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Inventor

Rolf Halden Professor

The Biodesign Institute Arizona State University

Method for the Determination of Kinetic Rates

AzTE Case # M11-077

Invention Description

There is growing concern about groundwater contamination and the impact of such contamination on health, agriculture, and water supplies. Because of this, it is becoming increasingly important to demonstrate the effectiveness of environmental remediation processes. One of the best ways to do this is to obtain a set of time-discrete samples from which kinetic rates (such as for pollutant destruction) can be calculated. Issues with taking such measurements include the difficulty of storing large volumes of fluid for later analysis in the lab, especially if the chemical of interest is labile or prone to disintegration.

Prof. Rolf Halden at the Biodesign Institute of Arizona State University has developed an innovative way to determine the rates of processes without collecting and storing multiple fluid subsamples. This invention will allow determination of multiple kinetic rates, even if the chemicals of interest are labile. Additionally, because volumes of groundwater or other fluids are not stored, the sampling device can be made smaller, reducing its cost and increasing its applications.

This device will find immediate application in environmental studies and, when sufficiently miniaturized, in other areas such as biomedical diagnostics.

Potential Applications

- Environmental sampling of bulk water and groundwater to determine kinetic rates, such as
 - Biotransformation
 - Pollutant destruction
- Biomedical diagnostics and similar applications

Benefits and Advantages

- Sampling device can be miniaturized, as there is no need to store volumes of fluid
 - Miniaturized device will be less expensive while having expanded applications
- Multiple kinetic rates can be determined
- Method is compatible with environmental compliance monitoring techniques
- Can even determine rates involving chemicals that are labile

Intellectual Property Status:

Patent Pending

Contact

Tom Goodman, PhD

Director

Business Development, Life Sciences

Arizona Technology Enterprises, LLC (AzTE)

P: 480.884.1648

F: 480.884.1984 TOMGOODMAN@AZTE.COM

HEALTHSCIENCES@AZTE.COM