

## **Use of fiber-reinforced plastics (FRP) within ship structures**

### **Background:**

**At IMO as per SDC 9 recommendation and MSC 107 agreement, the post-biennial output on "Guidelines for use of fibre-reinforced plastics (FRP) within ship structures" was agreed to be kept on the SDC work.**

SDC 10 established a Correspondence Group on the Revision of the Interim Guidelines for Use of Fibre-Reinforced Plastic (FRP) (MSC.1/Circ.1574). SDC 10 also considered calls by some delegations to expand the scope of the output to cover larger parts of ships, resulting potentially in the need to address FRP elements other than those covered by the FRP Interim Guidelines (MSC.1/Circ.1574). It was, however, noted that although FRPs were high-strength materials compared to their weight and not subject to corrosion, the high risks related to fire safety and toxic fumes endangering the health of the persons on board, as well as the lack of recyclability, posed challenges for the use of FRP.

Accordingly, SDC 11 had for its consideration documents :

- a. SDC 11/11 (Sweden), containing the report of the Correspondence Group on the Revision of the Interim Guidelines for Use of Fibre-Reinforced Plastic (FRP) (MSC.1/Circ.1574).
- b. SDC 11/11/1 (China), commenting on the report of the Correspondence Group and proposing recommendations for improvement in temperature measurement methods during the test based on China's fire resistance test data of FRP composite and influencing factors and characteristics of failure of FRP core fire resistance divisions under thermal action.
- c. SDC 11/11/2 (IACS) (relevant part), providing initial comments on the report of the Correspondence Group on the Revision of the Interim Guidelines for Use of Fibre-Reinforced Plastic (FRP) (MSC.1/Circ.1574), on fire performance and fire testing of FRP composite structures
- d. SDC 11/11/3 (United States), providing comments on the report of the Correspondence Group with respect to load-bearing divisions and elements contributing to global strength.
- e. SDC 11/11/4 (CESA and SYBAss), commenting on the report of the Correspondence Group, and proposing further amendments to the draft revised guidelines.

Following discussion on the submissions and the various views expressed the Sub-Committee re-established the Correspondence Group on FRP to amongst other actions :

1. further review the Interim guidelines for use of fibre reinforced plastic (FRP) elements within ship structures: fire safety issues (MSC.1/Circ.1574), based on document SDC 11/11;
2. in addition to other aspects as part of its revision work, address also load bearing divisions and elements, within the scope of SOLAS chapter II-2 from a fire safety perspective;
3. subject to the input and confirmation received from MSC 110 regarding load bearing divisions and elements contributing to global strength being considered within the existing

scope , further consider inclusion of such provisions in the draft revision of MSC.1/Circ.1574, and take action, as appropriate;

4. consider the experience gained in the use of MSC.1/Circ.1574 in conjunction with alternative design and arrangements in accordance with SOLAS;
5. consider recycling and fire safety matters, as a priority, and provide discussion points that would normally fall outside the remit of the Sub-Committee, with a view to advising other IMO bodies, e.g. MEPC and the SSE Sub-Committee, taking into account paragraph 15.10 of document SDC 9/16;
6. consider and advise whether other IMO instruments (e.g. SOLAS and the 2010 FTP Code) should be amended in order to enable and support the use of FRP;
7. consider clarification and definitions of:
  - .1 elements which are not load bearing and are not contributing to global strength;
  - .2 load bearing divisions and elements not contributing to global strength; and
  - .3 load bearing divisions and elements contributing to global strength, with a view to incorporation in the draft revision of MSC.1/Circ.1574, as appropriate;
8. further consider documents SDC 11/11/1, SDC 11/11/2 and SDC 11/11/4;

### **Guidelines for use of fibre-reinforced plastics (FRP) within ship structures**

Considering the various aspects given to the correspondence group , consider that instead by correspondence a meeting is held to take the work forward , Papers would need to be developed based on the attributes the group is allotted, which the registered team is given. These should be developed for submission to the SDC and cover as many action points as possible – however teams could also focus on some specific points if dealing in depth of them is more appropriate for them.

To assist the following documents are being shared while the participants, who may also explore other documents and material for further understanding and also follow MSC 110 (June 2025) as to how they advise SDC:

- a. SDC 11/11
- b. SDC 11/11/1
- c. SDC 11/11/2
- d. SDC 11/11/3
- e. SDC 11/11/4
- f. SDC 11/WP1/ Rev1

The Teams will have to submit their paper as per the Role assigned to them, which details will be shared with them once the Registration process is completed.

This is in order to inject realism and relevance into the exercise, the roles will be drawn up on the basis of various aspects which influence the stands taken by various 'Parties' at the International Maritime Organization (IMO)

### **General guidelines:**

1. The template for making a document for submission to IMO is available on the IMO website.
2. Teams are recommended to go through the circulars MSC-MEPC.1/Circ.5/Rev.5 dated 31<sup>st</sup> July 2023 ORGANIZATION AND METHOD OF WORK OF THE MARITIME SAFETY COMMITTEE AND THE MARINE ENVIRONMENT PROTECTION COMMITTEE AND THEIR SUBSIDIARY BODIES (**attached**) to guide them about the working of the committees at IMO

and also in that the PROCEDURES FOR PREPARATION AND SUBMISSION OF DOCUMENTS.

3. The submission should be in Arial 11 and single spacing
4. The submission should be aligned basis points 1, 2 and 3 above.

**Additional Guidance:**

1. The Participants will additionally have guidance from Industry stalwarts (besides their own campus coordinators) who will act as Guides and be assigned to them. The Papers are to be prepared in the format similar to IMO (downloadable from the IMO website as a public user) and submitted as per schedule announced which will be announced separately and made available on the IMU website.