

Related documents: Hong Kong Convention, resolution MEPC.197(62); MEPC 66/11/2; MEPC 67/3, MEPC 67/INF.8 and MEPC 67/3/2

Introduction

1 This document is submitted according to the provisions of the *Guidelines on 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.4/Rev.2) and provides comments on the report of the Intersessional Correspondence Group on Ship Recycling (MEPC 67/3) regarding the asbestos issue.

Background

2 The report of the correspondence group on Ship Recycling (MEPC 67/3, paragraphs 7 to 12) shows that opinions were divided on asbestos threshold levels and no conclusion has been drawn yet. In order to further the technical discussion, China proposes to add a

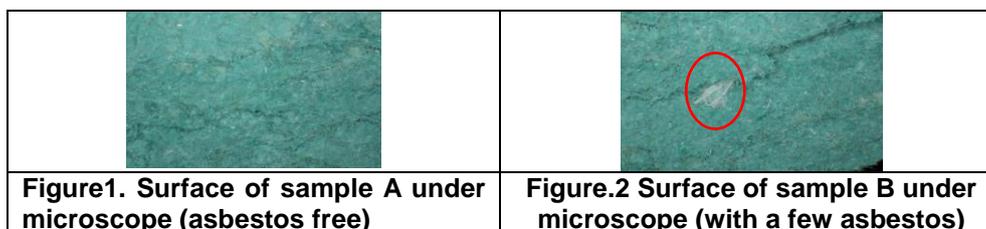
definition of "Detection Limit" (D.L.)¹ in resolution MEPC.197(62), and to develop relevant requirements based on analysis of the following areas: comparisons of different national detection standards of various countries, experience with detection gained in practice, the inherent nature of asbestos, human factors that may affect asbestos detection and feasibility of detection.

3 Regulation 4 of the Hong Kong Convention states that "it shall prohibit and/or restrict the installation or use of asbestos onboard the ship" and regulation II-1/3-5 of the SOLAS Convention also states that "new installation of materials which contain asbestos shall be prohibited from 1 January 2011 for all ships". While the requirement for asbestos in resolution MEPC.197(62) that supports the Hong Kong Convention is that there should be "no threshold level", no requirement can be found in the SOLAS Convention that explains what is considered as "material containing asbestos". Therefore, the key to the harmonization of the above-mentioned two Conventions and their uniform implementation will be to determine whether or not a material contains asbestos under the "no threshold level" condition.

Discussion

Analysis of the inherent nature of asbestos

4 Being one of the common mineral substances, asbestos is heterogeneous and is normally found as an associated mineral to other industry materials (e.g. talc). Therefore, although there is no intentional addition of asbestos, it is quite possible to detect asbestos in marine products, in the form of a few fibres with less than 1% concentration, due to contamination or other unintentional addition. Examples are given in figures 1 and 2: sample A and sample B were pieces taken from the same batch of the same type of gaskets. The detection result of sample A in figure 1 indicated that the product was asbestos free, while sample B in figure 2 was detected as containing asbestos since a few asbestos fibers were discovered and the detection result showed that the asbestos content was less than 1%. The reason why asbestos was found in sample B could be that some product coming from the same batch was contaminated, or there was unintentional addition of asbestos during the manufacturing process. Therefore, setting the D.L. at 0.1% may lead to completely opposite detection results for the same product coming from the same batch, due to the random nature of detection results. This will cause lots of disputes among manufacturers, shipyards, and shipowners in daily operation and raise controversies about PSC inspection results. It is clearly stated in resolution MEPC.197(62) that quantities occurring as unintentional trace contaminants should not be recorded. Following this logic, it is the product that is intentionally added with asbestos that should be prohibited. According to practical experience, if asbestos is intentionally added to a product, it will comprise a higher percentage (usually above 1%) of the whole product. Therefore, setting the D.L. at 1% will not only ensure correct detection of products with intentional addition of asbestos, but also avoid the disputes about detection results.



Source: Centre Testing International Laboratory

¹ International Union of Pure and Applied Chemistry (IUPAC) defines "Detection Limit" regarding detection and quantification capabilities, paragraph 18.4.3.7 of *Compendium of Analytical Nomenclature*, as follows: "As the measure of the inherent Detection Capability of a CMP (Chemical Measurement Process): *the minimum detectable (true) value* of the appropriate chemical variable; alternative: the detection limit".

Need for a unified Detection Limit for asbestos

5 China is of the view that, under the condition of "no threshold level", to judge whether or not a material contains asbestos will be based on the detection result. When the result is Not Detected (N.D.), i.e. the content is below the D.L., the material should be considered asbestos-free. After comparing detection standards in a number of countries (see table 1), it is found that D.L. varies in different detection standards due to limitations inherent in detection equipment and technologies, etc. With no unified D.L. available, the same sample coming from the same product can receive opposite detection results if different detection standards are applied. For example, if the D.L. of detection standard A using XRD (X-Ray Diffraction) is set at 1%, while that of detection standard B using SEM (Scanning Electron Microscope) is set at 0.1%, for a material with asbestos content ranging from 0.1% to 1% the detection results gained by applying these standards can be opposite to each other: the former is N.D. and the latter is Detected. This example clearly shows that the absence of a unified criterion in determining the detection result of asbestos will cause controversies and can greatly affect the implementation of the Hong Kong Convention and the SOLAS Convention. Therefore, it is recommended to set a unified D.L. to solve this problem.

Table 1 – Comparison on detection standards²

Country	Standard	Equipment	Application	Detection Limit
Australia	AS 4964-2004	PLM	bulk samples	Only chrysotile, amosite, and crocidolite are identified. XRD: 1%-3%;PLM: 0.01% to 0.1%
China	GB/T 23263 - 2009	PLM+XRD	building/fraction material	Unspecified; due to the use of XRD, D.L. is always above 1%
Germany	VDI 3866 /Part 4	PLM	bulk samples	1%
	VDI 3866 /Part 5	SEM	bulk samples	At least 1%
Japan	JIS A 1481	PLM+XRD	building material	Unspecified
United Kingdom	HSG 248	PLM	bulk samples	Unspecified
United States	NIOSH 9000	XRD	bulk samples	Only chrysotile is identified ³
	NIOSH 9002	PLM	bulk samples	< 1%
	EPA 600/R-93/116	PLM, XRD, SEM	building material	At least 1%, but this method is highly dependent on the base material.
	EPA-600/M4-82-020	PLM XRD	insulation material	< 1%

6 From the perspective of detection technology and capability, it is also considered necessary to set a unified D.L. For details, please refer to document MEPC 67/3/2 (China).

Suggestion on setting the Detection Limit for asbestos at 1%

7 Given the fact that different detection methods are allowed in resolution MEPC.197(62), the only way to ensure fair and consistent detection results is to set a unified D.L. for asbestos. The comparison and analysis of asbestos detection standards in different countries (see table 1) shows that many countries have set their own D.L. standards and most of them are set at 1%.

² Source: CTI, Comparison of worldwide asbestos testing standards, Centre Testing International Marine Service of China (available at <http://www.cti-ship.com/technique-exploration>).

³ When detecting asbestos in talc and calcite, D.L. is 0.2%; when there is Fe₂O₃ or other substance that strongly absorbs X-ray contained in the sample, D.L. is 0.4%.

8 In addition, due to inherent limitations of the three types of equipment listed in resolution MEPC.197(62), judgment about asbestos content relies heavily on the experience of the person conducting detection. If the D.L. is set too low, it will greatly raise the risk of faulty judgment affected by human factors and also bring unnecessary difficulties in detection and unreasonable time cost and economic cost. Taking into account also the arguments in document MEPC 67/3/2 from the perspective of detection technology and detection capability, China holds the view that the D.L. should be reasonable and practical and 1% is the most appropriate value.

9 From the perspective of environment protection and human health, there is no documented evidence supporting that the 1% D.L. is more harmful than the 0.1% D.L. Marine products such as gaskets which may contain asbestos are, in most cases, wrapped inside the equipment on board ship and are not directly exposed to the environment or human body. Furthermore, many international standards (e.g. ISO 30007) and domestic standards (e.g. CFR 1915.1001 of the United States which are applied to the shipping and shipbuilding industries) also define "asbestos-containing material (ACM)" as "material containing more than one percent asbestos". All the above facts support that the 1% is an appropriate value for D.L.

Application scope of Detection Limit

10 During the discussion of the correspondence group, there was an argument (MEPC 67/3, paragraph 9) that threshold level for asbestos should not be applicable to new components/materials. However, whether a sample comes from new components/materials or existing ones makes no difference in asbestos detection in terms of the detection technology, determination method and results. Therefore, China is of the view that a unified D.L. should apply to all components/materials, including new ones.

Proposal

11 In summary, based on the above analysis, and in order to facilitate the acceptance of the Hong Kong Convention by Member States and harmonize the implementation of the SOLAS Convention and the Hong Kong Convention, a globally unified and implementable standard should be developed. China therefore proposes the following:

- .1 any "intentional addition" of asbestos shall be prohibited;
- .2 to clearly define the D.L. for materials containing asbestos: Detection Limit means the measure of the inherent Detection Capability of a CMP (Chemical Measurement Process) and, for asbestos, it means the minimum detectable value of the asbestos;
- .3 to set D.L. of asbestos at 1%. When the asbestos content of a sample is less than 1%, it should be judged as no presence of asbestos;
- .4 D.L. applies to all components/materials, including new components/materials; and
- .5 to keep the "no threshold level" requirement in table A of appendix 1 in resolution MEPC.197(62) as it is and add the above sub-items .1 to .4 in the footnote of asbestos.

Action requested of the Committee

12 The Committee is invited to consider the above discussion, in particular the proposals in paragraph 11, and take action as appropriate.