RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER **No.** 382-08 - 996c **dated** 20.03. 2017

Re:

amendments to the Rules for the Manufacture of Containers, Rules for Technical Supervision during Manufacture of Containers, Rules for Technical Supervision of Containers in Service, ND No. 2-090201-009-E, 2015 in connection with the implementation of the R&D results

Item of supervision:

containers under construction and in service

Implementation upon receipt

Valid: till

Validity period extended till

Cancels / amends / adds circular letter №

Number of pages: 1+12

Appendices: text of amendments to the Rules for the Manufacture of Containers, Rules for Technical Supervision during Manufacture of Containers, Rules for Technical Supervision of Containers in Service, ND No. 2-090201-009-E, 2015

Director General Konstantin Palnikov

Amends Rules for the Manufacture of Containers, Rules for Technical Supervision during Manufacture of Containers, Rules for Technical Supervision of Containers in Service, ND No. 2-090201-009-E, 2015

Upon receipt of the Circular Letter during review of technical documentation and when performing technical supervision during manufacture, testing and operation of tank containers with fiber-reinforced plastics (FRP) shell, the requirements shall be met of new Part VIII "Tank Containers with Fiber-Reinforced Plastics (FRP) Shell" of the Rules for the Manufacture of Containers, new Chapter 3.10 "Technical Supervision during Manufacture of Tank Containers with Fiber-Reinforced Plastics (FRP) Shell" of the Rules for Technical Supervision during Manufacture of Containers and new Chapter 3.6 "Periodical Surveys of Tank Containers with Fiber-Reinforced Plastics (FRP) Shell Designed for Carriage of Dangerous Goods" of the Rules for Technical Supervision of Containers in Service. The above requirements shall be implemented based on the R&D results in 2016. The amendments are given in the Appendix to the Circular Letter and shall be introduced in ND No. 2-090201-009-E at the re-publication.

It is necessary to do the following:

1. Apply provisions of the Circular Letter in the RS practical activity.
2. Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and persons in the area of the RS Branch Offices' activity.

Person in charge: S.V. Dokuchaev 382 +7 (812) 315-46-98

"Thesis" System № Insert text here

RULES FOR THE MANUFACTURE OF CONTAINERS

PART VIII. TANK CONTAINERS WITH FIBER-REINFORCED PLASTICS (FPR) SHELL

1 GENERAL

1.1 APPLICATION

1.1.1 The requirements of the present Part apply to tank containers with FRP shell designed for transportation of dangerous goods of classes 3, 5.1, 6.1, 6.2, 8 and 9 by several modes of transport.

1.1.2 Tank containers with FRP shell shall meet the provisions of the Part I "Basic Requirements", the present Part, taking into account the provisions of Part III "Fiber-Reinforced Plastics Materials" of the Procedures for the Design, Manufacture, Service and Repair of Pressure Vessels for the Storage and Transport of Dangerous Goods.

1.1.3 Tank containers with FRP shell shall meet the requirements of 1.2 – 1.4, 2.1, 2.2.1 – 2.2.3, 2.2.11 – 2.2.16, 2.3 – 2.5, Sections 3 and 4 of Part IV "Tank Containers" except for the requirements applicable to non-refrigerated and refrigerated liquefied gases, as well as to metal materials for the production of tank container shell.

1.1.4 Additional international and national requirements may apply to tank containers with FRP shell used for the transport of dangerous goods.

1.2 DEFINITIONS AND EXPLANATIONS

1.2.1 The definitions and explanations relating to the general terminology of the present Rules are given in Part I "Basic Requirements". The definitions and explanations relating to the tank containers are given in Part IV "Tank Containers". For the purpose of this Part, the following definitions and explanations have been adopted.

Vacuum infusion means FRP fabrication method of impregnation of dry fillers, preliminary manually or automotive placed under vacuum bag by liquid resin.

Veil means thin mate, as usual of 0,18 – 0,51 mm thickness with high absorbency used in FRP product plies where polymeric matrix surplus fraction content is required (surface evenness, chemical resistance, leakage-proof, etc.).

FRP components means reinforcing fibers (filler), plastic binder (matrix), adhesives, and aggregates.

Structural layers means unidirectional or bidirectional FRP layers of a tank shell designed for taking of operational and testing loads.

Contact molding means a process for molding of reinforced plastics in which reinforcement and resin are placed on a mold. Cure proceeds at room temperature using a catalyst–promoter system or by heating in an oven, and no additional pressure is used.

Representative sample means a sample cut out from the shell to check that the serial items are identical to the pilot/prototype specimen.

Laminate means a product made by bonding together two or more layers of material or materials.

Tape means a big number of rovings interconnected by cross-linking. It is applied to filament winding technology.

Liner means a closed part consisting of a chemically resistant layer and supporting FRP layers.

Mate means fiber reinforcement made of random chopped or twisted fibers bonded together as sheets of various length and thickness.

Witness sample means a specimen fabricated as per the procedure identical to production process of the corresponding part of FRP shell.

Fire–protection layer means layer on the outer surface of a tank shell ensuring its protection from external fire.

Fiber–reinforced plastic (FRP) means structural material consisting of reinforcing fibers (filler) and plastic binder (matrix) formed directly in the process of tank shell fabrication.

Resin transfer molding (RTM – method) means FRP fabrication method in airproof molds using overpressure for fiber impregnation.

Design characteristics mean the characteristics of FRP structures strength and rigidity obtained by testing coupon-samples with consideration of normative requirements to strength and rigidity factors, and strength criteria assumed for the design of the shell.

Roving (bundle) means long and narrow bundle of reinforced fibers.

FRP shell means closed part of cylindrical shape with an interior volume intended for storage and transportation of liquid chemical substances.

Filament winding means a process for fabricating of FRP structures in which continuous reinforcements (filament, tape, or other) impregnated with a binding material are placed over a rotating mandrel.

Chemically resistant layer means layer on the inner surface of a FRP shell ensuring protection of the shell from transported chemical substances.

Tank of tank contaIner with FRP shell means FRP shell with service equipment, safety relief devises and other installed equipment.

Coupon sample means FRP specimen fabricated and tested in accordance with national and/or international standards to determine design characteristics.

1.3 SCOPE OF TECHNICAL SUPERVISION

1.3.1 In addition to provisions in 1.3 of Part IV "Tank Containers", the technical supervision of the Register shall cover:

.1 raw materials and components used for fabrication of FRP shell;

.2 fabrication process for FRP shells;