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Microbial Cultures and Methods for Anaerobic Bioremediation

AzTE Case # M09-150

Inventors

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Invention Description

Chloroethenes are among the most common pollutants at hazardous waste sites. They have been used extensively as solvents in dry-cleaning operations, metal degreasing, textile finishing, dyeing, and industrial extraction processes, and they were sometimes carelessly handled, stored or disposed of. Because these compounds are highly toxic and in many cases are either known or suspected to be carcinogens, their presence in the environment poses important health risks. This has stimulated investigations into their degradation, transport, and fate in the subsurface as well as inexpensive, yet effective technologies for their destruction.

Investigators at the Biodesign Institute of Arizona State University have enriched and identified a consortium of microorganisms that can be used to dehalogenate chloroethenes and related compounds at hazardous waste sites. Rates of for example trichloroethene dechlorination by this culture are several times faster than those of commercially available microorganisms. An added benefit of the new culture is its ability to maintain activity in the presence of common co-contaminants and microbial inhibitors.

These organisms can either be used *in situ* or incorporated into industrial processes, so as to achieve effective bioremediation.

Potential Applications

- Bioremediation of hazardous waste sites and sediments

Benefits and Advantages

- Faster microbial bioremediation of organohalogens, including chloroethenes and related pollutants
- Unprecedented tolerance toward co-contaminants frequently found at hazardous waste sites

Intellectual Property Status:

Patent Pending

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