A revolutionary insulating coating has been found to prevent corrosion under insulation, a frequently occurring and costly problem for the industry

BP Refinery Rotterdam solves problem of CUI

Wherever traditional insulation applications cause problems, water-based acrylic with microscopically small insulating particles have been found to score much improved results.

Over the past four years, BP Refinery Rotterdam (BPRR) has had three tank roofs insulated with a new coating, Mascoat Industrial-DTI, which not only keeps the heat in the tanks but also prevents corrosion under the insulation.

Controlling and retaining heat in refinery tanks is necessary in every industrial setting. Wasted energy means throwing away money and negatively impacting the environment. In addition, temperature fluctuations in tanks can affect the quality of the stored products.

Therefore, corporations have a vested interest in operating as efficiently as possible. 'The walls and roofs of our heated tanks are insulated,' explains Michel van der Weijden, project manager of tank turnaround at BPRR.

'We have reasonable control over the wall insulation but in the past, roof insulation consisted of polyurethane foam. An interim inspection entails measuring through a thick layer by making a hole in the roof. This hole is sealed after measuring, but there is still the risk of liquid between the roof and the insulation layer. The sealed hole will always remain a weak spot in which ultimately water can penetrate. In addition, we have had problems with seagulls. If these birds realise that they can nest warmly and sheltered in between the soft material, they pick everything to pieces.'

Inspection

Liquid always finds its way to the lowest point. Most corrosion problems appear in locations other than the ones in which the leaks were detected. Had

an innovative coating been applied, the cause would have been discovered much earlier during the inspections.

'Compared to conventional applications, the coating does show what is happening,' Van der Weijden says. 'Our tanks, which were built in the middle of the seventies, were meant to last about 40 years. In 2006 the tanks were opened up, although we had already discovered problems during our regular inspections. At the time, the solutions included a bit of touching up, patching a plate and repairing the insulation. In the meantime, we adopted an additional safety and maintenance strategy. Now we remove the polyurethane foam from the roofs and replace it with an insulating coating. This way we save tremendously on the entire lifespan of a tank.'

Characteristics

The coating is guaranteed to last for 10 years. The insulation value does not decline and if a tank is used for something else and more insulation is required, an additional layer can be put over the existing one after five or 10 years. 'The bonding between the layers stays equal,' says Richard Dräer, the manager of the business desk and KAM affairs of Van der Ende Straal- & Schilderwerken (Van der Ende Blast & Paint Company), the company that applied the coating at BP.

'A modification can be executed very easily. You clean the surface, remove the damaged coating, grab the sprayer, and the job is done. It functions as an insulation blanket and prevents corrosion. Even if walkways have to be made, it is possible to apply an extra topcoat including grip. The customer can choose any desired colour. BPRR has chosen white. Last but not least, it is an environment-friendly product. It's one of the few of its kind allowed in airfreight; that certainly says something about the product.'

History

Mascoat's insulating coatings were initially applied to workboats in the Gulf of Mexico. Fifteen years ago the company, which had its headquarters in Houston, Texas, US, realised that there was a market in refinery and industry, besides the maritime market.

In 2006, the product appeared on the European market and within the year it attracted the attention of BPRR.

In 2007, BPRR placed its first order and Van der Ende, a veteran contractor specialising in the preservation of industrial objects started work. 'That was in the middle of the winter,' recalls Dräer, 'an additional advantage compared to conventional insulation. The application of this product demands a lot less if you take environmental factors into account. For instance, you don't need scaffolding to apply this product, not even when you want to apply it to walls. That makes a difference for the customer in terms of costs and time. We work two days whereas you spend five to six weeks using traditional methods.'

Meticulous work

Applicators must be trained how to apply the coating, as it must be applied in a certain way for it to work effectively. The blast and paint company in Barendrecht is the only one in the Netherlands certified to apply the product. 'It looks like normal paint spraying, but there are a number of aspects that demand your full attention, for example mixing the coating,' Dräer says. 'If you do that incorrectly, you run the risk of damaging the insulating particles. You also have to be careful with the thickness of the layers. If you don't get it right, it's at the expense of the way the insulation functions. Two men always apply the product and one man constantly measures the thickness while the product is still wet. This way you can correct things while spraying.'

Added advantages

The coating can be used not only on tank roofs but also for a wide range of applications, such as pipelines, valves, heat exchangers and even furnaces and stoves. This means personnel do not have to worry about touching a pipeline or tank by accident. It is also easier to apply to valves. 'Normally you have to build a box around them to apply the insulation, but not with this coating,' Van der Weijden concludes.

For more information:
Contact Aad Dijkshoorn, managing director, Mascoat, www.mascoat.com