The Specialist – “sharing through experience”

Plastic Tanks - Fit and Forget

“Is this philosophy acceptable?”

There appears to be a general belief by tank users, that plastic tanks will last indefinitely, the “**Fit and Forget**” philosophy. This is born of the misconception that plastic does not appear to degrade (rust, corrode or generally deteriorate).

The poor / unknown condition of many in service storage tanks constructed in plastic materials, has prompted the HSE to produce guides for users. Guidance PM75 exists for Thermosetting (GRP) tanks and a new guide, PM86, will provide guidance for Thermoplastic tanks (HDPE / Polypropylene)

Adrian Bridge & Neil Henry have worked alongside the HS&E in the review of PM75 and the generation of PM86. At the IMechE seminar in June 2009, their presentation “How to optimise the service life of non-metallic tanks” was well received.

Contact Adrian for further information.
Tel. +44 (0)1925 741068
Mob. +44 (0)7713 066619
adrian.bridge@gb.abb.com

Good practice in managing non metallic tanks

Background

- Very large population of non metallic tanks in the process industries on a variety of duties.
- Wide range of polymeric material often used as they offer very good chemical resistance in a wide range of chemical environments, limited in part by duty temperature.
- Corrosion is unexpected, so inspection not planned or is difficult / costly to achieve.
- Little similarity between metallic and plastic tanks.
- Many fabrication methods, most manual labour.
- Fabrication detail, paper copies, can be lost as ownership changes hands.
- Reduction in fabricator skill base and cost cutting can produce intrinsically unsafe / life reducing flaws but owner unaware and believes 100% OK

Design 30℃ but operated at 70℃, not inspected, 4 yrs old, typical costs of failure ran into several tens of thousands of pounds, not including environmental fines and clean-up charges. HS&E involvement dented the credibility of the owner.

Why do failures happen?

1. Uncontrolled change in duties
2. External impacts, mechanical damage
3. Temperature excursions, mostly high
4. Poor siting, uneven surfaces
5. Uncontrolled use beyond design limits
6. Poor fabrication control / wrong choice of materials of construction.
7. Uncontrolled alterations to design / additions / repairs.
8. Ignorance of limitations; age, temperature, chemical resistance.
9. No regular inspection / condition assessment, allows small issues to grow and become serious / catastrophic

“As the knowledge of performance of all the various materials grows, so the confidence in setting an operating service life is improved and risks reduced “

Also Contact Neil for further information.
Tel. +44 (0)1925 741020
Mob. +44 (0)7715 161236
neil.henry@gb.abb.com