

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

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Interpretation of ADR

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Hooklift solutions for tanks and MEGCs transporting dangerous goods

Transmitted by the Government of Norway

1. A hooklift solution is an equipment for transporting goods by road. It consist of a vehicle equipped with a hydraulic hooklift hoist and a hooklift “container”, which is loaded and unloaded on the vehicle by the hoist. A hooklift container may also be mounted on a trailer; in this case, it is loaded and unloaded by the hydraulic hoist on the tractor unit. The main advantage of this solution is that it do not require any external equipment for handling of the “container”. The practical disadvantage is that it can only be operated by the vehicles adapted to this transport.

In Norway, hooklift solutions is a major method for transporting waste. Recently, Norwegian authorities have also received prospects about using this method for the transport of dangerous goods in tanks and MEGCs. Some solutions are already in use, see pictures below.

The Norwegian Public Road Authority (NPRA), who are responsible for the ADR-approval of vehicles, have expressed their reservations on approving vehicles for hooklift solutions for safety reasons. As the main competent authority for ADR in Norway, the Norwegian Directorate for Civil Protection (DSB) must decide whether the current provisions in ADR authorize this solution for tanks and MEGCs or if it can be rejected on a general basis.

The main safety consideration of the NPRA is the assumption that the fastenings of a hooklift container onto a vehicle is inherently weaker than normal container fastenings. Normally, hooklift “containers” are not fastened using twist locks as recommended for all freight containers with a mass of more than 5.5 tonnes in the European Best Practice Guidelines on Cargo Securing for Road Transport from the European Commission. There have been several accidents in Norway, some with fatalities, where vehicles carrying hooklift containers have rolled over and the containers being separated from the vehicles. In 2012 the Accident Investigation Board Norway issued a report (2012/03) dealing with four such accidents. This report has a brief summary in English and may be downloaded from this page: <http://www.aibn.no/Veitrafikk/Rapporter/2012-03-Tema1>. The Investigation Board believes that inadequate fastening of the container attributed to both the causes and the effects of these accidents. Among the findings are:

- There are no European standard for the construction of the container or the hooklift hoist. There are national Swedish standards for this purpose.
- Use, control and maintenance are not covered by any standard
- The solutions for the fastening is very vulnerable to wearing resulting in slack that compromises safety. It have to be carefully monitored by the user.

- Compared to the fastening of a normal container, the fastenings of hooklift containers are more orientated towards the centre of the vehicle. This increases the dynamic load and decreases the performance of the vehicle in curves.

In the case of the tank on the photo below the NPRA decided not to renew the ADR-approval for the vehicle as a tank-vehicle for fixed tanks. The operator appealed this decision. After being provided with calculations showing that the fastenings were able to withstand the forces referred to in 9.7.3, DSB decided to repeal the decision with the added condition that the operator carefully monitored the fastenings with regards to wearing. This tank held an approval as a demountable ADR tank.



A MEGC being unloaded from a truck by the hooklift hoist



A hooklift MEGC mounted on a trailer



“Tank-container” operated by a hooklift hoist. This tank has a capacity of 19.5 m³

2. Related to this problem we ask the working party for its opinion regarding the following general questions:

- Are the first part of the sentence in 9.7.3 (“Fastenings shall be designed to withstand static and dynamic stresses in normal conditions of carriage,”) relevant for the fastenings of an MEGC onto a vehicle?
- Let us say we have a case where a solution for fastening of a tank onto a vehicle are proved to withstand the minimum stresses given in 9.7.3 at the time of the first inspection of the vehicle. Will it in this case be possible for the competent authority to refuse approval on the reasons that the solution used is known to be vulnerable to wearing resulting in decreased safety performance and therefore it cannot be deemed to be designed to withstand static and dynamic stresses under normal conditions of carriage?
- Do the definition of “container” in chapter 1.2 cover multiple-element gas containers (MEGCs)?
- A tank mounted in a frame for hooklift are designed to be transported, loaded and unloaded only on specialized vehicles equipped with matching fastenings and a hydraulic hooklift hoist. Unlike a “demountable tank” (see definition in chapter 1.2), this tank may be handled when full. In chapter 1.2, the definition of “tank-container” requires such transport equipment to meet the definition of a “container”. Are “hooklift tanks” meeting the definition of “tank-containers”?
- Are “hooklift tanks” meeting the definition of a “demountable tank” according to ADR?