

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

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Any other business

General information about "BLEVE"

Transmitted by the Government of Spain

1. In July 1978, 200 lives were lost and a further 100 people seriously when a road tanker carrying 23 tonnes of liquid propylene exploded while passing a camp site in San Carlos de la Rapita, Spain (Camping de los Alfaques).
2. The explosion was thought to be a "boiling liquid expanding vapor explosion "(Bleve)".
3. The official inquiry stated that the cause of the disaster was a pressure built up above of the liquid-gas. However, several factors contributed to the explosion but the fact that there was no pressure relief device fitted, the tanker was overload and there was a high ambient temperature constituted a dangerous situation.
4. There were only 18 Bleve's in U.S.A., between 1950 and 1970, involving LPG, after 1970 to 1975, others 12 incidents occurred. The lack of an improperly designed relief valves which allow the pressure within the tank to increase to the point of failure, is one of the causes that can produce a "Bleve", probably the principal.
5. The reason that the container usually fails in the metal around the vapor space is because it is extremely difficult to heat the container metal significantly where it is in contact with liquid. The liquid conducts the heat away from the metal and acts as a heat absorber.
6. For the above reasons, we submit these comments to the working group in the way that at least for LPG and other inflammable liquefied gases, it shall be mandatory to wear relief valves (spring-load class), and consequently after being considered by this group sent to the working group in tanks.
7. In Spain also occurred another important accident of "Bleve" during August 2003 in Tivissa, that caused the rupture of the tank in two parts.
8. Expert underlined that, in this case, the tank was overturned to its lateral side, and the relief safety valves, used in this (natural liquefied gas) were immersed by the liquid of the tank and didn't work correctly. Probably it is necessary to have 3 relief devices instead of one relief device.