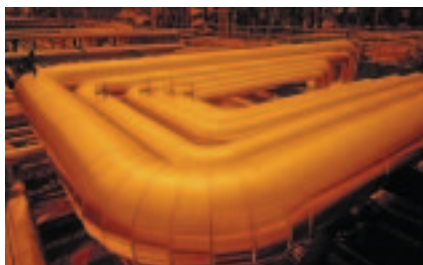
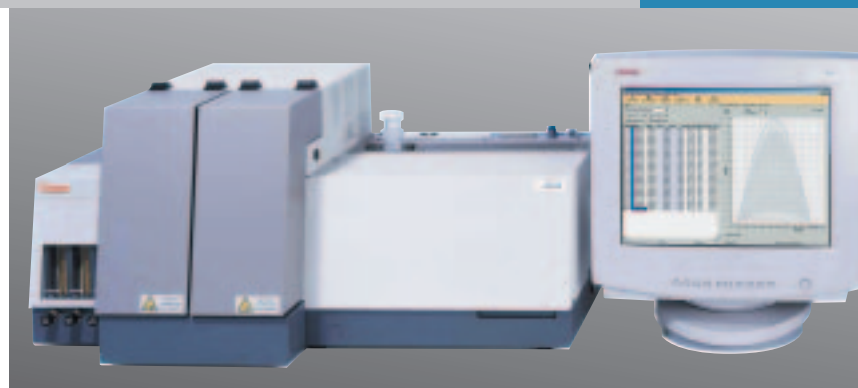


## ECS 1200 & ECS 3000 Total Chlorine Analyzers

Thermo Electron Corporation designed two state-of-the-art micro coulometric analyzers to meet the stringent compliance rules for Total Chlorine measurements in high-grade chemicals, petroleum products and LPG and gases. The ECS 1200 and ECS 3000 are robust analyzers, which perform Total Chlorine analysis in a wide range of liquid, solid and gas samples down to ppb level. These analyzers meet CEN, DIN, ISO and NEN standards and can be connected to several auto samplers for 24-hour operation.



### ECS 1200

The ECS 1200 is a compact analyzer designed for laboratories performing an average number of Total Chlorine analyses. The ECS 1200 produces accurate data at ppm level due to the combination of a temperature controlled dual furnace, a turbo combustion quartz tube and a large scrubber for optimal conditioning of gas.

#### Advantages:

- Compact design saves bench space
- Maximum versatility with respect to liquid, solid and gas samples
- Low maintenance design
- Accurate and reliable data according to international standards

### ECS 3000

The ECS 3000 is a sensitive, robust and cost effective analyzer and when equipped with one of the auto samplers it offers extremely reliable sub ppm level at a 24 hour based operation. This modular instrument saves bench space and reduces investment costs because of the fast and easy switching between the chlorine and sulfur detectors.

#### Advantages:

- High productivity results in low cost per analysis
- High stability, sensitivity and reliability due to a unique temperature controlled titration cell
- Maximum versatility with use of the gas, liquid and solid auto samplers.
- Low maintenance design assisted by optimal combustion and conditioning of gasses.



## Technical Specifications

Dimensions (ECS 1200)	730 (W) x 365 (H) x 450 (D) mm 29 (W) x 14 (H) x 18 (D) inches
Dimensions (ECS 3000)	1017 (W) x 390 (H) x 590 (D) mm 40 (W) x 15 (H) x 23(D) inches
Furnace voltage	2 x 42 V, 50/60 Hz
Furnace power	2 x 300 W
Furnace temp. sensor	2 x Ni-Cr/Ni
Furnace temperature	1250 °C max.
Type of Analyses	Total Chlorine
Type of Detector	Microcoulometer
Software	Windows™ based ThEuS analytical software
Output	RS 232
Computer	Minimum Pentium IV processor
Compliance	ASTM D4929, D5194, D5808
Optional	ELS 3000, Liquids auto sampler ESA 2000, Solids auto sampler EGM 1700, Gas & LPG introduction module Total Sulfur-Microcoulometric Technique, TS-UV module (ECS 3000 only)

## Facility Requirements

Voltage	115/230 V, 50/60 Hz
Power	1200 W max.
Gas connector	1/8" Swagelok
Gasses	O <sub>2</sub> (99,6%) medical grade Ar or He (99,998%) technical grade
Gas pressure	1-3 Bar (14-45 psig)
Ambient temperature	15 – 35 °C

## Analytical Specifications

	ECS 1200	ECS 3000
<b>Working ranges*:</b>		
Chlorine liquids	0.1 - 5000 mg/kg	0.05 - 5000 mg/kg
Chlorine solids	0.5 - 5000 mg/kg	0.25 - 5000 mg/kg
Sulfur MCT liquids	0.2 – 5000 mg/kg	0.1 – 5000 mg/kg
Sulfur MCT solids	1 – 5000 mg/kg	0.5 – 5000 mg/kg

### Quantity of sample

Liquids	1-100 µl	1 – 250 µl
Solids	0.1 – 30 mg	0.1 – 100 mg
Analysis time*	8-10 min.	6-8 min.
Inaccuracy	< 5%	< 5%
Legislation/protocols	ASTM, IP, UOP	ASTM, IP, UOP

Sample matrix	<b>Total Sulfur P-UV</b> light/heavy hydrocarbons
Working range*	0.02 - 5000 mg/kg
Inaccuracy	< 5%
Legislation/protocols	ASTM, IP, UOP

\* Depends on typical applications