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Subject: Additives for determining the nominal shell thickness of tank-wagons

Proposal transmitted by the Russian Federation

Introduction

1. The current version of 6.8.2.1.21 of Annex 2 to the Agreement on International Goods Transport by Rail (SMGS) contains the requirements necessary for determining the nominal shell thickness during the design phase. These requirements allow the technological aspects of the manufacture of rolled metal products to be taken into account, as well as the components of the shell and the corrosiveness of the substances being carried throughout the service life of the tank-wagon.

The current version of 6.8.2.1.21 of Annex 2 to SMGS reads as follows:

"6.8.2.1.21 Nominal shell thickness e_0 shall not be less than the sum of the minimum estimated thickness, determined in accordance with paragraphs 6.8.2.1.17, 6.8.2.1.18, and the following additives:

- negative tolerance for the thickness of plate;
- thinning during drawing-down and stamping;
- corrosive and abrasive wear from exposure to carried substance throughout the service life of the tank-wagon, taking into account the resistance of anti-corrosion coatings."

The tank-wagon designer must take these requirements into account in order to ensure the minimum thickness of the shell after its manufacture and throughout the entire service life of the shell.

2. The requirements in 6.8.2.1.21 of the current version of Annex 2 to SMGS fully meet the requirements of GOST 14249-89 "Vessels and apparatus. Norms and methods of strength calculation" and GOST 34233.1-2017 "Vessels and apparatus. Norms and methods of strength calculation. General requirements".
3. The current versions of 4.3.2.3.1 of Annex 2 to SMGS and RID 4.3.2.3.1 provide general requirements concerning the minimum thickness of the shell for the entire period of its use.

The current version of RID 4.3.2.3.1 reads as follows:

"4.3.2.3.1 The thickness of the walls of the shell shall not, throughout its use, fall below the minimum figure prescribed in 6.8.2.1.17 and 6.8.2.1.18."

4. The specific technical requirements of 6.8.2.1.21 of Annex 2 to SMGS expand on the general requirement of 4.3.2.3.1 of Annex 2 to SMGS and RID 4.3.2.3.1. However, no specific technical requirements describing the requirement of 4.3.2.3.1 are currently available in RID.
5. Certain provisions of standards EN 14025 (paragraph 6.1.1) and EN 13094 (paragraph 5.3.2) only take into account the third indent of 6.8.2.1.21 of the current version of Annex 2 to SMGS, which concerns corrosive wear.

Proposal

6. Carry over into RID the requirement of 6.8.2.1.21 of Annex 2 to SMGS.

Justification

7. Including the requirement of 6.8.2.1.21 of Annex 2 to SMGS in RID would enable the following:
 - a. Unambiguous interpretation of the requirements of RID 4.3.2.3.1;
 - b. The designer would be able to take correct decisions on the nominal thickness of the shell wall in order to meet the requirements of RID for the minimum wall thickness;
 - c. Improved reliability of the general RID requirements during the design process;
 - d. Increased service life for the operation of tank-wagons.
