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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

Twenty-fifth session, 5-14 July 2004  
Item 3 (c) of the provisional agenda

EXPLOSIVES, SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

Miscellaneous proposals

Application of flammable liquid label to certain organic peroxides

Transmitted by the expert from the United States of America

1. According to Section 5.2.2.1.10 of the UN Model Regulations a package containing organic peroxides of Type B, C, D, E, or F is only required to have the Division 5.2 (model No. 5.2) label. No subsidiary "Flammable Liquid" label is required because the Division 5.2 label also implies that the organic peroxide may be flammable. While this provision works well for most organic peroxides it does not provide adequate safety protection for certain organic peroxides which pose greater fire hazard because they have low flash points and a wide range of flammable (explosive) limits.
2. The expert from the United States of America has identified three organic peroxides whose fire hazard potentials are far greater than most of the organic peroxides because of their unique properties. These organic peroxides meet the definition of Class 3 flammable liquids and have a wide concentration range of flammable (explosive) limits. The combination of low flash point and wide flammable range greatly enhance their fire hazard potentials. These organic peroxides have been involved in several incidents resulting in fire or explosion.
3. The three organic peroxides are:
 

1)	Di-tert-Amyl Peroxide (DTAP),	UN 3107,	≤ 100 %
2)	Di-tert-Butyl Peroxide (DTBP),	UN 3107,	> 52 – 100 %
3)	tert-Butyl Hydroperoxide		
	+ Di-tert-Butyl Peroxide (TBHP + DTBP),	UN 3103,	< 82 % + >9 %

4. The flashpoints and flammable ranges of DTAP, DTBP and mixture of TBHP + DTBP are:

	<b>DTBP</b>	<b>DTAP</b>	<b>TBHP + DTBP</b>
Flash point	4-6 C	35 C	38 C
Flammable limits v/v %			
Lower:	0.75 %	0.3 %	**
Upper:	100 %	> 71%	

\*\* *We do not have the flammable range of TBHP + DTBP but consider it to be of high fire hazard potential because this mixture is allowed to contain 9 % or more of DTBP.*

5. The expert from the United States of America is of the opinion that packages containing these three organic peroxides should be required to bear a subsidiary "Flammable Liquid" label. The subsidiary "Flammable Liquid" label would emphasize the need to consider Division 5.2 as well as Class 3 hazards for these very flammable organic peroxides.

**Proposal:**

6. It is proposed that a note number "30" be placed in the "Subsidiary risks and remarks" column of the Organic Peroxide List (Section 2.5.3.2.4) for the three organic peroxides, DTAP, DTBP and TBHP + DTBP, to read as follows:

"30) "Flammable Liquid" subsidiary risk label required. (Model No. 3, see 5.2.2.2.2)."

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