

OTIF



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Working Party on the Transport of Dangerous Goods
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Item 5 a) of the provisional agenda – Tanks

Carriage of desulfurization agents based on UN 1402 Calcium carbide

Transmitted by Austria, Germany, CEFIC and UIP

SUMMARY

With this document Austria, Germany, CEFIC and UIP would like to inform the Joint Meeting about problems as regards the carriage of desulfurization agents containing calcium carbide which should be solved within the framework of the tank working group.

Introduction

1. Calcium carbide (CaC₂, UN 1402), a substance of Class 4.3, (as a mixture) is primarily used in the production of steel and acetylene. In 2009, the European production output was 270,000 tons. The use of calcium carbide mixtures as desulfurization agent is necessary for producing quality steel.
2. The calcium carbide industry is located or has sales markets in Germany, France, Italy, Austria, Sweden, Poland, Romania, Slovakia, United Kingdom, Spain, Norway, Finland, Czech Republic, Hungary, Bulgaria, Belgium, Denmark and Turkey.

Aus Kostengründen wurde dieses Dokument nur in begrenzter Auflage gedruckt. Die Delegierten werden daher gebeten, die ihnen zugesandten Exemplare zu den Sitzungen mitzubringen. Die OTIF verfügt nur über eine sehr geringe Reserve.

3. Prior to the restructuring of RID/ADR, there was only one entry for UN 1402 Calcium carbide, in marginal (2)471, item no. 17 b). An entry for packing group I (letter a of the relevant item no. in the list of substances) did not exist. According to Appendix XI, paragraph 4.1.7 and Appendix X, paragraph 4.1.5 (RID) / marginals 211 410 (g) and 212 410 (g) (ADR) and marginal (2)486 (1), carriage of the dangerous good was permitted in tank-vehicles, tank-wagons and tank-containers and in bulk.
4. With the restructuring of RID/ADR, two entries (packing group I and II) for UN 1402 Calcium carbide have been included in Table A of Chapter 3.2. Goods assigned to packing group II may still be carried in bulk and in tanks with tank code "SGAN". Goods assigned to packing group I may only be carried in portable tanks (tank instruction T 9).

Current Situation

5. For many years, the European carbide industry has carried calcium carbide in bulk in silo vehicles/wagons by road and rail, without negative experiences becoming known. Today, however, it is to be noted that calcium carbide fulfils the criteria of 2.2.43.1.8 (a) of RID/ADR for assignment to packing group I.
6. The assignment to packing group I, however, means that the steel industry can no longer be supplied with calcium carbide as up to now because:
 - carriage in bulk in the currently used silo tank-vehicles/silo tank-wagons is no longer permitted;
 - carriage in tanks approved for dangerous goods according to Chapter 6.8 of RID/ADR is not possible because column (12) of Table A does not contain a corresponding code;
 - portable tanks (tank instruction T 9) according to Chapter 6.7 of RID/ADR are not suitable for such transport operations as they do not have bottom openings. This, however, is a prerequisite for use due to the specific conditions for unloading this dusty product.

Proposal

7. With this informal document, Austria, Germany, CEFIC and UIP would like to provide information about the situation and propose to discuss the following solution to the problem in the tank working group:
 - a) Initiation of a multilateral agreement comprising a transitional provision which allows to maintain the current method of carriage in the short term under appropriate conditions, and
 - b) Development of a medium-term solution for the future requirements as regards these transport operations.
8. Regarding the future development of the regulations, it should be considered to permit the carriage of UN 1402 Calcium carbide of Class 4.3, packing group I, in tanks with tank code "S4AN" authorised for dangerous goods as "+" substance according to 4.3.4.1.3 and the appropriate special provisions, such as TU 4, of RID/ADR.
9. Attached to this informal document is a proposal for the minimum requirements to be contained in a future multilateral agreement. After discussing this issue in the Joint Meeting, Germany promises to submit such an agreement to the other Contracting States.

Annex**Proposal to solve the problem by way of a multilateral agreement**

UN 1402 Calcium carbide of Class 4.3, packing group I, may be carried in bulk in specially equipped wagons (silo vehicles) under the following conditions:

Minimum requirements concerning bulk containers

- Bulk containers of silo vehicles made of metallic material that are designed to a minimum working pressure of 2 bar and are inspected periodically according to national regulations (at least every 5 years).
- The bulk container shall be equipped with at least:
 - a discharge device consisting of two external closure devices (flaps/valves with a screw-threaded plug/blank flange);
 - a manometer to check the nitrogen blanket.

Operational requirements

- The product shall be dry and free of oxygen when loaded.
- Operating instructions for the loading and unloading shall be elaborated and complied with.
- Before filling, the filler shall ensure that the bulk container and its equipment (pipes/valves) are free of moisture.
- The bulk containers shall not be filled to more than 90% of their capacity.
- During carriage, UN 1402 Calcium carbide of class 4.3, packing group I shall be under a layer of inert gas, the gauge pressure of which shall be not less than 50 kPa (0.5 bar). Uncleaned empty bulk containers which have contained this substance shall when handed over for carriage be filled with an inert gas at a gauge pressure of at least 50 kPa (0.5 bar) .
- After carriage, the inert gas pressure shall be checked before discharge. If there is no residual pressure, the bulk container shall be purged with inert gas before discharge.

Marking requirements

- Hazard identification number X423 and UN number 1402 as well as placard for class 4.3.
 - Bulk containers shall bear in addition to the particulars prescribed in 6.8.2.5.2 of ADR/RID the words "DO NOT OPEN DURING CARRIAGE. GIVES OFF FLAMMABLE GASES ON CONTACT WITH WATER".
 - A plate conforming to national provisions shall be durably attached to the bulk container. As a minimum, the following information shall be marked on the plate:
 - working pressure,
 - capacity.
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