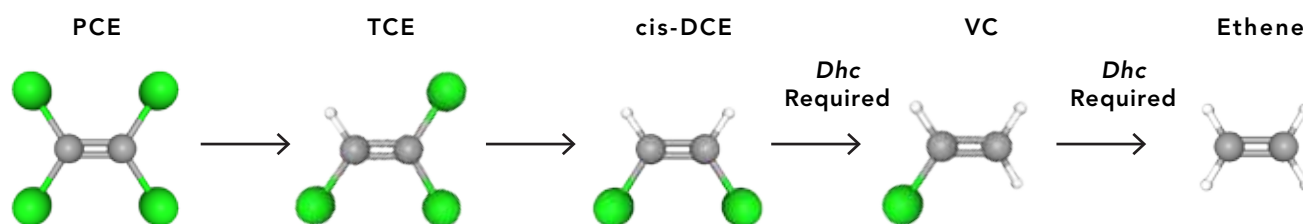


SDC-9™

Bioaugmentation Culture for Groundwater Remediation

SDC-9 is a field proven, highly effective consortium of microorganisms for *in situ* bioremediation of chlorinated solvents. SDC-9 contains multiple strains of *Dehalococcoides mccartyi* (Dhc), the primary species known to completely biodegrade PCE and TCE to non-toxic ethene. For sites where Dhc are absent or present at low concentrations bioaugmentation provides the necessary bacteria for complete dechlorination. Even when Dhc is present bioaugmentation can provide substantial benefits by increasing dechlorination rates, using electron donor more efficiently and reaching site closure sooner.



Benefits - Higher Dechlorination Rates

SDC-9 contains a natural consortium of bacteria that includes not only dechlorinating microbes but other beneficial bacteria that support *Dhc* growth by supplying required substrates and growth factors. "*Dhc* in mixed cultures exhibit shorter lag times following transfers, grow faster and exhibit higher dechlorination rates than pure *Dhc* cultures" (Bioaugmentation for Groundwater Remediation, 2013).

Benefits - Low pH Tolerant

SDC-9 continues to perform at pH levels as low as 5.5 (Vainberg and Steffan, 2014), although pH levels above 6.0 are recommended for more effective dechlorination.

Application

Preparing anaerobic water with our Newman Zone OS product will prevent exposing anaerobic bacteria to free chlorine or oxygen. SDC-9 may be injected with electron donors and other amendments when mixed with OS treated water or injected directly into wells or DPT points followed by OS treated chase water. Recommended dosing for SDC-9 is 10 million *Dhc* cells per liter or more in the injection fluid - a good reference for *Dhc* cell density vs. dechlorination rates is Lu et al., 2006

Contaminants Treated by SDC-9:

Tetrachloroethene (PCE)	1,1,2,2-Tetrachloroethane (TeCA)
Trichloroethene (TCE)	1,1,1-Trichloroethane (TCA)
cis-Dichloroethene (cDCE)	1,2-Dichloroethane (DCA)
trans-Dichloroethene (tDCE)	Carbon Tetrachloride (CT)
1,1-Dichloroethene (DCE)	Chloroform (CF)
Vinyl Chloride (VC)	Dichloromethane (DCM)
Freon 11	Hydrochlorofluorocarbon (HCFC)
Freon 113	Tetrafluoroethene (TFE)

SDC-9 Contains:

Dehalococcoides mccartyi
Dehalobium chlorocoercia
Dehalobacter
Dehalogenimonas spp.
Desulfovibrio spp.
Desulfitobacterium spp.
Methanogenic bacteria
Sulfate Reducing bacteria

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Product Characteristics

Parameter	Unit	Specification
Cell Count	<i>Dhc</i> Cells/Liter	1×10^{11}
Density	g/cm ³	0.9 - 1.1
pH	Standard Units	6.0 - 8.0
Appearance		Light Greenish, Murky Liquid
Odor		Musty



Packaging

SDC-9 is shipped in 19L (5-gallon) stainless steel kegs. The consortium can also be concentrated up to 10X and shipped in 1.75, 2.5, or 3-gallon kegs. Kegs are pressurized with Nitrogen and stored in chilled coolers. Calibrated delivery system (1, 2 or 3.5 L) and fittings are provided. Users will need to provide an inert gas cylinder (Nitrogen or Argon) and regulator.

Storage

SDC-9 may be stored in the kegs for up to 3 weeks at 2-4° C. Avoid freezing conditions and keep the kegs chilled in a refrigerator or in a cooler with fresh ice or ice packs.

Safety

SDC-9 is a non-toxic, non-pathogenic, non-genetically modified, naturally occurring consortium of microbes. No known hazards are associated with exposure to this product. Nevertheless, appropriate Personal Protective Equipment is recommended when handling this product.