iSOC® Technology

iSOC® Advantage

What is iSOC®?

- An innovative bioremediation technology.
- Accelerates natural attenuation.
- Currently operating on hundreds of sites in the USA, Canada Europe and Asia.
- Approved in many states for petroleum and dry cleaning sites.
- Pay-for-performance technology (fixed costs & high performance).

How Does The Technology Work?

- Will infuse any gas into a liquid.
- Infusion occurs when pressure of the gas is less than the pressure of the liquid.
- Transfers gases into the ground water, without creating bubbles.
- Supersaturates the ground water with low decay gases.
- Oxygen concentration can range from 40 to 200 ppm depending on iSOC® depth.

Co-inFusion (Cometabolic treatment by direct infusion):

- For use in the bioremediation of chlorinated solvents.
- Infuse oxygen and alkane gases (eg. methane, propane, ethene) in same well.
- Minimize competition for enzymes between the substrate and target contaminant.
- No production of recalcitrant daughter products using cometabolic bioremediation.
- Improve bacterial growth and rapid biodegradation of target pollutants.

Site Compatibility:

- Use as primary remediation strategy to attack the source.
- Use to polish off low-level contaminated sites.
- Use as curtain to stop off-site plume migration.
- Easily moved to new injection point or new site.
- Can be used on petroleum or chlorinated solvents.
- Not bothered by high levels of iron, BOD_5 or COD.

Radius of Influence:

- Typically 10-15 feet (3-5 m): Higher in tight soils due to molecular dispersion.
- Primarily depends on ground water velocity and the oxygen demands of the aquifer.
- Can be installed at any depth the deeper the water column the higher the gas infused.
- Infuses 4 to 10 times more dissolved gas than any competitive technology.

Installation:

- Installs in a few hours.
- Will work in a 2-inch (51mm) monitoring well or larger.
- The unit measures 1.62 inches by 12.5 inches (41 mm by 318 mm).
- 0.250 (or 6 mm) inch OD and 0.170 (or 4 mm) ID polyurethane tubing connects all parts.
- Setup requires: iSOC® unit, iSOC® Distribution Header, two-stage low flow regulator & gas cylinder.

Turning The System On:

- Open gas valve on the tank to get rid of any debris.
- Connect regulator and turn counterclockwise to set to zero flow.
- Open gas valve on the tank and make sure there is no gas flow (none when set at zero).
- Connect iSOC® distribution header, iSOC® and filter with polyurethane tubing.
- Set regulator gas pressure to 50 psi (3.42 Bar, 342 Kpa).
- Make sure all lines are free of debris.
- Test each iSOC® by submerging in water and check for bubble every couple of seconds.
- Leak test all fittings and **refer** to installation guide that comes with the equipment.

Operation & Maintenance:

- Very low cost O&M technology.
- Has no moving parts and does not require electricity.
- Oxygen transfer efficiency is nearly a 100%.
- Annual 5 iSOC® set up operating cost is between $400 and $800.
- One iSOC® unit will use 1 cubic feet (28 l) of oxygen per day.
- A typical 40 cubic foot cylinder (7 x 18 inches) will last approximately 40 days per iSOC®.
- Site visits: Change out tanks and do regular sampling.

Case Studies:

- Website has various case studies relating to benzene, VC, MTBE and other contaminant degradation.
- Cases show good results in short time frames.
- Cases show heterotrophic bacteria plate count increases
- Cases show elevated levels of ferrous iron, BOD5, & COD did not inhibit aerobic degradation.

Costs:

- Contact your nearest iSOC® representative for a quotation by clicking onto:

www.isocinfo.com