MOL ANALYTIK GmbH

MOL CS1500

ELEMENTAL ANALYZER FOR CARBON AND SULFUR IN SOLID SAMPLES

The Finest in Analytic

www.mol.de

MOL CS1500 ELEMENTAL ANALYZER

The Mol CS1500 is a compact and powerful elemental analyzer designed for determining carbon and sulfur in solid, predominantly organic samples like coal, coke, oil, ashes, catalysts, lime, gypsum, soils, rubber, waste and other solid and even some liquid materials. Its low-maintenance and robust construction, numerous thoughtful features of the central control, operation, and evaluation software Mol, and its high reliability even in rough environments make it a versatile solution for a wide range of applications in research, industry, and beyond.

01 COMPACT AND POWERFUL

02 INTEGRATED HIGH-TEMPERATURE FURNACE

03 HIGH SAMPLE WEIGHTS

04 INDIVIDUALLY TAILORED MEASUREMENT RANGES

05 FLEXIBILITY THROUGH UPGRADE OPTIONS

06 POWERFUL SOFTWARE OFFERING NUMEROUS FUNCTIONS

07 DEDICATED SERVICE

08 MADE FOR HEAVY INDUSTRY AND ROUGH ENVIRONMENT

09 HIGH-END INSTRUMENT AT AFFORDABLE PRICE

SOLUTIONS IN DETAIL

Compact and Powerful

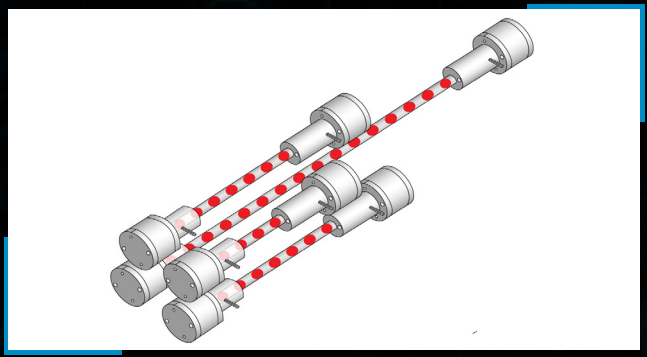
With a volume of just under 180 liters, the Mol CS1500 is one of the most compact devices in its class. Despite its space-saving design, it delivers high efficiency without compromising comfort or performance, making it ideal for laboratories with limited available space.

Integrated High-Temperature Furnace up to 1,550 °C:

The high-temperature furnace integrated into the Mol CS1500 offers a maximum temperature of 1,550°C with a precision of 0.1°C, ensuring optimal conditions for combustion or decomposition of samples.

Key Features of High Sample Weights

- **Higher Sample Weights:** The Mol CS1500 can process larger sample volumes, such as soil samples weighing up to 10 grams.
- **Enhanced Accuracy:** Larger sample weights reduce the likelihood of errors caused by heterogeneous sample composition.
- **Wide Application Range :** Accommodates various sample types, ensuring representative results even with larger volumes.



Individually tailored measurement ranges at no additional cost

To ensure that your analyzer is perfectly suited to your needs, the Mol CS1500 offers the possibility to customize its measurement range to your specific samples – at no extra charge.

In our state-of-the-art application laboratory in Hohenbrunn, near Munich, our experts analyze your samples. Based on these results, the measurement range of your analyzer is precisely adapted to your specific requirements in close collaboration with our production team. Additionally, we provide tailored recommendations for various material applications to enhance the efficiency of your analyses further.

This service guarantees a bespoke solution, perfectly aligned with your needs – precise, reliable, and without compromise.

Flexibility Through Upgrade Options

The Mol CS1500 offers the ability to integrate additional infrared detectors – even at a later stage.

• **Modular configuration:** Initially configured for specific applications such as carbon or sulfur analysis, the device can later be expanded to meet new requirements for elements or measurement ranges.

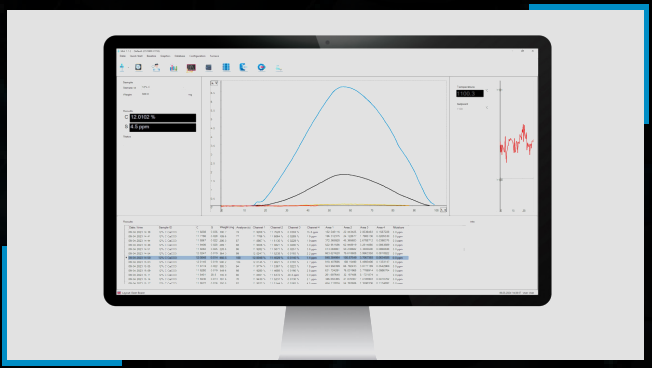
• **Long-term investment:** Perfect for laboratories with evolving analytical needs.

Powerful Software Offering Numerous Functions

Mol Instruments are designed with a special focus on user friendliness.

This also includes the powerful Mol software which is the central control, evaluation and operation software for all Mol devices like carbon and sulfur analyzer Mol CS1000, Mol CS1500 as well as all Mol Premier high-temperature furnaces.

Mol software is windows®-based, multilingual, supports lots of different languages, easy to understand and use and provides numerous functions.



POWERFUL SOFTWARE OFFERING NUMEROUS FUNCTIONS

Dedicated-Service Reliable Support You Can Count On

We are committed to providing not only a high-quality product but also exceptional support. Our dedicated service includes technical assistance, troubleshooting, and customized solutions to ensure optimal performance of your system, from initial consultation to ongoing operational support.

Whether you have questions or face challenges, our experts are always ready to help, ensuring that your requirements are consistently met. With our personalized service, we create the foundation for smooth and efficient use of your systems.

Made for Heavy Industry and Rough Environment

Built for environments with high dust, vibration, and temperature extremes, the Mol CS1500 delivers consistent performance even under harsh industrial conditions

Conclusion:
Reliable and Proven Analysis

The Mol CS1500 is designed for laboratories that require precise and reliable results in the determination of carbon and sulfur in solid samples. With its combination of innovative technology and compact design, it offers an ideal balance of functionality and efficiency.

In addition to a technically sophisticated product, you benefit from our personalized service, which goes far beyond standard support.

Standards Compliance

Mol CS1500 meets or exceeds the requirements of all common ASTM, DIN, EN or ISO standards.

TECHNICAL SPECIFICATIONS

GAS SUPPLY

- Oxygen, purity 99.5%
- Pressure: 2 – 4 bar (30 – 60 psi)

CHEMICAL REAGENTS

- NaOH on carrier (Ascarit)
- Magnesium Perchlorate (Anhydrone)

POWER SUPPLY

- 230 VAC ±10%, 50/60 Hz; 16 A fuse

STANDARD SAMPLE WEIGHT

- 350 mg

TYPICAL ANALYSIS TIME

- 60 – 120 seconds

MEASURING RANGE

- Carbon: 0.025 mg – 500 mg C (absolute), up to 100% C*
- Sulfur: 0.025 mg – 100 mg S (absolute), up to 20% S*

MEASURING PRINCIPLE

- Non-dispersive infrared (NDIR) absorption

*Measuring ranges based on a 500 mg sample weight

TECHNICAL SPECIFICATIONS

SAMPLE CARRIER

- Ceramic combustion boats

DIMENSIONS

(Without boat storage and dust trap installed)

- (W x H x D) 60 x 57 x 55 cm (24" x 23" x 22")

WEIGHT

- Approximately 80 kg

AMBIENT CONDITIONS

- Operational range: 15 – 33°C
- Humidity: 20 – 80%

FURNACE

- Resistance furnace with horizontal ceramic tube
- Temperature range: 450 – 1,550°C
- Resolution: 0.1°C

PERIPHERALS

- Monitor, PC, Balance

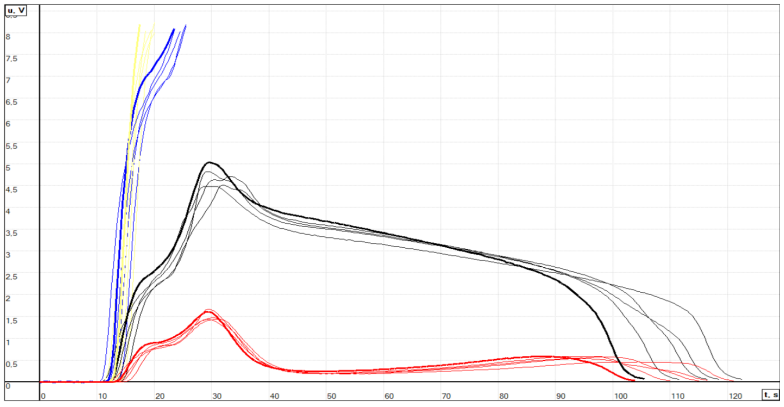
APPLICATIONS

Determination of total carbon (TC) content and total sulfur (TS) content in coal

Mol Application note: 135022

SAMPLE	% CARBON	% SULFUR	WEIGHT (MG)	TIME (S)
Coal	62.1202	2.4325	453.0	120
Coal	61.7806	2.4148	448.2	116
Coal	62.0321	2.4146	452.5	111
Coal	62.0422	2.4211	453.8	118
Coal	61.9849	2.4192	449.9	117
Coal	62.0605	2.4176	450.1	122
Coal	62.3948	2.4252	452.1	105
Coal	62.3714	2.4155	451.4	112

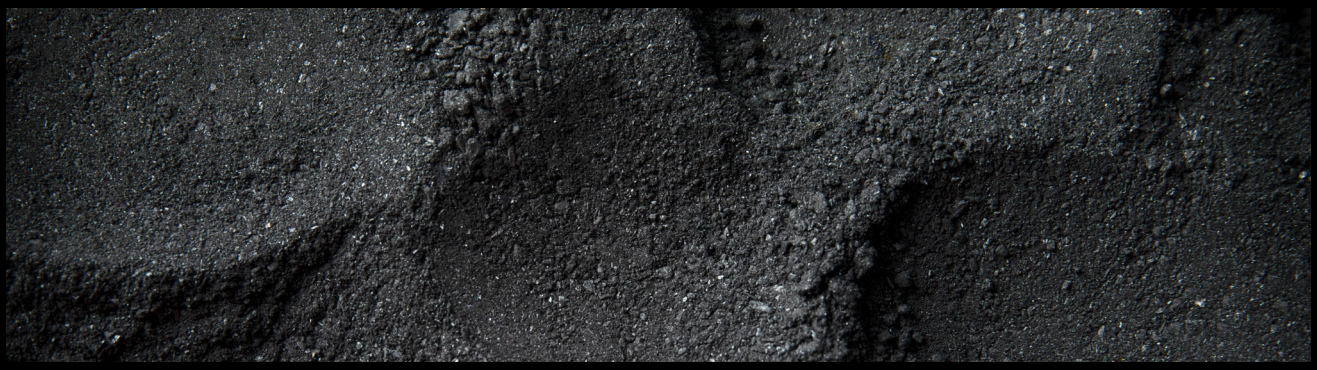
Average value:	**62.09834**	**2.42007**
Deviation abs:	0.20204	0.00619
Deviation rel:	0.32536 %	0.25560 %



The diagram shows typical measurement curves for TC and TS analysis where blue is low carbon (sensitive), black is high carbon (insensitive), yellow is low sulfur (sensitive) and red is high sulfur (insensitive).

Determination of total carbon content in solid graphite sample

Mol Application note: 135012

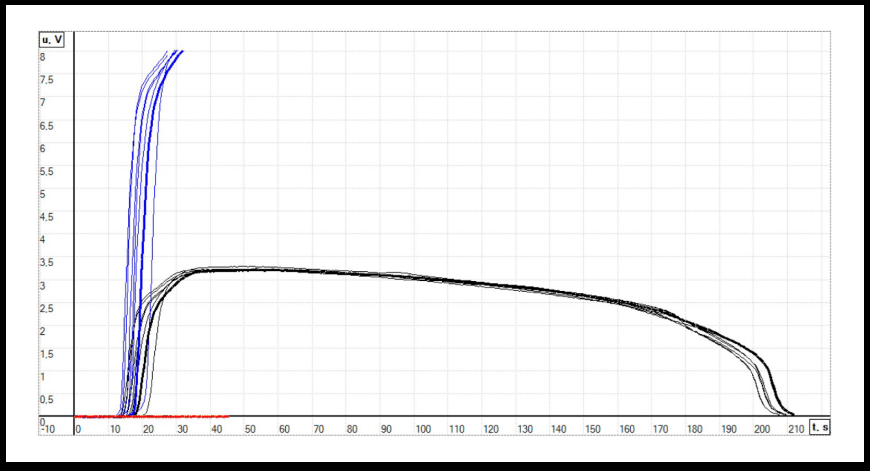


SAMPLE	% CARBON	WEIGHT (MG)	TIME (S)
Graphite	100.0921	449.8	209
Graphite	99.8901	450.4	218
Graphite	100.4538	449.8	200
Graphite	100.2865	450.9	221
Graphite	99.6255	450.2	212
Graphite	99.7899	450.2	207
Graphite	99.7220	450.7	202
Graphite	99.8084	449.5	198

Average value: 99.95854

Deviation abs: 0.29109

Deviation rel: 0.29121 %



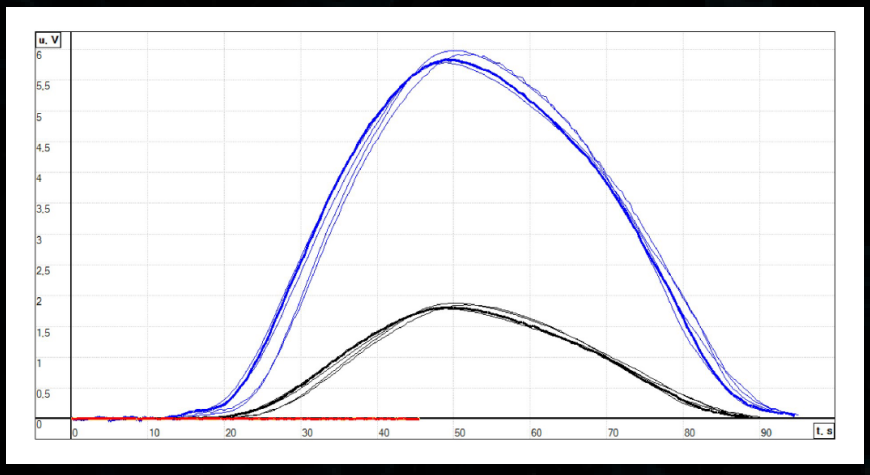
The diagram shows typical measurement curves for TC analysis where blue is low carbon (sensitive), black is high carbon (insensitive), yellow is low sulfur (sensitive) and red is high sulfur (insensitive).

Determination of total carbon content in Solid calcium carbonate sample

Mol Application note: 135002

SAMPLE	% CARBON	WEIGHT (MG)	TIME (S)
$CaCO_3$	12.0204	349.7	105
$CaCO_3$	11.9948	350.5	93
$CaCO_3$	12.0371	351.6	97
$CaCO_3$	12.0084	351.3	90
$CaCO_3$	12.0248	351.6	90
$CaCO_3$	12.0194	352.0	94
$CaCO_3$	11.9934	351.3	94
CaCO3	12.0143	351.5	93
$CaCO_3$	12.0064	352.1	104
$CaCO_3$	12.0193	352.2	94
$CaCO_3$	11.9948	349.0	89
$CaCO_3$	12.0020	351.2	94
$CaCO_3$	12.0484	351.6	95

Average value: 12.01412
Deviation abs: 0.01667
Deviation rel: 0.13872 %



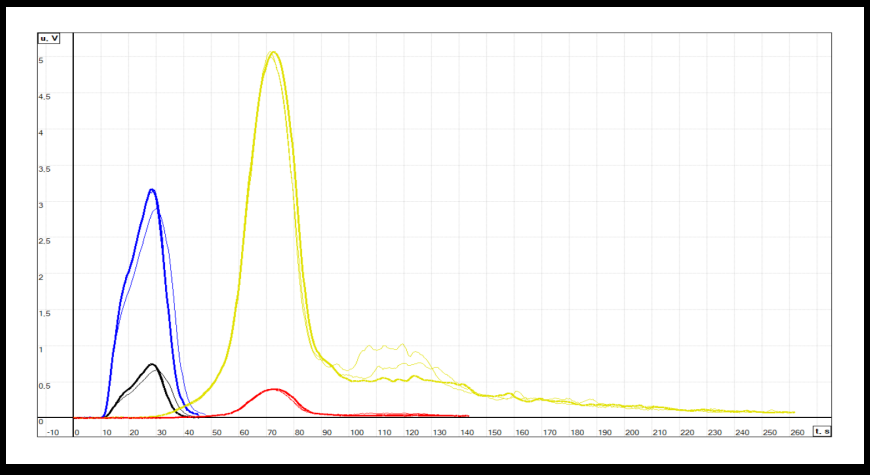
The diagram shows typical measurement curves for TC analysis where blue is low carbon (sensitive), black is high carbon (insensitive), yellow is low sulfur (sensitive) and red is high sulfur (insensitive).

Determination of total carbon (TC) content and total sulfur (TS) content in cement

Mol Application note: 135032

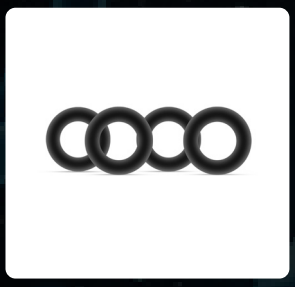
SAMPLE	% CARBON	% SULFUR	WEIGHT (MG)	TIME (S)
Cement	1.1339	0.4991	503.3	242
Cement	1.1135	0.5172	504.3	259
Cement	1.1424	0.5220	500.5	254
Cement	1.1675	0.5110	499.8	248
Cement	1.1117	0.5083	504.1	262
Cement	1.0924	0.4927	498.3	252
Cement	1.1379	0.4986	503.9	268
Cement	1.1206	0.5079	501.9	266

Average value:	**1.12751**	**0.50711**
Deviation abs:	0.02297	0.00989
Deviation rel:	2.03710 %	1.94998 %



The diagram shows typical measurement curves for TC and TS analysis where blue is low carbon (sensitive), black is high carbon (insensitive), yellow is low sulfur (sensitive) and red is high sulfur (insensitive).

SPARE AND WEAR PARTS CONSUMABLES

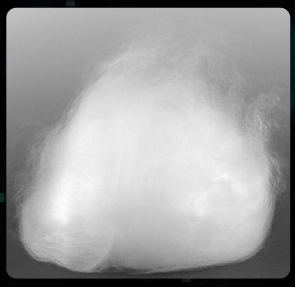


000 1000 0010

O-Ring for chemicals, 4 pcs.

000 1000 0040

Reagent tube, 2 pcs.



000 1000 0060

Glass wool, 50 g

000 1000 0080

Sodium hydroxide, 500 g

000 1000 0090

Magnesium perchlorate , 454 g

000 1000 0110

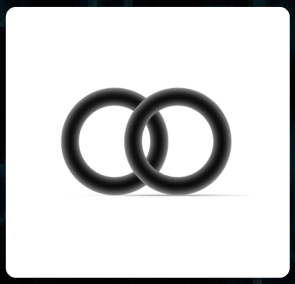
Ceramic boats, 500 pcs.

000 1000 0130

Tube of high vacuum grease

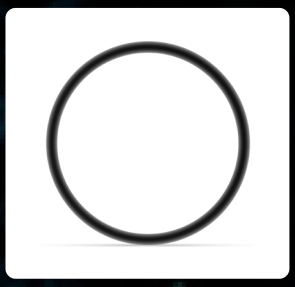
000 1000 0170

Glass wool, 500 g



000 1350 0010

O-Ring combustion tube, 2 pcs.



000 1350 0020

O-Ring dust trap, 1 pc.

000 1350 0030

Safety ring

000 1350 0080

Combustion tube

SPARE AND WEAR PARTS CONSUMABLES

000 1350 0090

Pre-heating tube

NO IMAGE AVAILABLE

000 1350 0100

Flow reactor, quartz glass

000 1350 0110

Boat Stop

000 1350 0120

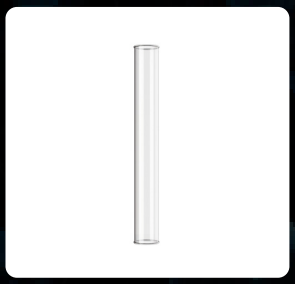
Heating element, 1 pc.

000 1350 0130

Heating elements, 4 pcs.

000 1350 0140

Aluminium connectors, 4 pcs



000 1350 0190

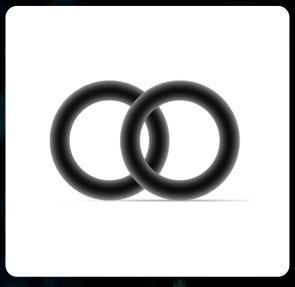
Reagent tube, moisture trap

000 1350 0200

Outer combustion tube, ceramic

000 1350 0210

Ceramic distance holder, 8 pcs



000 1350 0220

O-Ring moisture trap, 2 pcs.

000 1800 0010

Ceramic crucibles, pack of 1.000

000 1800 0020

Wolfram, 2.5 kg

CHEMICALS AND REFERENCE MATERIALS

000 1000 0140

Graphite, 50 g

000 1000 0150

Calcium carbonate, 50 g

000 1000 0160

Barium sulphate, 50 g

000 1000 0180

Graphite, 100 g

000 1000 0190

Calcium carbonate, 100 g

000 1000 0200

Iron phosphate, 50 g

000 1000 0210

Sulfur in coal 0.1 – 0.5%

000 1000 0220

Sulfur in coal 0.5 – 1.0%

000 1000 0230

Sulfur in coal 1.0 – 1.5%

000 1000 0240

Sulfur in coal 2.0 – 3.0%

000 1000 0250

Sulfur in coal 3.0 – 4.0%

000 1000 0260

Sulfur in coal 4.0 – 5.0%

000 1000 0270

Sulfur in coal 5.0 – 6.0%

000 1000 0280

Sulfur in coal > 6.0%

TYPICAL SAMPLE MATERIALS IN ELEMENTAL ANALYSIS

MOL ANALYTIK GmbH

THANK YOU

For contact, please visit our website or the provided social media accounts. Feel free to reach out for more information anytime!

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