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INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

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Working Party on the Transport of Dangerous Goods
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Submitted by the European Cylinder Makers Association (ECMA)

At a recent meeting of the European Cylinder Makers Association Technical Group the service life of composite cylinders was discussed. There was a consensus that for full wrap load sharing metal lined cylinders there should be a finite life of 15 years. The life of these cylinders may be extended for a further period on a batch basis by subjecting representative cylinders from the batch to the same tests carried out for the initial qualification approval. The re-qualification should be carried out under the supervision of an independent body. The results of the re-qualification should be comparable with the original test result showing no deterioration in characteristics if extended service life is to be granted.

The ECMA supports the “design life” concept of 15 years allowing composite cylinders to be designed for minimum weight giving high efficiency products rather than compromising this aspect by designing for unlimited life.

The belief that these cylinders should have a finite life arises because:-

1. Currently there is only limited experience of using such cylinders for extended periods under conditions typically encountered in service.
2. There is a necessity to develop more information concerning the effects of ageing on the composite materials used, for example, long term exposure to ultra violet radiation, general weathering, etc.
3. More information is required concerning the time related influence of general wear and tear and slight damage that invariably occurs during service.

Although an estimated 2 million fully wrapped composite gas cylinders with load sharing metal liners have been produced, the bulk of them were made in recent years as both manufacturing facilities and the market demand have expanded. For that reason there is only a limited amount of long term performance data and experience available.

This approach provides a safeguard that extending service use is only done after critically assessing the fitness of the cylinder to continue in service. The tendency to over design and produce heavier than necessary composite cylinders for unlimited life becomes un-necessary.

The ECMA Technical Group wishes to place on record its opposition to any move by the UN/TGD that allows unlimited life in the provisions for the inclusion of fully wrapped composite cylinders in the UN regulations.
