

## The VOC Experts

- Responsible Party Identification
- GIS and Geomatics
- Contaminant Hydrogeology
- Fate and Transport Modeling
- Risk Assessment
- Remediation Feasibility Studies
- Soil and Groundwater Remediation
- Natural Resource Damage Assessment
- Water Resources Assessment
- Source Water Assessment and Protection
- Drinking Water Treatment
- Environmental Risk Management
- Litigation Support/Expert Witness
- Forensic Engineering
- Stakeholder/Public Participation
- Regulatory Strategy



environment • water • strategy

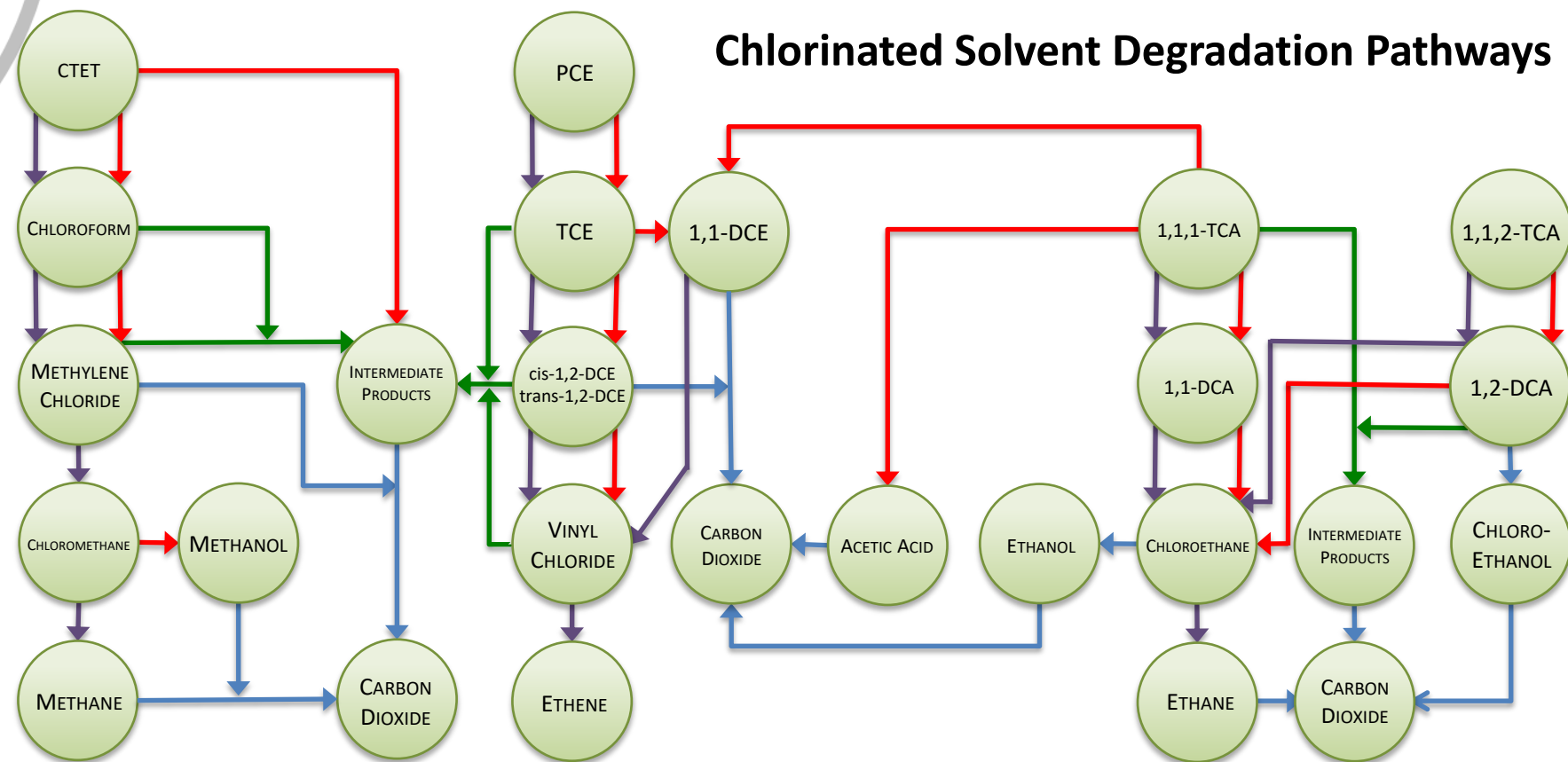


To contact us, or sign up for our newsletter, please scan here.

# Chlorinated Solvent Properties

	Molecular Weight (g/mol)	Density (g/cm <sup>3</sup> at 20-25°C)	Solubility (mg/L at 25°C)	K <sub>h</sub> (unitless)	log K <sub>ow</sub> (unitless)	log K <sub>oc</sub> (unitless)	PHG (µg/L)	MCL (µg/L)
PCE	165.83	1.62	200	0.76	2.97	2.19	0.06	5
TCE	131.39	1.46	1,100	0.43	2.47	1.97	1.7	5
1,1-DCE	96.94	1.21	2,400	1.06	2.12	1.81	10	6 (CA)
cis-1,2-DCE	96.94	1.28	4,930	0.19	1.86	1.46	100	6 (CA)
trans-1,2-DCE	96.94	1.26	6,300	0.39	2.07	1.7	60	10 (CA)
1,1,1,-TCA	133.40	1.32	1,330	0.72	2.68	2.04	1,000	200
1,1,2-TCA	133.40	1.44	4,420	0.038	2.01	1.7	0.3	5
1,1-DCA	98.96	1.20	5,500	0.24	1.76	1.5	3	5 (CA)

## Chlorinated Solvent Degradation Pathways



- ABIOTIC REACTION PATHWAY (HYDROLYSIS, REDUCTIVE DECHLORINATION, DEHYDROHALOGENATION, or SULFIDE SUBSTITUTION)
- ANAEROBIC REDUCTIVE DECHLORINATION
- OXIDATION (AEROBIC and/or ANAEROBIC)
- COMETABOLISM (AEROBIC and/or ANAEROBIC)

**Notes:**  
 K<sub>ow</sub> = octanol-water partition coefficient  
 K<sub>oc</sub> = organic carbon partition coefficient  
 K<sub>h</sub> = Henry's Law coefficient  
 MCL = maximum contaminant level  
 PHG = preliminary health goal (Office of Environmental Health Hazard Assessment [OEHHA])  
 PCE = tetrachloroethene  
 TCE = trichloroethene  
 1,1-DCE = 1,1-dichloroethene  
 1,1-DCA = 1,1-dichloroethane  
 cis-1,2-DCE = cis-1,2-dichloroethene  
 trans-1,2-DCE = trans-1,2-dichloroethene  
 1,1,1-TCA = 1,1,1-trichloroethane  
 1,1,2-TCA = 1,1,2-trichloroethane

**Sources:**  
 USGS. (2006). Description, Properties, and Degradation of Selected Volatile Organic Compounds Detected in Groundwater – A Review of Selected Literature. Open-File Report 2006-1338.  
 CDPH. (2011). MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants. July 27.  
<http://www.gsi-net.com/en/publications/gsi-chemical-database.html>