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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-second session,  
Geneva, 2-6 December 2002  
agenda item 4(a))

**NEW PROPOSALS**

**Outstanding issues**  
**Vibration test**

**Practice oriented test method / Military Standard 810F**

**Transmitted by the European Secretariat of Manufacturers of Light Metal Packaging**  
**(SEFEL)**

At the twenty-first of the Sub-Committee, document ST/SG/AC.10/C.3/2002/17 of the United States of America and their informal document INF.63 was discussed, and a vibration shock test based on the US DOT Vibration Standard was proposed. The expert from the United States of America recommended the DOT Standard as covered by ISO 2247:2001 and ASTM 999. The DOT standard and its related standards foresee fixed low frequencies and repetitive shocks.

**Practice oriented test method**

In reality loading platform vibrations occur as random vibrations superimposed by shock-type loads. The DOT Vibration Standard and its related standards do not simulate the actual vibration impacts occurring in real transports (para 4.1.1.1 of the Model Regulations requires “normal conditions of transport”).

If a future vibration test shall simulate corresponding transport situations it must take into account the real impacts referred to.

Typical frequency ranges vary between a few Hertz and several Kilohertz (typically between 5 and 2000 Hz).

Amplitude peaks in specific frequency bands will occur in a stochastic distribution.

SEFEL already in UN/SCETDG/21/INF.14 has pointed out that vibration scientists for these reasons do not accept the DOT Vibration Standard as a vibration test even if it wrongly bears that name. We refer in this connection to the Committee of European Environmental Engineering Societies (CEEES) and its Working Group "Transportation Stress". The DOT Vibration test is for some packagings, which are transported daily without any damage, a destructive test. We therefore cannot accept such an inappropriate test method. It could have structural consequences for the industry which - because of its incorrect starting point - could not be justified.

### **Military Standard 810F**

In order to meet the real vibration impacts of transport and to simulate them we propose the application of the Military Standard 810F (MIL-STD-810F).

This standard may be essentially characterized by the following:

- Instead of a fixed low frequency on which the DOT Vibration Standard is based the MIL-STD-810F applies a variable frequency range.
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- Since the transported filled packaging (at least in our field of packaging) cannot freely move around on the loading platform and as a rule is transported on pallets, the test specimens are restrained to the shaker. The specimens are submitted as well to a vertical test as to a test in horizontal directions which again corresponds to the real impacts of transport.
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- This standard, because of its nearness to reality, is suited for the transport of filled packaging.

If the Sub-Committee takes a decision regarding the method of the vibration test to be applied, we request the Sub-Committee to adopt the Military Standard 810F.

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