SRA PROCHEM Software for on-line analysis



Fig.1 – ProChem allows you to display:a table with all the results and then exportable to Excel®. A trend diagrams (up to 8). Average value calculation on hour, days or other variable time scale basis (0-9999h)



Fig.2 – ProChem gives customized peak calculation. These new calculated values are included in the final Chemstation report

Number of stream : Schedule type © Filing © Hour	6 💌	Selection valve control C None G By electrovalves By 8CD multiposition valve - step by step G By 8CD multiposition valve - electical control G By 8CD multiposition valve - serial control G By Moduus electrovalves
	<u>D</u> k	Cancel





Fig.4 – ProChem can read external results, via analogical inputs (4-20mA, 0-10V, WEST 8010-Modbus)





SRA ProChem a user interface which expands the Agilent Chemstation software or EZChrom functionality in the on-line applications

Supervision and automation of ChemStation

SRA ProChem is a software user interface for supervision and automation of Agilent Chemstation for uninterrupted analysis sequence. It allows easy sequence automation and graphical tools for posting results in tables and trends. Standard and customized calculations are available for specific application. With ProChems is possible the management of sampling streams (max. 16), the acquisition of external analogical signals, management of alarms, transmission by connection 4-20 mA or Modbus.

Management of the analysis

Programming of the analyses via sequence (to 999 lines) allowing to define for each line, the stream to be analyzed, method to be used and a time of sweeping pre inject. Thus the software anticipates commutation in order to reduce the duration of analysis. Three operating process:

- The operator programs a certain number of analyses.
- The analyses are connected uninterrupted.

- The sequences are programmed at definite hours and can connect various analyses. Sequence is programmable during the day. i.e. Sequence 1 (4 analysis of stream at 12:00AM. Sequence 2 (2 analysis stream 2 & 2 analysis stream 3) at 6.30PM, etc.

Management of the sampling system

Piloting up to 16 streams of sampling by simple electro-valves, by valves multipositions either by advance and reading BCD pneumatic or electric VICI© Valco type. Possibility to drive a sampling pump or ejector directly piloted by ProChem. Useful if your sample is at atmospheric pressure or far from the analyzer. Sampling time can be set for each stream. Include the possibility to perform an atmospheric pressure equilibration before injection. Useful when your sample pressure change or is different between streams. Dwell time for equilibration is programmable.

Management of the analogical inputs

At the injection time, ProChem can read external results from 8 analogical entries(ex: Pressure, temperature, flow, or any other value from sensor or analyzer) via analogical inputs (4-20mA, 0-20 mA, 0-10V, WEST 8010-Modbus). The value of these entries is read permanently and is safeguarded with the data of the analysis. It is thus possible to visualize these values after each analysis. These values can be then subject of post-analytical calculations.

Display of the results

ProChem recovers calculated data from the Chemstation : Retention times, Concentration, Units, Areas, Other external data (ie.g. Temperature, pressure..), ProChem gives customized peak calculation e.g. [Peak concentration × Sample Pressure] (recovered Pressure value from an external sensor). These new calculated values are included in the final Chemstation report. Results can be posted in ProChem in the form of window, in form of chronological table, with post averages and RSD, in the form of trends (8 selections), where are displayed the various results of the analysis for each constituent.

Alarms

ProChem allows you scheduling up to 8 alarms to monitor the concentration values on the selected peaks.

Example: first alarm at 10% then 2nd one at 15% etc... or alarm on the Peak sum or other monitored value. Alarms are displayed in red on the monitor.

Other options could be provided for customized alarm monitoring

Display of the averages

Prochem makes it possible to calculate averages either schedule, number of day or for a number of analysis. These averages are visible in the various windows of results

Storage and Archive

ProChem creates archive files for each stream as analysis proceeds, e.g. Date, injection time and other different results. (Compatible Excel®)

Data transfer

Option: ProChem allows the data transfer under format ASCII file, 4-20mA (16 signals), Modbus and Profibus.

NGA/RGA Calculations

In option, Prochem can manage calculations RGA, i.e. the calculation of the mass concentrations but also:

- molar mass
- ideal and real density
- ideal and real density
- lower calorific value ideal and real
- higher calorific value ideal and real
- the index of Wobbe
- the factor of compressibility
- carbon

These calculations respect standard ISO/DIS 6976:1995 and of the experimental standard X20-522.

Compatibility matrix

ProChem is compatible with:

Chemstation GC A.10.02 version to the B.04.0 version.

Chemstation MSD D.02 version to the E.02 version

Manages chromatographs GC5890, GC6890, GC6850 and GC7890. Manage the chromatographs coupled with detectors MSD 5893 or MSD 5895.

Manage the interfaces 39500E.

Name	Stream	Followed value	Min. value	Max value	N° alarm	^	Ok.
CH4	All	Raw Conc.	0.00	60.00	1		<u>u</u> r
None	All	Raw Conc.	0.00	100.00	0		
None	All	Raw Conc.	0.00	100.00	0		
None	All	Raw Conc.	0.00	100.00	0		Cancel
None	All	Raw Conc.	0.00	100.00	0		
None	All	Raw Conc.	0.00	100.00	0		
None	A	Raw Conc.	0.00	100.00	0		Parameters
None	All	Raw Conc.	0.00	100.00	0	~	

Fig.5 – ProChem allows you scheduling up to 8 alarms to monitor the concentration values on the selected peaks

Average configuration		
Used value : Average : Number of hours :	Raw Conc. By hour Ray	<u>O</u> k Cancel
Stream :		

Fig.6 – ProChem calculates averages or hourly, daily or be a number of analysis. These averages are visible in the windows of different results.

Results file			
Available parameters RT (sec) Area Normal area Raw conc. Normal conc. Calculated val. Average	<u>A</u> dd >> << <u>D</u> elete <u>D</u> k	Display parameters RT (sec) Area Raw conc.	
Filing by date Directory C:\Temp			



ouș c	ombustion condition 0 °C.	and metering c	ondition 0 °C on a	volumetric basis		
rerer	ence pressure for both col	nouscon and me	kening is 101.525 K	ra		
	Components	Formula	Molar mass	ICV	SCV	z
			g/mol	MJ/m3	MJ/m3	
1	Helium	He	4.003	0.000	0.000	1.00050
2	Hydrogen	H2	2.016	10.777	12.788	1.00060
3	Oxygen	02	31.999	0.000	0.000	0.99900
4	Nitrogen	N2	28.014	0.000	0.000	0.99950
5	Methane	CH4	16.043	35.818	39.840	0.99760
6	Carbon monoxyde	CO	28.010	12.620	12.620	0.99930
7	Cabon dioxyde	C02	44.010	0.000	0.000	0.99330
8	Ethylene	C2H4	28.054	59.040	63.060	0.99250
9	Ethane	C2H6	30.070	63.760	69.790	0.99000
10	Propylene	C3H6	42.081	85.940	91.980	0.98100
11	Propane	C3H8	44.097	91.180	99.220	0.97890

Fig.8 - By default, Prochem provides values for some components perfect for a reference temperature and combustion at 0°C. But other values are available (15°C, 20°C).



SRA Instruments SA

150, rue des Sources 69280 Marcy l'Etoile, France Tél. +33 04 7844 2947 www.sra-instruments.com info@sra-instruments.com

SRA Instruments S.p.A

Viale Assunta, 101 20063 Cernusco S/N Tel +39 02 9214 3258 www.srainstruments.com info@srainstruments.com

