

# Tackling benzene and hexane at Fuji Oil Europe NV

## Belgium



The soil in the tank park of Fuji Oil Europe NV was polluted with benzene and hexane. These hydrocarbons were used in the past as extraction liquids. In-Situ Technieken demonstrated the working of In situ Chemical Oxidation (ISCO) with a pilot remediation and then carried out a full-scale remediation.

Benzene is an environmentally harmful substance that dissolves exceedingly well in the groundwater. Benzene is also mobile and easily spreads via the groundwater. Benzene has an aromatic ring structure which makes it especially sensitive to oxidation by hydroxyl radicals. These hydroxyl radicals are generated while carrying out an ISCO measure with Fenton's reagent (combination of hydrogen peroxide and an iron compound) and cause the benzene to break down. Hexane is also sensitive to oxidation.

### Extra remediation of soil vapour

In a first phase In-Situ Technieken carried out laboratory tests followed by a pilot remediation.

After the successful pilot In-Situ Technieken carried out the full-scale remediation. Using the Fenton's reagent technique 42 tons of hydrogen peroxide was injected via 40 injection injectors.

Special in this project was the combination of the ISCO remediation with an intensive soil vapour extraction measure. The extracted soil vapour was purified by passing through a catalytic oxidator (CATOX) because there was a lot of contamination in the soil air. The area to be remediated was 1,000 m<sup>2</sup> with the contamination being found up to about 10 metres below ground level.

### Result

An additional problem was that the site is largely built up with storage tanks. Nevertheless, it was possible to achieve a practical and good remediation. Extra attention was paid to the possible danger of the compacting of the peat layer. But the compacting of the layer hardly occurred at all. The remediation objective was achieved at 90% of the monitoring points.

In-Situ Technieken has state-of-the-art knowledge of innovative remediation techniques at its disposal for treating contaminated soils and groundwater. Many of these techniques have been developed within the company itself and have been patented. We use an own laboratory and a large library and work closely with the scientific world in order to continually improve our innovative techniques. We can almost always offer you a suitable solution for any contamination. In-Situ Technieken - a trade name of ARCADIS - is fully certified for carrying out soil remediation projects and is active worldwide.

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