

TRACE™ GC Ultra K-Factor Quick Reference

Helium Carrier Gas Theoretical K Factors Values

The tables on this card indicate the theoretical K factors for columns of ideal dimensions when using helium, hydrogen, or nitrogen as a carrier gas.

Note: The K-factor values have been calculated considering the film thickness of 0.25 µm for all the columns ID.

For other film thickness the theoretical k-factor will slightly differ from the tabulated value.

COLUMN LENGTH (m)	COLUMN ID (mm)							
	0.10	0.15	0.18	0.20	0.22	0.25	0.32	0.53
2.5	5.329	1.046	0.503	0.330	0.225	0.135	0.050	
5	10.659	2.091	1.006	0.660	0.450	0.270	0.100	0.013
6	12.791	2.510	1.208	0.791	0.540	0.324	0.120	0.016
7	14.922	2.928	1.409	0.923	0.630	0.377	0.140	0.019
8	17.054	3.346	1.610	1.055	0.720	0.431	0.160	0.021
9	19.186	3.765	1.811	1.187	0.810	0.485	0.180	0.024
10	21.318	4.183	2.013	1.319	0.900	0.539	0.201	0.027
15	31.976	6.274	3.019	1.979	1.350	0.809	0.301	0.040
20		8.366	4.025	2.638	1.800	1.078	0.401	0.053
25		10.457	5.032	3.298	2.250	1.348	0.501	0.066
30		12.548	6.038	3.957	2.700	1.618	0.602	0.088
35		14.640	7.044	4.617	3.150	1.887	0.702	0.093
40		16.731	8.051	5.276	3.600	2.157	0.802	0.106
45		18.823	9.057	5.936	4.051	2.426	0.902	0.120
50		20.914	10.063	6.595	4.501	2.696	1.003	0.133
55		23.006	11.070	7.255	4.951	2.966	1.103	0.146
60			12.076	7.914	5.401	3.235	1.203	0.159
65			13.082	8.574	5.851	3.505	1.303	0.173
70			14.089	9.233	6.301	3.774	1.404	0.186
75			15.095	9.893	6.751	4.044	1.504	0.199
80			16.102	10.552	7.201	4.314	1.604	0.213
85			17.108	11.212	7.651	4.583	1.704	0.226
90			18.114	11.872	8.101	4.853	1.805	0.239
95			19.121	12.531	8.551	5.122	1.905	0.253
100			20.127	13.191	9.001	5.392	2.005	0.266
105			21.133	13.850	9.451	5.662	2.105	0.279

Nitrogen and Hydrogen Carrier Gas Theoretical K Factors Values

COLUMN ID (mm)

	0.10		0.15		0.18		0.20		0.22		0.25		0.32		0.53	
	N ₂	H ₂	N ₂	H ₂	N ₂	H ₂	N ₂	H ₂	N ₂	H ₂	N ₂	H ₂	N ₂	H ₂	N ₂	H ₂
2.5	4.651	2.327	0.919	0.460	0.443	0.222	0.291	0.145	0.199	0.099	0.119	0.060	0.044	0.022		
5	9.303	4.655	1.838	0.919	0.886	0.443	0.581	0.291	0.397	0.199	0.238	0.119	0.089	0.044	0.012	
6	11.163	5.586	2.205	1.103	1.063	0.532	0.698	0.349	0.477	0.238	0.286	0.143	0.106	0.053	0.014	
7	13.024	6.517	2.573	1.287	1.241	0.621	0.814	0.407	0.556	0.278	0.333	0.167	0.124	0.062	0.017	
8	14.884	7.448	2.940	1.471	1.418	0.709	0.930	0.465	0.635	0.318	0.381	0.191	0.142	0.071	0.019	
9	16.745	8.379	3.308	1.655	1.595	0.798	1.047	0.524	0.715	0.358	0.429	0.214	0.160	0.080	0.021	
10	18.605	9.310	3.675	1.839	1.772	0.887	1.163	0.582	0.794	0.397	0.476	0.238	0.177	0.089	0.024	0.012
15	27.908	13.965	5.513	2.758	2.659	1.330	1.744	0.873	1.191	0.596	0.714	0.357	0.266	0.133	0.035	0.018
20		18.620	7.350	3.678	3.545	1.774	2.326	1.164	1.588	0.795	0.953	0.477	0.355	0.178	0.047	0.024
25		23.274	9.188	4.597	4.431	2.217	2.907	1.455	1.986	0.994	1.191	0.596	0.444	0.222	0.059	0.029
30			11.025	5.517	5.317	2.660	3.489	1.746	2.383	1.192	1.429	0.715	0.532	0.266	0.071	0.035
35			12.863	6.436	6.203	3.104	4.070	2.036	2.780	1.391	1.667	0.834	0.621	0.311	0.083	0.041
40			14.701	7.356	7.089	3.547	4.651	2.327	3.177	1.590	1.905	0.953	0.710	0.355	0.098	0.047
45			16.538	8.275	7.976	3.991	5.233	2.618	3.574	1.788	2.143	1.072	0.798	0.400	0.106	0.053
50			18.376	9.195	8.862	4.434	5.814	2.909	3.971	1.987	2.381	1.192	0.887	0.444	0.118	0.059
55			20.213	10.114	9.748	4.878	6.396	3.200	4.368	2.186	2.620	1.311	0.976	0.488	0.130	0.065
60				11.034	10.634	5.321	6.977	3.491	4.765	2.384	2.858	1.430	1.065	0.533	0.141	0.071
65				11.953	11.520	5.764	7.558	3.782	5.163	2.583	3.096	1.549	1.153	0.577	0.153	0.077
70				12.872	12.406	6.208	8.140	4.073	5.560	2.782	3.334	1.668	1.242	0.621	0.165	0.083
75				13.792	13.293	6.651	8.721	4.364	5.957	2.981	3.572	1.787	1.331	0.666	0.177	0.088
80				14.711	14.179	7.095	9.303	4.655	6.354	3.179	3.810	1.907	1.419	0.710	0.189	0.094
85				15.631	15.065	7.538	9.884	4.946	6.751	3.378	4.049	2.026	1.508	0.755	0.200	0.100
90				16.550	15.951	7.981	10.466	5.237	7.148	3.577	4.287	2.145	1.597	0.799	0.212	0.106
95				17.470	16.837	8.425	11.047	5.528	7.545	3.775	4.525	2.264	1.686	0.843	0.224	0.112
100				18.389	17.723	8.868	11.628	5.818	7.942	3.974	4.763	2.383	1.774	0.888	0.236	0.118
105				19.309	18.610	9.312	12.210	6.109	8.339	4.173	5.001	2.502	1.863	0.932	0.248	0.124