

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

115th session

Geneva, 2-5 April 2024

Item 5 (a) of the provisional agenda

Proposals for amendments to annexes A and B of ADR:

Construction and approval of vehicles

14 February 2024

Report from the informal working group on the reduction of the risk of a BLEVE

Transmitted by the Government of Spain

Fire suppression system for engine compartments

1. ADR 9.7.9.1 requires a fire suppression system to be installed in the compartment where the internal combustion engine is installed. WP.15 asked the informal working group on the reduction of the risk of a BLEVE (“BLEVE WG”) to develop the technical requirements for such systems before their fitment becomes mandatory.
2. The BLEVE WG has been liaising with the testing institute RISE (Sweden) to develop these technical requirements. RISE has recognised expertise in this area, having developed the requirements for UN Regulation No. 107 (R107), which are applicable to fire suppression systems for engine compartments of buses.
3. RISE has prepared a draft proposal which adapts the tests for engine fire extinguishing systems specified in R107 to make them applicable to FL and EX/III vehicles. A number of system requirements has been added for the tests in addition to the tests done for buses. These additional requirements are the no re-ignition requirement, the definition of the temperature profile for the re-ignition test, the condition of opening the floor on the test platform, and the increase of the mass of the extinguishing agent by 50 per cent.
4. The BLEVE WG met on 20 October 2023 to discuss this draft proposal. The BLEVE WG in principle agreed with the proposed text but would prefer to have a clean and complete text applicable for its inclusion or reference in ADR, to simplify the application of these requirements.
5. To take forward this aim, consultations have been held with the UNECE secretariat, CEN TC/301, WP.29 and RISE, to see how a separate text could be made available. In addition, informal document INF.17 was presented at the 114th session of WP.15 from 6 to 10 November 2023, as a summary of the work done until that date. WP.15 confirmed that technical requirements for fire-fighting systems installed in the engine compartment could be introduced into ADR as a first step, with a proposal for WP.29 to adapt UN Regulation No. 107 accordingly as a second step (see document ECE/TRANS/WP.15/264, paras. 42 and 43).
6. The BLEVE WG met again on 15 January 2024 to discuss the new RISE draft proposal, intended to be developed into an independent RISE technical code. Further changes in the RISE document are expected as a result of the feedback of the BLEVE WG.
7. At the time of writing this document, it is foreseen that the BLEVE WG meets again to finalise draft documents to be submitted to WP.29, in particular to the GRSG working party, meeting in Geneva from 15-19 April 2024, to start the collaboration with this group with the aim to include the set of requirements for the engine compartment of vehicles as defined in 9.7.9.1 of ADR into UN Regulation No. 105 or 107.

Thermal protection of the wheels

8. While most of the work of the BLEVE WG has been centred on its collaboration with RISE, discussions have also advanced on the thermal protection of the wheels.
9. No definitive conclusions were reached on this topic, but the following arguments have been introduced:
 - Installing mudguards in the front axle may be problematic from a technical point of view, due to the additional movements of cabin and axles in the front axle.
 - The industry would consider it very helpful to have the indication that metallic mudguards are enough to fulfil the requirements of 9.7.9.2.
 - Measuring pressure and temperature in the wheels could help preventing fires in the wheels but was not thought to be enough to avoid BLEVEs. No consensus could be achieved if this technology would be possible or not to be installed in FL vehicles, this monitorisation starting from July 2024. Compatibility with these transmitters from trailers to the cabins built after 2017 is ensured.
10. Discussions on this topic are expected to continue in the next meetings of the BLEVE WG.

Continuation of the work

11. The BLEVE WG would welcome the feedback on the work done and specifically would like to invite interested Joint Meeting and WP.15 participants to continue participating in the upcoming BLEVE WG meetings.
12. The BLEVE WG will also submit an update of the work proposals for the next meetings of WP.29/GRSG and for WP.15 in April 2024.

Justification

13. The aim of the BLEVE WG is to include technical requirements in ADR to reduce the likelihood of a BLEVE occurring and thereby contributes to the United Nations Sustainable Development Goal 11 (Sustainable Transport).
 14. On the other hand, the BLEVE WG also contributes to achieving Sustainable Development Goal 3 (Good health and well-being), since the safety and health of people are fundamental when transporting dangerous goods. An effective fire extinguishing system in these vehicles can prevent accidents and minimize the risk of injury or illness associated with exposure to hazardous substances.
 15. Moreover, the implementation of advanced fire extinguishing systems involves technological innovation in the transport infrastructure. This can improve the safety of the dangerous goods transport industry, while encouraging innovation in safety solutions. And therefore, contributing to developing the Sustainable Development Goal 9 (Industry, innovation, and infrastructure).
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