

# TRACE™ GC Ultra K Factor Quick Reference

HOME

Helium Carrier Gas Expected K Factors Values

The tables on this card indicate the expected K factors for columns of ideal dimensions when using helium, hydrogen, or nitrogen as a carrier gas. Use this information when interpreting results from a Column Evaluation.

Deviations from this chart will occur due to dimensional tolerances.

For example, a 30 m x 0.25 mm column will typically give K factors of 1.5–2.0. Large deviations from the expected values will indicate leaks in the septum or column ferrule or a plugging of the column at the inlet or exit points.

Refer to Chapter 15 of the TRACE™ GC Ultra Operating Manual for more information about column evaluation.

COLUMN LENGTH (m)	COLUMN ID (mm)							
	0.10	0.15	0.18	0.20	0.22	0.25	0.32	0.53
2.5	5.55	1.095	0.53	0.347	0.237	0.142	0.053	
5	11.1	2.19	1.06	0.694	0.474	0.284	0.106	0.014
6	13.3	2.63	1.27	0.833	0.569	0.341	0.127	0.017
7	15.5	3.07	1.48	0.971	0.663	0.398	0.148	0.020
8	17.8	3.51	1.69	1.11	0.758	0.455	0.169	0.022
9	20.0	3.95	1.90	1.25	0.853	0.511	0.191	0.025
10	22.2	4.39	2.11	1.39	0.948	0.568	0.212	0.028
15		6.58	3.17	2.08	1.42	0.852	0.318	0.042
20		8.77	4.23	2.78	1.90	1.14	0.423	0.056
25		11.0	5.29	3.47	2.37	1.42	0.529	0.070
30		13.2	6.34	4.16	2.84	1.70	0.635	0.084
35		15.3	7.40	4.86	3.32	1.99	0.741	0.098
40		17.5	8.46	5.55	3.79	2.27	0.847	0.113
45		19.7	9.52	6.24	4.26	2.56	0.953	0.127
50		21.9	10.6	6.94	4.74	2.84	1.06	0.141
55		24.1	11.6	7.63	5.21	3.13	1.16	0.155
60			12.7	8.33	5.69	3.41	1.27	0.169
65			13.7	9.02	6.16	3.69	1.38	0.183
70			14.8	9.71	6.63	3.98	1.48	0.197
75			15.9	10.4	7.11	4.26	1.59	0.211
80			16.9	11.1	7.58	4.55	1.69	0.225
85			18.0	11.8	8.06	4.83	1.80	0.239
90			19.0	12.5	8.53	5.11	1.91	0.253
95			20.1	13.2	9.00	5.40	2.01	0.267
100			21.1	13.9	9.48	5.68	2.12	0.281
105			22.2	14.6	9.95	5.97	2.22	0.295

Nitrogen and Hydrogen Carrier Gas Expected K Factors Values

COLUMN ID (mm)

	0.10		0.15		0.18		0.20		0.22		0.25		0.32		0.53	
	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>
2.5	4.95	2.49	0.98	0.492	0.471	0.237	0.309	0.155	0.2155	0.106	0.126	0.063	0.047	0.023		
5	9.90	4.98	1.96	0.984	0.943	0.474	0.619	0.311	0.423	0.213	0.253	0.127	0.094	0.047	0.012	
6	11.9	5.98	2.35	1.18	1.13	0.569	0.743	0.374	0.507	0.255	0.304	0.153	0.113	0.057	0.015	
7	13.9	6.97	2.74	1.38	1.32	0.664	0.866	0.436	0.592	0.298	0.355	0.178	0.132	0.066	0.017	
8	15.8	7.97	3.13	1.57	1.51	0.759	0.990	0.498	0.676	0.340	0.406	0.204	0.151	0.076	0.020	
9	17.8	8.96	3.52	1.77	1.70	0.854	1.11	0.560	0.761	0.383	0.456	0.229	0.170	0.085	0.022	
10	19.8	9.96	3.91	1.97	1.89	0.949	1.24	0.623	0.845	0.425	0.507	0.255	0.189	0.095	0.025	0.012
15	29.7	14.9	5.87	2.95	2.83	1.42	1.86	0.934	1.27	0.638	0.760	0.382	0.283	0.142	0.037	0.019
20		19.9	7.82	3.93	3.77	1.90	2.48	1.25	1.69	0.850	1.01	0.510	0.378	0.190	0.050	0.025
25		24.9	9.78	4.92	4.72	2.37	3.09	1.56	2.11	1.06	1.27	0.637	0.472	0.237	0.063	0.031
30			11.7	5.90	5.66	2.85	3.71	1.87	2.54	1.28	1.52	0.765	0.566	0.285	0.075	0.037
35			13.7	6.89	6.60	3.32	4.33	2.18	2.96	1.49	1.77	0.892	0.661	0.332	0.088	0.044
40			15.6	7.87	7.54	3.80	4.95	2.49	3.38	1.70	2.03	1.02	0.755	0.380	0.100	0.050
45			17.6	8.85	8.49	4.27	5.57	2.80	3.80	1.91	2.28	1.15	0.850	0.427	0.113	0.057
50			19.6	9.84	9.43	4.74	6.19	3.11	4.23	2.13	2.53	1.27	0.944	0.475	0.125	0.063
55			21.5	10.8	10.4	5.22	6.81	3.42	4.65	2.34	2.79	1.40	1.04	0.522	0.138	0.069
60				11.8	11.3	5.69	7.43	3.74	5.07	2.55	3.04	1.53	1.13	0.570	0.151	0.076
65				12.7	12.3	6.17	8.04	4.05	5.49	2.76	3.29	1.66	1.23	0.617	0.163	0.082
70				13.7	13.2	6.64	8.66	4.36	5.92	2.98	3.55	1.78	1.32	0.665	0.176	0.088
75				14.7	14.1	7.12	9.28	4.67	6.34	3.19	3.80	1.91	1.42	0.712	0.188	0.095
80				15.7	15.1	7.59	9.90	4.98	6.76	3.40	4.06	2.04	1.51	0.760	0.201	0.101
85				16.7	16.0	8.06	10.5	5.29	7.18	3.61	4.31	2.17	1.61	0.807	0.213	0.107
90				17.7	17.0	8.54	11.1	5.60	7.61	3.83	4.56	2.29	1.70	0.855	0.226	0.114
95				18.6	17.9	9.01	11.8	5.91	8.03	4.04	4.82	2.42	1.79	0.902	0.238	0.120
100				19.6	18.9	9.49	12.4	6.23	8.45	4.25	5.07	2.55	1.89	0.950	0.251	0.126
105				20.6	19.8	9.96	13.0	6.54	8.87	4.46	5.32	2.68	1.98	0.997	0.263	0.133

COLUMN LENGTH (m)