

# Product of the Month

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## In Situ Soil Blending

**R**edox Tech, a turn-key *in situ* soil and groundwater remediation firm, announces their improved remediation delivery method. The new method, *in situ* soil blending, provides efficient, uniform delivery of oxidants, reductants and biostimulants. Redox Tech is already a recognized leader in deploying new soil and groundwater remediation technologies. The new delivery method complements Redox Tech's expertise in remediation chemistry and overcomes one of the major obstacles for *in situ* remediation, namely effective and uniform delivery of the reagents. *In situ* soil blending has numerous advantages over conventional dig-and-haul and *in situ* injection approaches:

- Efficient and uniform delivery of remediation amendments
- Production rates comparable to dig, haul and backfill
- Significantly faster than injection of dissolved amendments
- No long term liability associated with disposal at a landfill – no future PRP liability
- No liability associated with transport of hazardous waste
- Costs can be 2 to 10 times less expensive than dig and haul, depending upon the type and level of contamination
- No RCRA TSD permits are required because remediation is completed within the "area of contamination"
- Can treat a wide range of compounds, such as chlorinated solvents, pesticides, PCBs, PAHs, among others

*In situ* soil blending uses a proprietary modified excavator to effectively distribute chemical amendments throughout the soil medium to treat target contaminants. The chemical amendments can be oxidants, reductants, biostimulants, or soil stabilizers. The *in situ* blender is mounted on a large excavator



with a modified diesel engine and a separate hydraulic power system. The mixer is capable of mixing dry soil as well as sludge material to depths up to twenty feet. Utilizing hydraulic pressures of 5,000 psi, a twenty-eight inch diameter mixing head with specially designed "teeth" is rotated at speeds up to 100 rpm with torque of 20,300 lbs per foot. This rugged durability allows the mixing head to penetrate all soil types, even with the presence of backfill materials such as bricks, boulders, and rebar.

Because all *in situ* remediation alternatives require direct contact with the target contaminants, the effectiveness of the remediation strategy is limited by the ability to distribute the chemical amendments throughout the treatment area. The *in situ* blender is the most effective and efficient method to achieve uniform delivery. Also, because amendments, such as sodium persulfate, can be added in dry form, the overall rate of delivery is much greater than injection of liquids with dissolved solids.

For large treatment areas, the *in situ* blending process is performed systematically by subdividing the treatment area into smaller cells. The cell dimen-

sions and chemical loading requirements are determined prior to mobilization. Each cell is mixed with the designated chemical amendments ensuring that site wide distribution is achieved. In some instances, where the target zones are thicker than 5 feet or where site conditions warrant it, each cell is subdivided into lifts of 5 feet. Each lift is mixed separately with predetermined quantities of chemical amendments. Then the entire soil column is mixed ensuring that proper distribution is achieved.

Visit our website at [www.redox-tech.com](http://www.redox-tech.com), and you can view videos of *in situ* blending in action. You can also find answers to frequently asked questions, schematics, and other useful information. For immediate assistance, call us at 866-460-0330.

## Contact Information

Redox Tech, LLC  
 John Haselow  
 200 Quade Drive  
 Cary, NC 27513  
 919-678-0140  
[haselow@redox-tech.com](mailto:haselow@redox-tech.com)  
[www.redox-tech.com](http://www.redox-tech.com)

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