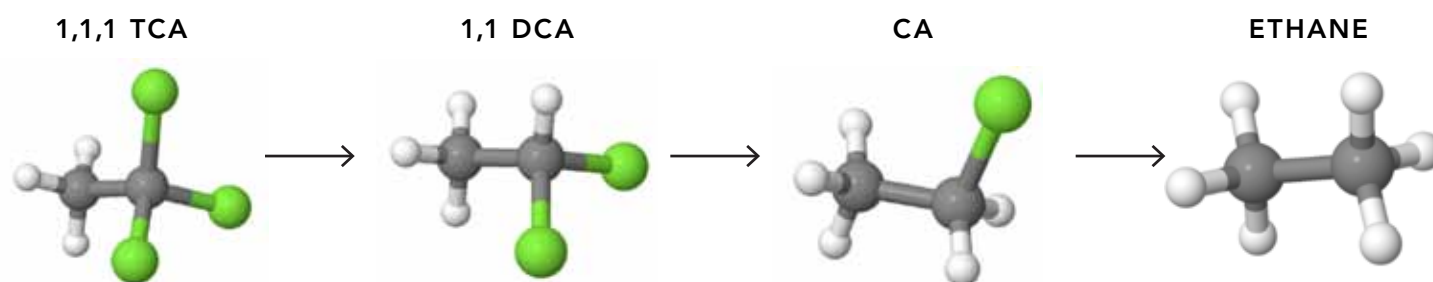


TCA-20B

Bioaugmentation Culture for Groundwater Remediation

TCA-20B is a field proven, highly effective consortium of microorganisms for *in situ* bioremediation of chlorinated solvents. TCA-20B contains *Dehalobacter* spp. (DHBt) and several other halo-respiring genera that consistently dechlorinate 1,1,1-TCA to ethane without the accumulation of 1,1-DCA or chloroethane daughter products. For sites where chloroethane reducing microbes are absent or present at low concentrations, bioaugmentation with TCA-20B provides the necessary bacteria for complete dechlorination to ethane. Even when native microbes are present, bioaugmentation can provide substantial benefits by using electron donor more efficiently and by increasing dechlorination rates to quickly reach your treatment goals.



Benefits - Higher Dechlorination Rates

TCA-20B contains a natural consortium of bacteria that includes not only dechlorinating microbes but other beneficial bacteria that support microbial growth by supplying required substrates and growth factors. Bioaugmentation with TCA-20B ensures complete reduction of chloroethanes to harmless ethane. Trihalogenated chloroethanes and fluoroethanes can inhibit *Dehalococcoides mccartyi* (Dhc) activity preventing effective chloroethene reduction to non-toxic ethene. Bioaugmentation with TCA-20B rapidly reduces the trihalogenated chloroethanes allowing Dhc microbes to effectively reduce chloroethenes to ethene.

Benefits – 1,1-DCA and CA Degradation

Remediation of chlorinated ethanes has often led to accumulation of daughter products such as 1,1-DCA and CA. TCA-20B was derived from a site contaminated with 1,1,1-TCA and 1,1-DCA and enriched to develop a culture capable of rapidly reducing chloroethanes to harmless ethane. The resulting culture, TCA-20B, has shown degradation rates of 1,1-DCA as high as 20 mg/L/day and has even shown to degrade CA as well at rates up to 3 mg/L/day.

Contaminants Treated by TCA-20B:

1,1,1-Trichloroethane	Carbon Tetrachloride (CT)
1,1-Dichloroethane (1,1-DCA)	Chloroform (CF)
Chloroethane (CA)	Dichloromethane (DCM)
Tetrachloroethene (PCE)	Tetrafluoroethane (TFE)
Trichloroethene (TCE)	

TCA-20B Contains:

Dehalobacter spp. (DHBt)
Desulfitobacterium spp. (DSB)
Dehalobium chlorocoercia (DECO)
Desulfuromonas spp. (DSM)
 Sulfate Reducing Bacteria
 Methanogenic Reducing Bacteria

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Product Characteristics

Parameter	Unit	Specification
Density	g/cm ³	0.9 - 1.1
pH	Standard Units	6.0 - 8.0
Appearance		Light Greenish, Murky Liquid
Odor		Musty



Application

Preparing anaerobic water with our Newman Zone OS product will prevent exposing anaerobic bacteria to free chlorine or oxygen. TCA-20B 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.

Packaging

TCA-20B 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

TCA-20B may be stored in kegs for up to 3 weeks at temperature 2-4° C. Avoid freezing conditions and keep the keg chilled in a refrigerator or in a cooler with fresh ice or ice packs.

Safety

TCA-20B 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.