



If steel or stainless steel pressure vessels are corroded, they should be replaced as soon as possible. Unfortunately, delivery times for new vessels are lengthy; moreover, it is not always possible to stop the installation when a problem occurs. In such cases, it may prove quite acceptable to repair the vessel with a plastic composite, even if the vessel is NOBO approved.

**Case:** repairing a condensate vessel in the petrochemical industry

**Problem:**

During the periodical shutdown of a petrochemical plant, a condensate vessel was inspected; specifications: volume 24 m<sup>3</sup>, design pressure 14 bar, and max. internal temperature 150°C. A general internal corrosion was observed with a minimum depth of 30% of the wall thickness. Owing to the insufficient remaining thickness of the wall, the permit to recommission is withdrawn. This means that the plant may not be started up until the vessel is replaced or repaired.

**Question:**

Can a stainless steel pressure vessel, which is corroded across the entire internal surface, be repaired within ten days – in such a way that it can and may be used again in an industrial environment?

**Solution:**

On the basis of design and usage information, Engiplast, in consultation with suppliers, client and the Notified Body, draws up a design and a procedure to cover the complete exterior of the vessel with a plastic composite. In this case, a specific type of glass-fibre reinforced epoxy composite was opted for. The composition and dimensions of the coating are such that the complete function of the original steel is adopted.

The whole process – including removal of the vessel, the preparations, the application of the composite, the finishing of the coating, and replacement of the vessel – is realised within nine days.

All activities are done under supervision by and at the approval of Lloyds Register, who release the vessel for the remainder of the period of use. After six months, a new vessel is delivered to replace the repaired one.



Engiplast is in 2004 gestart met het toepassen van kunststof composiet voor reparaties. Sindsdien zijn onder begeleiding van Engiplast een twintigtal drukvaten en leidingen op deze manier hersteld.

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