

Structural Bonding Methods for FRP Ships

Amended Rules and Guidance

Rules for the Survey and Construction of Ships of Fibreglass Reinforced Plastics
Guidance for the Survey and Construction of Ships of Fibreglass Reinforced Plastics
Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use

Reason for Amendment

With respect to the bonding of structural members to the hull structures of FRP ships, the current Rules only permit secondary lamination using fibreglass base materials impregnated with resins.

However, structural adhesives have been recently developed and put into practical use as a new bonding method. It is strongly believed that the use of such adhesives will lead to a drastic reduction in the number of man-hours needed to attach structural members as well as improved environmental conditions for work being done in narrow spaces. Because of this, industry requests for permission to use these new structural adhesives in the hull moulding processes of FRP ships increased.

In response, this Society established an investigative commission consisting of academic experts, relevant groups and concerned inspection organizations to discuss the kinds of technical requirements related to materials and construction methods which would be needed so that FRP ships could be constructed using structural adhesives.

Accordingly, approval procedures for structural adhesives based upon the findings of this commission have been specified and relevant requirements have been amended to permit their use in the moulding processes of FRP ships.

Outline of Amendment

- (1) The definition of “bonding” has been amended to include connections by structural adhesives.
- (2) Requirements related to moulding processes using structural adhesives have been specified.
- (3) With respect to the approval of structural adhesives, procedures and acceptance criteria for approval tests and periodical tests have been specified.
- (4) With respect to tests required for the approval of fibreglass base materials, resins for laminating and core materials for sandwich constructions, the interval for periodical tests has been amended from 4 years to 5 years.