HIGH TEMPERATURE TOC MEASUREMENT

C-Sys: TOC II

Features:

Heatable salt trap
Exchangeable furnace concept
pH-controlled acid dosing
Double-batch operation
Two-channel measurement
Fast flow sample loop + cross flow filter
Rotating slit filter
850 ^{o}C catalytic oxidation
Remote triggering of test, clean & calibrate routines

Benefits:

Easier Maintenance & very low down time
Minimised chemical consumption
Higher precision
Tolerates high salt concentration Handles very dirty samples
Fast calibration
Increased auto fault diagnoses
Very high range availability

Applications:

Product loss control
Industrial wastewater monitoring
Process water control
C based nutrient dose control
Municipal wastewater monitoring

Furnace + Salt trap

TIC Stripper

Heated Salt Trap

C-Sys: TOCII analyses aqueous samples for total organic carbon using the catalytic thermal oxidation technique. Samples are delivered to the analyser via a “fast loop” cross flow filter and subsequently by peristaltic pump into the TIC stripping vessel where acid is added and the mixture air purged to remove inorganic carbon. A pH probe controls the addition of acid. The conditioned sample is then transferred through a rotation slit filter, separating particles according to DIN standards, and injected into the furnace either on a continuous or a batch basis, together with CO2 stripped air to provide the oxygen for reaction. Exhaust gases are cooled and cleaned to remove aggressive acid gases, before going into a non dispersive infra red detector where the level of CO2 is measured. The TOC is calculated either from the sample flow/air flow/CO2 conc., or the total integrated CO2 production over a batch, depending on which mode has been chosen.

System Specification

Ranges: “A” 0.25 – 600mgTOC/l, “B” – 1-2400mgTOC/l, “C” – 2.5 – 6000mgTOC/l, “D” – 5-12000 mgTOC/l
Optional predilution expands range by factor of 20

Performance: According to ISO 15839 - The performance characteristics are determined according to ISO 15839 appendix B. 300 µl sample per measurement are dosed at TOCII (CA72TOC-A1A0B1) resulting in a measuring range of 4 to 800 mg/l. The following data correspond to this system.
It is assumed that the performance characteristics can be transferred to additional measuring ranges with minor deviations.

LOD	-	0.75% FSD	Systematic error for 20% FS (Bias)	-	0.4%
LOQ	-	2.5% FSD	Repeatability for 80% FS	-	1.6%
Short term Drift	-	0.5%/day	Limit of resolution for 80% FS (LDC)	-	4.6%
Repeatability for 20% of full scale	-	0.4%	Systematic error for 80% FS (Bias)	-	2.4%
Limit of resolution for 20% of full scale	-	1.1%			

Inorganic C removal - >95% using a pH controlled TIC scrubber

Mechanical Construction:	Dimensions (hxwxd)	1010mmx600mmx400mm
	Weight:	75 kg
	Materials:	Al powder coated
	Ambient conditions:	5 to +35° C , RH 10 to 90% non condensing
	Weather Protection:	enclosure IP 54
Outputs:	Display:	16rowsx40 char.LCD, with numeric & function keys
	Relay outputs:	4 off (max. 0.25A/50V) limit/malfunction/standby/op control
	Analogue outputs:	1 or 2(optional) 0/4-20 mA, max 500ohms, galvanically separated
	Data:	RS232C - data output & optional control.
Inputs:	8 off 24VDC	active load max 500ohms: Calibration / adjustment / flush screen / power flush / standby / channel switchover
Power requirements:	Supply voltage:	115VAC 50/60 Hz, 230VAC 50/60 Hz
	Power demand:	490VA av, 650VA max
Fuses	Power distrib.:	16A slow blow
	Relays:	4A slow blow type TR5
	Power supply:	2A slow blow type : Microfuse 5x20
Connections:	Water :	pressure 2-4 bar Connection 6/8mm DN or G3/8 threaded
	Drain:	6/8 mm PTFE no restrictions or back pressure
	Compressed air:	Dry, <3ppm CO2, < 3ppm hydrocarbon, const . P=2bar +/- 5%, 650-750 cm3/min In house compressed air must have CO2 scrubber input pressure 4-10bar & pressure reduction valve, connection 4/6 mm
	Exhaust:	Required. No back pressure or accumulation of Halogens or vapours in area. Hose 4/6mm
Process Conditions:	Sample Temp:	0-40 oC
	Sample Flow:	20ml/min
	Sample Vol.	90ml
	Sample quality:	Aqueous, Any flammable components MUST be below limit of ignition, use dilution if necessary

Ordering Information

Indicate:

6. Measuring range.
7. Number of sample streams and either time or external control.
8. Whether batch or continuous mode.
9. 230 or 115VAC
10. Whether fast flow loop and cross filter required

1. CO_2 scrubber or CO_2 scrubber + compressor.
2. Wall or stand mounting.
3. accessories wanted: a. predilution, heated salt trap, pipe backflushing, standby mode for fast loop failure, sample valve for aggressive media
4. 230 or 115VAC furnace conditioning station
5. whether furnace for heated salt trap needed

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