

Engine fire extinguishing system for specific ADR vehicles

Submitted by the experts from Spain on behalf of the Informal working group on the reduction of the risk of a BLEVE depending on the Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods (ECE/TRANS/WP.15/AC.1).

1. Regulation on transport of dangerous goods by road is regulated by the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Information and the text of ADR can be found under <https://unece.org/transport/standards/transport/dangerous-goods/adr-2023-agreement-concerning-international-carriage>.
2. The Informal working group on the reduction of the risk of a BLEVE (BLEVE WG, in the following), depending on the Joint Meeting WP15/AC1 is working on the reduction of the risk of a Boiling Liquid Expanding Vapor Explosion (BLEVE) happening in the specific case of vehicles transporting dangerous goods. At its initiative, a text has been included into ADR under 9.7.9.1, as follows:
 - 9.7.9.1 The following vehicles shall be equipped with an automatic fire suppression system for the compartment where the internal combustion engine propelling the vehicle is located:
 - (a) FL vehicles carrying liquefied and compressed flammable gases with a classification code including an F;
 - (b) FL vehicles carrying packing group I or packing group II flammable liquids; and
 - (c) EX/III vehicles.
3. These requirements have been linked to a long transitional period, until January 2029, to allow the development of a more specific set of requirements for this fire suppression system. On adopting these requirements on its 110th session in November 2021, WP15 (Working Party on the Transport of Dangerous Good) noted that the length of the adopted transitional measures would allow for further refinement of the provisions, if necessary. The Working Party agreed that work on such provisions should continue at future sessions to better define the technical provisions to be implemented.
4. As a consequence, the BLEVE WG has started to work on more specific requirements for determining which criteria should be applicable for the automatic fire suppression system.
5. With the support of the Swedish testing institute RISE, technical criteria have been agreed on. These criteria are based on UN Regulation No.107, and the requirements for the fire suppression system specified there, but taking into consideration the different approach, the specific geometry and use of the system. Differences from the current provisions for engine fire extinguishing systems for buses are included in the conditions as no to re-ignition, the definition of the temperature profile for the ignition test, the condition to open the floor on the test platform and the increase of the mass of the extinguishing agent.
6. To include these requirements into the ADR regulation on transport of dangerous goods, there are different possible ways forward, that were discussed at the last meeting of the WP15 in November 2023, which confirmed that the technical requirements for fire-suppression systems installed in the engine compartment of vehicles could be introduced into ADR as a first step, with a subsequent proposal to WP.29 to adapt UN Regulation No.107 accordingly.

7. Therefore, the BLEVE WG from WP15/AC1 approaches GRSG with the aim to start a collaboration with GRSG to include the requirements for engine fire suppression systems for specific vehicles into Regulation No.105 or No.107, making it possible for ADR to reference these requirements as a mandatory condition.

8. The BLEVE WG hopes to be able to submit a draft of these requirements as a separate document to this meeting and is looking forward for the feedback from the GRSG delegates. GRGS delegates are invited to contact their delegations in WP15/AC1 for further information.

9. We hope for a collaboration to implement an effective fire suppression system in these vehicles that can prevent accidents and minimize the risk of injuries or diseases associated with exposure to hazardous substances thus achieving UN sustainable development goal 3 (Good health and well-being).
