

OTIF



**ORGANISATION INTERGOUVERNEMENTALE POUR
LES TRANSPORTS INTERNATIONAUX FERROVIAIRES**

**ZWISCHENSTAATLICHE ORGANISATION FÜR DEN
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RID: 9th Meeting of the Working Group on Tank and Vehicle Technology
(Berne, 14 and 15 May 2008)

Subject: Mechanical strength of rail tank-wagons

Discussion paper transmitted by the International Union of Private Wagons (UIP)

The rule currently to be found in 6.8.2.1.2

“Tank-wagons shall be constructed [so] as to be capable of withstanding, under the maximum permissible load, the stresses which occur during carriage by rail. As regards these stresses, reference should be made to the tests prescribed by the competent authority”

causes problems of interpretation in the rail sector between the industry and the approval authorities because of the allocation of responsibilities in connection with the approval of rail tank-wagons in the TSIs and new European standards. UIP would like to discuss this in the tank and vehicle technology working group in order possibly to submit a proposal to the RID Committee of Experts to clarify the text in RID.

The former world of railways and at the time of this definition

Tanks are designed in accordance with a code of practice recognised by the competent authority, taking into account the requirements of RID with regard to their test pressure and operating stresses.

New wagon designs are assessed in accordance with a test programme conforming to ORE RP 17. This assessment consists of static tests (compression bench and lifting tests) and dynamic tests (buffing tests).

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The requirements according to 6.8.2.1.2 were not generally taken into account by the “tank approval authorities”, as the same authority was responsible for the technical wagon approval and agreeing to recognise “comparable wagons” could be discussed to a conclusion by them.

Today

Along with the TSIs, the European standard on the design and testing of goods wagons, EN 12663, also entered into force. This standard takes account of the fact that nowadays, by using the Finite Elements Method (FEM), there are recognised ways of calculating the complete structure of a wagon with all the load assumptions. This standard today requires that every new design be evaluated, not only with regard to the static loads, but also with regard to the fatigue resistance.

Transferring this requirement to verify tanks as well in the wagon calculations would be a milestone in technical safety in fulfilling the aim of this point in RID. At present, a strict interpretation of the rules is that only the tests should be used.

However, this technical standard on wagons (as it is not a code of practice for tanks) is silent on the operating data that need to be taken into account when making the calculations, particularly the fatigue resistance (operating temperature, working pressure or test pressure?).

Furthermore, point 6.1 of this standard allows tests to be dispensed with if certified data from previous tests on similar structures are available and if the test and the calculations accord with each other. Tests are only still required if there are significant alterations to the construction or operating conditions.

The decision on whether the particular case involves significant alterations to the construction, and hence to the resulting scope of the tests, is taken in association with the body that is responsible for the conformity assessment, the “Notified Body TSI”, i.e. not with the former tank approval authority.

In the meantime, it must be realised that these alterations to the design of a wagon lead to different interpretations. Also, it is no longer clear from the wording which authority this passage is aimed at. The tank approval authority does not usually prescribe this test. However, in the area of wagon approvals, there is no longer any national authority that prescribes tests.

So what needs to be clarified?

Which authority is meant here? The competent authority for the RID tank approval or the body responsible for the conformity assessment?

In UIP’s view, it can only be the body responsible for the conformity assessment, as this body is also responsible for all the calculations and tests in accordance with standard EN 12663 and double testing should be avoided. This would also be in accordance with the TPED Directive for tanks of Class 2, where no authority is involved any longer either.

If one wishes to extend the calculation requirements of standard EN 12663 to the tank, this alternative would also have to be stated and the general conditions for such a calculation would also have to be defined. It would then be logical to do this in tank standard EN 14025 rather than in RID.

However, if one accepts the higher quality of the calculations and then requires this for every tank/wagon combination, it should be possible, in agreement with the “notified body” to dispense with tests or to agree a test programme that is flexible and adapted to each wagon design type. In our view, the general requirement to carry out all the tests is not consistent with the wording in standard EN 12663.

At present, this rule is leading to double testing, re-checking and to technical tests being carried out on tanks that were originally intended for wagons, whereas the wagon is largely evaluated on the basis of calculations and is only moved to the testing station for the technical test in accordance with 6.8.2.1.2, which at present is only for tanks, in order to undergo a full programme of tests which the body responsible for the wagon has dispensed with.
