

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

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Item 2 (b)(ii) of the provisional agenda

Explosives and related matters:

Improvement of test series 8

Response to informal document UN/SCETDG/60/INF.42

Submitted by the expert from the Institute of Makers of Explosives (IME)

Introduction

1. At the sixtieth session RPMASA submitted informal document INF.42 (60th session) with the proposal of the continued use of the 8(d) test. This paper was in response to informal document INF.38 (60th session) which proposed that ANEs subjected to the 8(e) Canmet CERL Minimum Burning Pressure test should not be subjected to the 8(d) test.
2. However, there are differences in the test setup in informal document INF.42 (60th session), which have no bearing on the typical transport configuration of tankers used for ANEs.

Discussion

3. The fast cook-off test setup (Figure 1 in informal document INF.42 (60th session)) is a long cylindrical pipe in a vertical orientation and a dimension one order of magnitude larger than that of a tanker. Consequentially, the driving force for buoyant convection is several orders of magnitude larger in the experiment. Additionally, this geometry and orientation resemble that of a borehole, by design, and not a transport tanker where the height of the tanker is approximately one meter.
4. The vertical height increases the buoyancy effect within the pipe when the ANE is heated leading to a well-mixed ANE, unlike in the tanker where the buoyancy effect is not pronounced, and the heating is maintained only at the heated surface.
5. Discussions with RPMASA/AEL confirmed that the research was intended to study the behaviour of the ANE in blastholes under extreme heating. As such, the paper does provide insight into the behaviour of the ANE when it is loaded in a borehole.
6. The ANEs that were tested also showed a negative in the Koenen test, whereas informal document INF.38 (60th session) only applies to those ANEs that show a positive with the Koenen Test and have an MBP > 5.6 MPa.
7. The ANEs described in informal document INF.42 (60th session) would therefore not be eligible to be tested in the 8(e) test.

Conclusion

8. IME is grateful for RPMASA's submittal of informal document INF.42.
 9. The informal document INF.42 used ANE samples that would not be subjected to the 8(e) test, and these ANEs were also subjected to extreme heat in a configuration not seen in road transport.
 10. Hence this paper does not provide evidence to support maintaining the 8(d) test for ANEs described in the IME informal document INF.38 (60th session), in which the proposed exclusion of the 8(d) test applies only to ANEs that show a positive with the Koenen Test, have a reaction time greater than 60 seconds, a water content > 14 %, and a minimum burning pressure of ≥ 5.6 MPa.
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