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**Committee of Experts on the Transport of Dangerous Goods  
and on the Globally Harmonized System of Classification  
and Labelling of Chemicals**

**Sub-Committee of Experts on the Transport of Dangerous Goods**

**Forty-eighth session**

Geneva, 30 November – 9 December 2015

Item 3 of the provisional agenda

**Listing, classification and packing**

Organic peroxides

New formulations to be listed in 2.5.3.2.4 and 4.1.4.2, IBC 520

Transmitted by the European Chemical Industry Council (CEFIC)[[1]](#footnote-2)

Introduction

1. Since several new peroxides and formulations have become commercially available, there is a need to update 2.5.3.2.4 and 4.1.4.2, IBC 520. A list of new products, proposed classification, the accompanying competent authority approval references and a summary of the supporting test data are given in the annex to this proposal.

Proposals

2. CEFIC proposes to include three new entries in 2.5.3.2.4, list of currently assigned organic peroxides, as indicated in 3 below. Further, CEFIC proposes to include some changes in packaging IBC520, as indicated in 4 below: four amended or new entries and a sentence to allow listed entries in IBC 520 to be transported in packagings of OP8.

3. Proposed amendments to 2.5.3.2.4 List of currently assigned organic peroxides:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ORGANIC PEROXIDE** | **Concentration (%)** | **Diluent type A (%)** | **Diluent type B 1) (%)** | **Inert solid (%)** | **Water** | **Packing Method** | **Control temperature (°C)** | **Emergency temperature (°C)** | **Number (Generic entry)** | **Subsidiary risks and remarks** |
| **ADD under:**  Diisobutyryl peroxide | ≤ 42 as a stable dispersion in water |  |  |  |  | OP8 | -20 | -10 | 3119 |  |
| **ADD under:**  Di-(4-tert-butylcyclohexyl) peroxydicarbonate | ≤ 42 as a paste |  |  |  |  | OP7 | 35 | 40 | 3116 |  |
| **ADD new entry:** 1-phenyl ethyl hydro peroxide | ≤ 38 |  | ≥ 62 |  |  | OP8 |  |  | 3109 |  |

4. Proposed amendments to 4.1.4.2, Packing Instruction IBC 520

(a) Add to the third row the following text (gray shaded past is the sentence added):

The IBCs listed below are authorized for the formulations listed, provided that the general provisions of 4.1.1, 4.1.2 and 4.1.3 and special provisions of 4.1.7.2 are met. The formulations listed below may also be transported in packagings of OP8 (see 4.1.4, P520), with the same control- and emergency temperatures, if applicable.

(b) Add the following entries:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **UN No.** | **Organic peroxide** | **Type of IBC** | **Maximum quantity (litres)** | **Control temperature** | **Emergency Temperature** |
| **3109** | **ORGANIC PEROXIDE TYPE F, LIQUID** |  |  |  |  |
| **ADD under entry:** | | | | |
| tert-Butyl hydroperoxide, not more than 72% solution with water | 31HA1 | 1000 |  |  |
| **ADD NEW entries:** | | | | |
| 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane, not more than 52% in diluent type A | 31HA1 | 1000 |  |  |
| 3,6,9-Triethyl-3,6,9-trimethyl-1,4,7-triperoxonane not more than 27% in a diluent type A | 31HA1 | 1000 |  |  |
| **3119** | **ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED** |  |  |  |  |
| **ADD NEW entry:** | | | | |
| tert-Amyl peroxy-2-ethylhexanoate, not more than 62% in a diluent type A | 31HA1 | 1000 | +15 ºC | +20 ºC |
|  |  |  |  |  |

Annex

Test results of new organic peroxides and formulations to be added/amended (2.5.3.2.4 or IBC520)

| **No** | **Product** | **packaging** | **UN** | ***Detonation*** | ***P/T / C.1*** | ***Deflagration / C.2*** | ***Koenen/ E.1*** | ***DPVT/ E.2*** | ***(mod) Trauzl F.3 or F.4 or F5*** | ***SADT (H.3 or H.4)*** | **Competent Authority approval number** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Diisobutryl Peroxide, ≤ 42% as a stable dispersion in water | OP8 | 3119 | Test A.6 No propagation | <2170kPa, No | 0.02 mm/s, No | <1.0 mm (A)  Low | 1.0 mm (10g),  Low | F.4 4.6 ml,  Low | H.4 0 °C (400ml) | NL TNO 09/DV3/2640 |
| 2 | Di-(4-tert-butylcyclohexyl) peroxydicarbonate, ≤ 42% as a paste | OP7 | 3116 | Test A.1 Partial (100%) | <2170kPa, No | 0.21 mm/s, No | < 1mm (“O”),  No | <1.0 mm (10g),  Low | n.a. | H.4 45 °C (400ml) | NL TNO 11EM/927 |
| 3 | 1-phenyl ethyl hydro peroxide, ≤ 38% in diluent type B | OP8 | 3109 | Screening procedure (test series E and F), No | <2170kPa, No | 0.011 mm/s, No | <1.0mm ("A"), Low | 1.0 mm (50g),  Low | F.4 0.0 ml, No | H.3, isothermal calorimetry >75 °C, | NL TNO-DV 2011 C090 |
| 4 | tert-Butyl hydroperoxide, not more than 72% solution with water | 31HA1 | 3109 | Test A.1 No propagation | <2170kPa, No | 0.024 mm/s,  N0 | <1.0mm ("A"), Low | 2.0 mm  (10g)  Low | F.3 21 ml,  Low | H.3 isothermal calorimetry  +65°C | NL TNO 09/DV3/2602 |
| 5 | 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane, not more than 52% in diluent type A | 31HA1 | 3109 | Test A.1 No propagation (100%) | <2170kPa, No | 0.075 mm/s,  No | <1 mm ("B”), Low | <1 mm (10g)  Low | F.5 26.6 J/g,  Low | H.3 isothermal calorimetry  +75°C | NL TNO 09/DV3/2726 |
| 6 | 3,6,9-Triethyl-3,6,9-trimethyl-1,4,7-triperoxonane not more than 27% in a diluent type A | 31HA1 | 3109 | Test A.1 No  propagation | 2501 ms Yes slowly (44%) | 0.044 mm/s,  No (44%) | 1.0 mm (F)  Low | <1.0 mm (10g),  Low (30%) | F.4 2.2 ml,  No | H.3 isothermal calorimetry 90°C | TNO 10DV3/1043 |
| 7 | tert-Amyl peroxy-2-ethylhexanoate, not more than 62% in a diluent type A | 31HA1 | 3119 | Test A.1 No propagation 100%  \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | <2170kPa, No | 0.138 mm/s, No | <1.0 mm (A)  Low | 3.0 mm (10g)  Low | F.4 5.2 ml,  Low | H.3 30°C | TNO 13EM/0729 |

1. In accordance with the programme of work of the Sub-Committee for 2015–2016 approved by the Committee at its seventh session (see ST/SG/AC.10/C.3/92, paragraph 95 and ST/SG/AC.10/42, para. 15). [↑](#footnote-ref-2)