



**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****Thirty-eighth session**

Geneva, 29 November–7 December 2010

Item 4 of the provisional agenda

Listing, classification and packing**Use of flexible IBCs for calcium peroxide (UN 1457)****Transmitted by the International Council of Chemical Associations
(ICCA)¹****Introduction**

1. Calcium peroxide (CaO₂, UN 1457, Division 5.1, packing group II) is an oxidizing solid which is produced in powder and granule form of different concentration with a white-yellow and odourless appearance. Calcium peroxide is extremely thermally stable and decomposes endothermally above 320°C without melting. Calcium peroxide is a non commodity product widely used in different applications as for bleaching purposes, reduction of odours, oxidation processes, neutralization, pharmaceutical and cosmetic applications, composting, dough conditioning, sealants, agriculture or environmental treatments of e.g. waste water. Therefore calcium peroxide can be described as an eco-friendly product due to its physical and chemical properties.

2. Calcium peroxide has currently been assigned to packing instruction IBC06 and therefore can be transported in metal, rigid plastics or composite IBCs only. However these IBCs are rather difficult to handle with solid powders or granular products such as calcium peroxide and also in a crystallisation process as used in the manufacture of calcium peroxide. Additionally other main important commercial solid oxidizers like sodium perborate monohydrate (UN 3377) or sodium carbonate peroxyhydrate (UN 3378) are usually produced at the same site, using a similar crystallisation process, but these are allowed to be transported according to IBC08.

¹ In accordance with the programme of work of the Sub-Committee for 2009–2010 approved by the Committee at its fourth session (refer to ST/SG/AC.10/C.3/68, para. 118 (b) and ST/SG/AC.10/36, para. 14).

3. For these production related reasons, calcium peroxide is commonly filled in suitable flexible IBCs, meeting IBC08 requirements, which are stored on site after filling. For decades, no significant safety problems have occurred in the industry with this type of packaging used during internal processing, transport or storage.
4. Because of packing instruction IBC06 however, these flexible IBCs, preloaded with calcium peroxide, need to be repacked before being despatched to customers, into 4G fibreboard boxes, meeting the requirements of P002 and having a maximum net mass of up to 400 kg. This additional and work-intensive handling increases the risk of an accidental exposure to the product for the operators involved in the operation which may lead to skin or eye irritation. This would be avoided if flexible IBCs, meeting the requirements of IBC08, could also be used for the transport of calcium peroxide to customers.
5. Independently of the mentioned process-specific limitations but in consideration of its granulometry and physical, chemical or hazardous properties, in particular the oxidizing potential, calcium peroxide is very comparable to other listed oxidizing solids of Division 5.1, packing group II, like ammonium dichromate (UN 1439), barium nitrate (UN 1446), calcium chlorate (UN 1452) or sodium carbonate peroxyhydrate (UN 3378), which have all been assigned to packing instruction IBC08 authorizing the use of flexible IBCs.
6. We therefore fail to see why calcium peroxide could not also be assigned to IBC08, and simultaneously also to special packing provision B4 requiring the use of a sift-proof and water resistant liner in order to avoid any accidental product exposure or water ingress during transport or storage. Approval certificates for such flexible IBCs which meet the requirements of packing group II and which have been tested with “dummy” substances of the same physical characteristics (mass, grain size, etc) have been issued. No further testing (e.g. with the substance itself) was deemed necessary.
7. With respect to the current use of smaller fibreboard boxes, the use of flexible IBCs would also result in optimizing the load in e.g. containers and would reduce packaging waste.

Proposal 1

8. It is proposed to amend the entry for UN 1457 in Chapter 3.2, Dangerous Goods List as follows:
 - In column (8): replace “IBC06” with “IBC08”
 - In column (9): add “B4”

Further discussion

9. Although this proposal deals with UN 1457 only, it is worthwhile mentioning that currently three other peroxides of Division 5.1, packing group II have been assigned to IBC06, which is in line with the Guiding Principles. These substances are:
 - UN 1483: Peroxides, inorganic, n.o.s.
 - UN 1509: Strontium peroxide
 - UN 1516: Zinc peroxide
10. If Proposal 1 would be adopted, it could be argued that an identical amendment could be applied to these entries because the arguments, as mentioned in paragraph 5 above

for calcium peroxide, would equally apply. Like has been done for solid chlorates and chlorites it is proposed to assign IBC08 only to the substances listed by name and to keep IBC06 for the n.o.s. substances.

Proposal 2

11. It is proposed to amend the entries for UN 1509 and UN 1516 in Chapter 3.2, Dangerous Goods List as follows:

- In column (8): replace “IBC06” with “IBC08”
- In column (9): add “B4”

12. If adopted, the Guiding Principles would need to be amended accordingly by using a similar text as is already applicable for chlorates and chlorites.
