



1,4-Dioxane – Defeated by ISCO

ISTR®

1,4-Dioxane, also known simply as 'dioxane', belongs to the group of ethers. 1,4-Dioxane is used as a solvent in, for instance, the paper and textile industries. Furthermore, 1,4-dioxane may be released as a by-product in the production process of different cosmetics.

General information:

Name: 1,4-dioxane
Chemical formula: $C_4H_8O_2$
CAS-Number: 123-91-1

1,4-Dioxane and remediation

1,4-Dioxane is fully miscible with water. It is difficult to strip from the dissolved phase and does not easily adsorb to the soil. Biological degradation of 1,4-dioxane takes place to a limited extent through natural attenuation processes.



Contamination with 1,4-dioxane – Cleaned up successfully with new process

Challenge

Remediating a site contaminated with 1,4-dioxane is very difficult. The substance dissolves completely in water, but is difficult to strip. Therefore, it cannot be easily removed from the dissolved phase. In the subsurface, 1,4-dioxane is highly mobile as it does not readily adsorb to the soil. As a result, most conventional remediation techniques are not suitable for remediation of 1,4-dioxane contaminations.

Approach

By combining the physico-chemical properties of 1,4-dioxane with state-of-the-art remediation techniques, In-Situ Technieken has developed a new remediation approach for the treatment of 1,4-dioxane.

Result

In situ chemical oxidation (ISCO) is the technique best suited for remediation of 1,4-dioxane. By injecting reagents with the appropriate formula, 1,4-dioxane is quickly broken down into environmentally harmless components.

In-Situ Technieken

In-Situ Technieken has extensive knowledge of numerous remediation techniques for the treatment of contaminated soils and groundwater. Many of these techniques have been developed in-house and patented. To facilitate continuous updating of our innovative techniques, we make use of our own laboratory and a large library, and cooperate closely with the scientific community. We have a successful track record in remediating difficult contaminants and excel in developing innovative techniques. Whatever the contamination, we can practically always offer you a suitable solution.

In-Situ Technieken has successfully completed a large number of remediation projects. Various remediation techniques have been applied during these projects, such as in situ chemical oxidation (ISCO), soil vapour extraction (SVE), multiphase extraction (MPE), air sparging, immobilisation, enhanced biological degradation, and pump and treat (P&T).

ISTR®

We have the knowledge and experience in house to offer a remediation solution for a wide range of chemicals that are inherently difficult to treat. The proven method used for this purpose by In-Situ Technieken is In Situ Targeted Remediation (ISTR®). We use ISTR® to remediate various contaminants in differing geological and hydrogeological profiles quickly, safely and in a controlled manner. Every project receives its own specific approach, with safety and flexibility as key features. In-Situ Technieken – a trade name of ARCADIS – is fully certified for carrying out (soil) remediation projects and operates world-wide.

For more information:

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