

LIQUID PHASE CARBON USE RATE ESTIMATES (lbs per 1,000 gallons)

These usage rates are based on a computer simulation using Filtrasorb 300 in a single Disposorb unit at 5gpm. (EBCT=9 Minutes). This is the highest safety factor used in WaterAds. Increasing contact time and/or series operation will reduce carbon use rates. The results are theoretical estimates and should be used as such. Never guarantee usage rates based on these tables. Due to background TOC levels, carbon usage rates <0.1 are rarely seen in the field; therefore, avoid usage rates which are below .01 #/1000 gal.

* These compounds are not commonly removed using activated carbon.

However, it may be a viable application if there is low flow and/or low concentrations.

NAME	PPM	0.001	0.010	0.000	1.000	10.000	100.000
	PPB	1.000	10.000	100.000	1000.000	10000.000	100000.000
*ACETIC ACID		0.571	1.719	5.009	14.714	45.478	154.309
*ACETONE		2.128	5.958	14.882	35.456	86.135	228.084
*ACETONITRILE		1.451	127.239	2056.110	8903.160	15022.000	14364.000
ACRYLAMIDE		0.500	1.395	3.626	9.290	24.847	73.440
*ACRYLONITRILE		11.587	34.941	66.635	96.775	128.888	189.554
*alpha-CHLOROTOLUENE		0.002	0.007	0.031	0.162	0.987	7.064
ANILINE		0.001	0.007	0.038	0.224	1.414	9.672
ANTHRACENE		0.000	0.001	0.007	0.073	0.734	7.583
ATRAZINE		0.001	0.003	0.017	0.113	0.852	7.354
BENZENE		0.010	0.035	0.131	0.554	2.729	16.137
BENZOIC ACID		0.002	0.009	0.042	0.210	1.169	7.450
BENZYL ALCOHOL		0.004	0.013	0.052	0.237	1.258	8.077
2-2'BIPYRIDINE		0.000	0.002	0.012	0.095	0.756	6.322
BIS(2-CHLOROETHYL)ETHER		0.008	0.028	0.098	0.378	1.661	8.544
BIS(2-ETHYLHEXYL)PHTHALATE		0.000	0.001	0.007	0.070	0.676	6.585
BROMODICHLOROMETHANE		0.102	0.207	0.410	0.865	2.152	6.943
BROMOFORM		0.018	0.052	0.161	0.562	2.307	11.624
P-BROMOPHENOL		0.000	0.002	0.013	0.088	0.627	4.743
BUTYLBENZENE PHTHALATE		0.000	0.001	0.006	0.060	0.581	5.724
DI-N-BUTYLPHTHALATE		0.000	0.001	0.009	0.078	0.716	6.679
CARBON TETRACHLORIDE		0.053	0.101	0.203	0.477	1.442	6.217
CHLOROACETONE		0.101	0.038	0.149	0.624	2.855	14.557
CHLOROBENZENE		0.001	0.007	0.033	0.190	1.230	9.155
CHLOROETHANE		0.533	1.058	2.047	4.269	10.614	34.796
CHLOROFORM		0.116	0.269	0.631	1.604	4.757	17.638
2-CHLOROPHENOL		0.002	0.008	0.040	0.208	1.163	7.208
1-CHLOROPROPANE		0.058	0.146	0.386	1.151	4.105	18.624
CHRYSENE		0.000	0.001	0.007	0.072	0.727	7.499

COUMARIN	0.001	0.011	0.909	0.751	6.584	60.652
M-CRESOL	0.001	0.004	0.024	0.158	1.102	8.220
CYCLOHEXANE	0.001	0.005	0.023	0.120	0.783	6.481
DIBROMOCHLOROMETHANE	0.031	0.093	0.299	1.077	4.515	22.947
1,2-DIBROMO3CHLOROPROPANE	0.005	0.017	0.071	0.323	1.717	10.958
1,2-DICHLOROBENZENE	0.000	0.001	0.008	0.067	0.581	5.296
1,3-DICHLOROBENZENE	0.000	0.001	0.008	0.066	0.578	5.317
1,4-DICHLOROBENZENE	0.000	0.001	0.008	0.066	0.589	5.460
2,4-DICHLOROCRESOL	0.000	0.001	0.009	0.070	0.587	5.131
1,1-DICHLOROETHANE	0.126	0.295	0.715	1.912	6.034	24.080
1,2-DICHLOROETHANE	0.101	0.255	0.665	1.898	6.293	25.710
1,1-DICHLOROETHYLENE	0.048	0.120	0.344	1.193	5.356	33.303
CIS-1,2-DICHLOROETHYLENE	0.011	0.047	0.221	1.128	6.439	41.873
TRANS-1,2-DICHLOROETHYLENE	0.012	0.054	0.252	1.285	7.268	46.421
2,5-DICHLOROPHENOL	0.000	0.001	0.101	0.078	0.616	5.135
3,5-DICHLOROPHENOL	0.000	0.001	0.009	0.071	0.564	4.678
2,4-DICHLOROPHENOXY ACETIC ACID	0.000	0.001	0.007	0.066	0.606	5.669
1,2-DICHLOROPROPANE	0.019	0.055	0.174	0.617	2.570	13.172
1,3-DICHLOROPROPANE	0.077	0.223	0.694	2.430	10.028	51.069
DIETHYL PHTHALATE	0.000	0.001	0.008	0.070	0.631	5.880
DIETHYLENE GLYCOL	0.013	0.051	0.211	0.915	4.234	21.260
*DIMETHYFORMAMIDE	3.930	11.620	28.037	60.223	125.635	277.711
2,4-DINITROCRESOL	0.000	0.001	0.008	0.065	0.566	5.050
2,4-DINITROPHENOL	0.000	0.001	0.008	0.060	0.466	3.843
2,4-DINITROTOLUENE	0.000	0.001	0.007	0.053	0.437	3.863
2,6-DINITROTOLUENE	0.000	0.001	0.007	0.053	0.437	3.863
*1,4 DIOXANE	2.209	6.324	15.580	35.576	81.089	198.701
ETHYL ACETATE	0.130	0.355	0.961	2.720	8.468	30.497
ETHYL BENZENE	0.001	0.005	0.025	0.147	1.009	8.094
ETHYL ETHER (DIETHYETH.)	0.106	0.296	0.835	2.485	8.196	31.382
ETHYLENE DIBROMIDE	0.014	0.048	0.183	0.775	3.745	21.280
FREON 11	1.389	2.460	4.384	8.862	22.906	85.328
FREON 113	0.041	0.117	0.384	1.514	7.576	50.912
FREON 12	0.574	1.003	1.893	4.353	13.748	67.253
*GLUCOSE	3.098	9.318	21.881	44.343	85.726	174.772
HEXACHLOROBUTADIENE	0.000	0.001	0.005	0.041	0.385	4.239
2-HEXANONE	0.009	0.033	0.127	0.532	2.494	13.383
HYDROQUINONE	0.009	0.031	0.117	0.473	2.097	10.465
ISOOCTANE	0.000	0.001	0.009	0.078	0.730	7.657
*ISOPROPYL ALCOHOL	6.294	18.394	44.553	97.209	207.674	472.187
LINDANE	0.001	0.002	0.012	0.076	0.596	5.989
MALATHION	0.000	0.001	0.006	0.052	0.461	4.241

METHIONINE	0.149	0.394	1.046	2.950	9.320	34.808
2-METHYLBENZENAMINE	0.001	0.003	0.022	0.149	1.063	8.084
4-METHYLBENZENAMINE	0.001	0.004	0.028	0.185	1.299	9.641
2-METHYLBUTANE	0.001	0.005	0.024	0.138	0.953	8.131
METHYL CHLORIDE	11.238	22.608	30.810	35.744	44.365	74.030
METHYLENE CHLORIDE	2.724	5.430	8.894	13.855	23.746	51.815
METHYL ETHYL KETONE	0.734	1.915	4.597	10.865	27.064	76.037
METHYL ISOBUTYL KETONE	0.008	0.030	0.120	0.511	2.434	13.257
METHYL NAPHTHALENE	0.000	0.001	0.008	0.076	0.708	6.787
METHYL TERT-BUTYL ETHER	0.053	0.158	0.478	1.552	5.597	23.395
NAPHTHALENE	0.000	0.001	0.008	0.070	0.628	5.946
NITROBENZENE	0.000	0.002	0.014	0.094	0.701	5.601
M-NITROPHENOL	0.000	0.003	0.016	0.109	0.779	5.959
O-NITROPHENOL	0.001	0.004	0.021	0.111	0.661	4.521
P-NITROPHENOL	0.000	0.003	0.016	0.113	0.815	6.265
PENTACHLOROPHENOL	0.000	0.000	0.004	0.037	0.348	3.362
1-PENTANOL	0.021	0.067	0.226	0.830	3.421	16.371
PHENOL	0.010	0.037	0.142	0.591	2.680	13.613
PHENYLALANINE	0.009	0.034	0.131	0.554	2.613	14.164
O-PHTHALIC ACID	0.001	0.006	0.035	0.210	1.342	9.220
*1-PROPANOL	2.674	7.635	18.903	43.629	100.909	251.392
PROPAZINE	0.001	0.004	0.021	0.136	1.104	11.192
*PROPIONITRILE	3.602	8.783	17.320	31.031	56.727	118.841
*PROPYLENE GLYCOL	2.428	6.966	17.105	38.770	87.473	211.876
PGMEA	0.004	0.021	0.103	0.541	3.025	18.323
PYRIDINE	0.064	0.216	0.733	2.567	9.578	39.196
SILVEX	0.000	0.001	0.006	0.060	0.567	5.448
SIMAZINE	0.001	0.003	0.012	0.057	0.434	5.670
STYRENE	0.002	0.007	0.032	0.175	1.103	8.194
1,1,2,2-TETRACHLOROETHANE	0.054	0.114	0.245	0.585	1.689	6.445
TETRACHLOROETHANE	0.003	0.009	0.030	0.120	0.612	4.204
*TETRAHYDROFURAN	1.292	3.672	9.256	22.115	53.535	140.324
*THIOUREA	16.205	71.121	154.898	213.794	238.842	275.817
TOLUENE	0.003	0.012	0.050	0.239	1.340	9.066
1,1,1-TRICHLOROETHANE	0.062	0.121	0.242	0.551	1.576	6.264
1,1,2-TRICHLOROETHANE	0.289	0.534	0.915	1.648	3.524	10.141
TRICHLOROETHYLENE	0.008	0.024	0.083	0.318	1.455	8.226
1,3,5-TRIMETHYLBENZENE	0.001	0.003	0.015	0.094	0.691	6.011
*UREA	5.602	161.748	1229.890	3396.420	4697.830	4488.760
VALERIC ACID	0.002	0.009	0.058	0.384	2.700	20.248
*VALINE	29.428	104.831	209.386	291.215	350.246	452.384
VINYL ACETATE	0.100	0.251	0.634	1.713	5.255	19.432
VINYL CHLORIDE	1.387	2.658	5.031	10.451	26.476	90.026

M-XYLENE	0.001	0.006	0.025	0.132	0.826	6.310
O-XYLENE	0.002	0.006	0.027	0.139	0.844	6.285
P-XYLENE	0.001	0.006	0.026	0.134	0.837	6.364
2,4-XYLENOL	0.001	0.004	0.022	0.137	0.911	6.575

Carbon Usage Rates	Tank Volume Data I	TANK VOLUME Data II	EBCT	Typical Backwash Rates
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