

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

Eighty-third session

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Agenda item 5 (a)

PROPOSALS FOR AMENDMENTS TO ANNEXES A AND B OF ADR

Safety in Tunnels

Transmitted by the European Industrial Gases Association (EIGA)

SUMMARY

Executive Summary: EIGA disagrees with the proposals 1 and 2 made by the French Government to include inert gases and oxygen in the tables of tunnels categories C and D on the grounds of lack of accidentology and environmental concern.

Action to be taken: No adoption of proposals 1 and 2

Background documents: ECE/TRANS/WP.15/2007/24

ECE/TRANS/WP.15/2007/16

Introduction

EIGA refers to document ECE/TRANS/WP.15/2007/24 proposals 1 and 2. These proposals are based on the suggestions of document ECE/TRANS/WP.15/2007/16 and would fundamentally restrict the use of tunnels for bulk transport of inert gases and oxygen.

Proposal

EIGA proposes not to adopt the two proposals related to gases.

Justification

1. Technically

Proposal 1 Add 1O to Category D

The justification advanced is that oxidising gases when suddenly released might lead to self-ignition and thus to a “large fire”.

EIGA does not agree with the conclusions made in document 2007 /16. This is technically wrong: there is no self-ignition of oxygen possible. In order to have a fire, you need a flammable substance, an ignition source and oxygen. Gases of classification code 1O mean oxygen and its mixtures that could be theoretically transported in pressure receptacles (MEGC). The limited capacity of the tubes will not increase the concentration of oxygen in the air to such a degree that a large fire could occur even in tunnels.

Proposal 2 Add 2A/2O/3A/3O to Category C

The reason for the proposal is explained in document 2007/16 by a risk of a “large explosion” “cold” BLEVE.

BLEVE means a Boiling Liquid Expansion Vapour Cloud Explosion which is a thermally induced chemical reaction of a flammable liquefied gas which increases the heat transfer and the vaporisation and the pressure dramatically so that an explosion will occur. This reaction is called a “hot” BLEVE.

A so called “cold” BLEVE is quite different because the energy source of the flammable gas is not available so that the heat transfer inside the liquid gas and between the environment and the liquid gas is not big enough for initiating an explosion of this physical process. The liquid or gaseous gas will stream out in case of a ruptured tank without increasing the pressure due to a chemical reaction of the gas itself.

The use of the term BLEVE is misleading for describing these processes in the case of non-flammable gases.

The requirements for the ductility of the materials make sure that for tanks of liquefied and refrigerated liquefied gases will leak before break so that a rapidly break down of a tank will not occur.

It is to be noted that the ad-hoc group on the prevention of BLEVE has not finalised its conclusions.

2. Environment

Most industrial gas customers cannot be reached by rail. Not to be able to use tunnels anymore, it is estimated that the detours required will add 100 million kilometres to be driven by 40 ton trucks.

3. Safety

Safety is compromised. Avoiding tunnels will inevitably lead the traffic through small villages and cities. This will not increase safety. Comparing accidentology would surely favour the use of tunnels. Hospitals cannot always be reached without tunnels and need medical oxygen of 3O.
