

Impurities in Chlorine Gas Analyser

CG700



- Low level impurities in bulk Chlorine gas
- Highly corrosion resistant analyser
- Flush valve for extended lifetime

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Impurities in Chlorine Gas Analyser

Chlorine is used in a wide range of products like commercial bleaches and disinfectants. It is also used in organic chemicals such as polyvinyl chloride and many intermediates for the production of plastics and other end products. Due to the high oxidising potential, chlorine is extremely dangerous and poisonous. To avoid corrosion special precautions are mandatory for chlorine analysers.

Instrumentation

Figure 1 shows the analyser diagram. O₂, N₂, CH₄, CO and CO₂ are analysed on the permanent gas channel, using TCD and helium carrier gas. These components are measured from low ppm to high %. A second channel is available for analysing H₂ (and He) down to 10 ppm using argon or nitrogen as carrier gas.

All parts in contact with the sample, like valves, couplings, tubing and columns are Dursan-coated, Hastelloy-C, or co-polymer for corrosion resistance. A flush valve with high inertness to chlorine and acids is used to purge the sample path immediately after sample injection, minimising the contact with the harsh medium.

Specification

- Thermo Trace GC1600 four diaphragm gas switching valves and two TCDs, including sample flush valve
- Four micro-packed columns
- Runtime: 8 minutes
- Minimum detectability: 10 ppm
- Repeatability: < 1 %

Results

Figure 2 and 3 show the chromatogram and the repeatability of the analysis of impurities in Chlorine gas (upper channel).

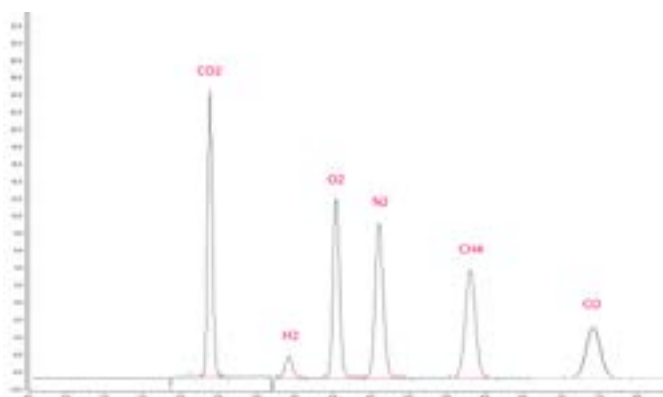


Figure 2 Example chromatogram HPA, including argon/oxygen separation

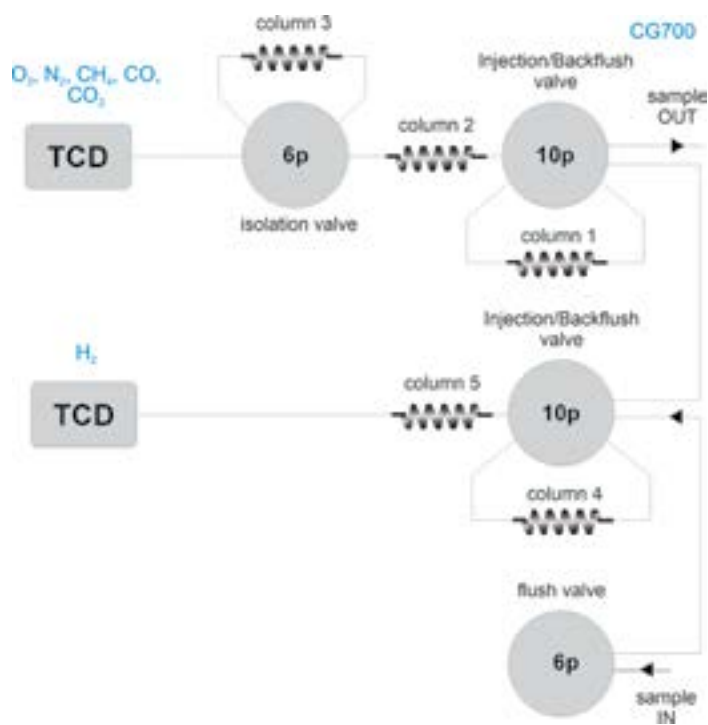


Figure 1 Diagram Impurities in Chlorine Gas Analyser

Inj. No.	Injection Name	Type	Area				
			CO2	H2	O2	N2	CH4
21	GAS Permanent Gases Unknown	1.2534	0.1262	0.5206	1.1328	0.9137	
22	GAS Permanent Gases Unknown	1.2482	0.1258	0.5203	1.1304	0.9135	
23	GAS Permanent Gases Unknown	1.2459	0.1265	0.5195	1.1277	0.9122	
24	GAS Permanent Gases Unknown	1.2433	0.1262	0.5197	1.1271	0.9142	
25	GAS Permanent Gases Unknown	1.2433	0.1261	0.5182	1.1252	0.9156	
26	GAS Permanent Gases Unknown	1.2434	0.1261	0.5200	1.1277	0.9160	
27	GAS Permanent Gases Unknown	1.2433	0.1262	0.5199	1.1268	0.9154	
28	GAS Permanent Gases Unknown	1.2440	0.1258	0.5197	1.1258	0.9146	
29	GAS Permanent Gases Unknown	1.2409	0.1258	0.5188	1.1238	0.9150	
30	GAS Permanent Gases Unknown	1.2395	0.1260	0.5194	1.1251	0.9151	
Maximum		1.2504	0.1265	0.5206	1.1328	0.9160	
Minimum		1.2442	0.1261	0.5196	1.1272	0.9145	
Mean		1.2395	0.1258	0.5182	1.1239	0.9122	
Standard Deviation		0.0032	0.0002	0.0007	0.0027	0.0011	
Relative Standard Deviation		0.26%	0.16%	0.13%	0.24%	0.12%	

Figure 3 Repeatability

Ordering information CG70x - ABCDE

code X	0	1	2	3
GC model, power	1600, 230V	1610, 230V	1600, 115V	1610, 115V

For the selection of options ABCDE (e.g. valve type and passivation, pump and vacuum sampling, rotameter and sample connections, pressure and moisture sensors, hydrogen sensor for safety shut-off, power plug type and more), see the options table in the order guide.

About GAS

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