



MULTIPURPOSE CLEANING AGENT

A UNIQUE FIRE FIGHTING TECHNOLOGY THAT CAN ALSO BE USED FOR CLEANING UP HYDROCARBON SPILLS IS FINDING A NEW APPLICATION IN REFINERIES AND TANK STORAGE FARMS. JOSE MARIA SANCHEZ DE MUNIAIN SPEAKS WITH BIOVERSAL'S TECHNICAL DIRECTOR IOANNIS ATHANASIOU.

The extinguishing and bioremediation characteristics of Vienna-based Bioversal's products have been covered in *Industrial Fire Journal* in previous editions.

To recap, Bioversal QF is a micelle encapsulator agent that works on multiple firefighting levels. Firstly, it reduces the surface tension of water, altering the shape of water droplets on the surface from round to flat, which in turn increases the cooling efficiency.

Secondly, QF has similar foaming properties to traditional AFFF foam, which means the blanket of product cuts off the oxygen supply from the burning fuel.

Thirdly, QF encapsulates both the fuel and its gases so not only can the fuel not burn, but the gases cannot explode. This last application has made it particularly useful in the mining industry, where it is used to encapsulate coal dust whilst also penetrating deep into the combustible to cool it down.

Firefighting capability aside, Bioversal technology has an important side effect: it actually encourages the natural regeneration of a hydrocarbon-polluted area.

When QF comes into contact with an oily surface for instance, it simultaneously enlarges it and encapsulates the oil particles, which reduces the adhesive properties. The enlarged surface area aids in the biological breakdown of the oil – encouraged by Bioversal's vegetable active substance (activator), which creates the best possible living conditions for the micro-organisms naturally present in the environment.

Spills in refineries

For many years Bioversal QF has been used by fire brigades in Europe to clean up oil spills. In Austria, it is used both to extinguish fires and to clean oil spills on roads, to prevent further accidents as a result of cars skidding on hydrocarbon residues: it has even been used to clean up accidental oil spills in the river Danube.

Interestingly, explains Ioannis Athanasiou, Bioversal is finding

new application niches in the oil industry. Recently, it was used to clean up oil-polluted soil in a refinery in Kazakhstan. 'They are utilising the product in their fire extinguishing equipment as a tool to clean up oil spills. Moreover, due to the high temperatures in Kazakhstan there are high concentrations of volatile gases – Bioversal encapsulates these gases and thus reduces the risk of explosion.'

Once Bioversal has been applied to the oil, it encapsulates the oil and within a matter of a couple of hours the encapsulated oil rises to the surface, from which it can then be skimmed. 'Once skimmed the residual oil still present in the waste water can be easily treated by biological waste water plants, because the bio-activator in Bioversal stimulates bacteria to simply eat it all up.'

Storage tanks – cleaning and maintenance

Storage tank cleaning as per ANSI/API Standard 2015 (Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks) is a complex and expensive process that typically needs to be carried out on a five-yearly basis and is usually carried out by third-party contractors.

Increasingly Bioversal is attracting interest from cleaning contractors and petrochem companies. 'I made a calculation for a 22m diameter storage tank and I estimated that it could be cleaned with 400 litres of Bioversal product, using standard equipment. We have a major petrochem company in Belgium that does precisely this, as well as a tank storage farm in Slovenia. A company in Croatia uses around 2 tonnes a year to clean their pipes. They flush 3% Bioversal and water solution into the pipe and let it run in cycles for two or three hours. After the water has been flushed out, maintenance such as welding can be carried out safely.

'The application is innovative and makes sense – it provides a higher standard of environmental protection, increases safety via effective explosion and fire protection, combined with high performance cleaning results – and it costs less.'

Before and after: Bioversal QF was recently used to clean up oil-polluted soil in a refinery in Kazakhstan.



BEFORE



AFTER

BIOVERSAL QF – FIRE FIGHTING CERTIFICATIONS

- DIN 14272-2
- UL-162
- EN 1568-3
- GESIP approved and listed as AFFF Fire Protection Agent
- ICAO level B