UNITED NATIONS **E**

Economic and Social Council

Distr.
GENERAL

TRANS/WP.15/AC.1/2003/29
2 January 2003

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Safety Committee and the Working Party on the Transport of Dangerous Goods
(Bern, 24-28 March 2003)

PART 1 OF RID/ADR/ADN
SECTION 1.2.1: DEFINITIONS

Transmitted by the International Union of Railways (UIC/IUR) */

Executive summary:

Classification of mixtures of flammable liquids, containing small amounts of dissolved gases is, according to the present RID/ADR/ADN, very difficult, or even impossible.

Action to be taken:

Introduction of a definition of (initial) boiling point in 1.2.1

Related documents:

TRANS/WP.15/AC.1/2002/39/OCTI/RID/GT-III/2002/39
TRANS/WP.15/AC.1/90/OCTI/RID/GT-III/2002-B, para.48.

---

*/ Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT-III/2003/29.

Introduction

The Joint Meeting, at its September 2002 meeting, discussed a document transmitted by the UIC/IUR concerning the problems with the classification of mixtures of flammable liquids, containing small amounts of dissolved gases, such as condensates of natural gas.

As a result the Joint Meeting encouraged the UIC/IUR to submit a proposal concerning the introduction of a definition of the (initial) boiling point, so as to settle the problem of the carriage in tanks of flammable mixtures containing small quantities of dissolved gases with an initial boiling point of less than 35 °C but a vapour pressure of 110 kPa or less.

Proposal

Introduction of a general definition of "boiling point" and a special definition of "initial boiling point" in section 1.2.1.

Introduce the following definition (source: Handbook of Chemistry and Physics, CRC Press):

> "*Boiling point*" means the temperature at which the liquid and gas phases of a substance are in equilibrium at a specified pressure. The normal boiling point is the boiling point at normal atmospheric pressure (101,325 kPa).

In addition, associated with this definition, introduce a new definition of 'initial boiling point' according to standard ASTM D 86-01:

> '*Initial boiling point of mixtures'*: means the corrected thermometer reading, measured in a standardized bath distillation unit, that is observed at the instant the first drop of condensate falls from the lower end of the condenser tube.

NOTE: The requirements of this definition are considered to have been complied with if the following standard is applied:

ASTM D86-01: Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure, published September 2001 by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.

Justification

Safety: The existing level of safety will be unchanged. If the concentration of dissolved gases in the mixture is too high, the vapour pressure of the mixture will be more than 110 kPa, and a higher level of tank type will be needed.

Feasibility: This proposal will enable to classify flammable mixtures of liquids containing small quantities of gases, according to the procedures in Part 2 of RID/ADR/ADN and according to a standard, which is used worldwide by the Petroleum Industry.

Enforceability: Enforcement will be made easier, because there will be no more doubts about the correctness of the classification of such mixtures.
