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The **DUMALYZER** series of instruments enables the analysis of the composition of chemical elements in solid and liquid substances: nitrogen, carbon, hydrogen, sulfur, and oxygen.

Dumalyzer: the series of instruments

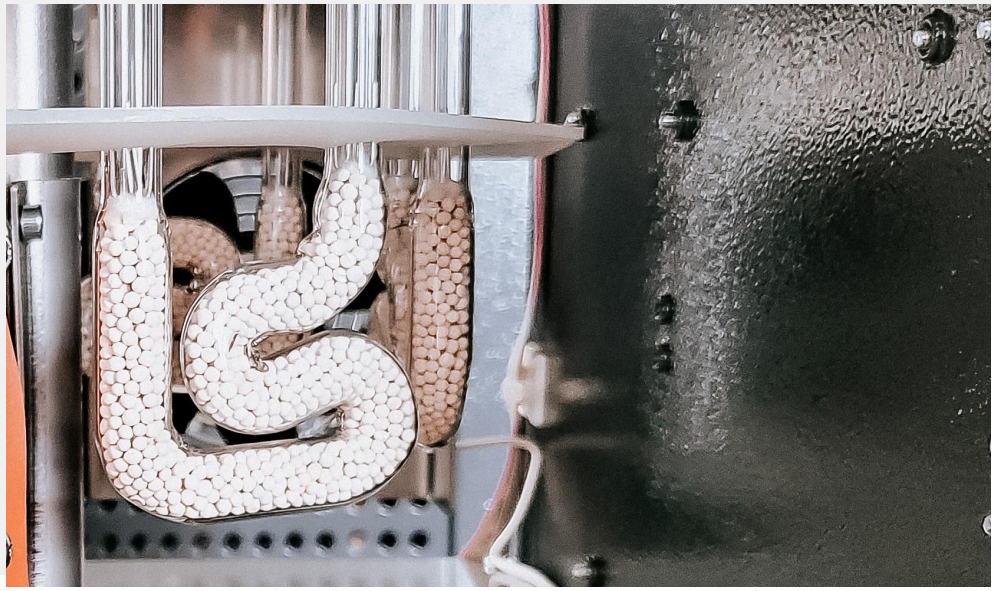
The Dumalyzer series includes:
1. Nitrogen/protein analyzer **Dumalyzer N/Protein**
2. Nitrogen/carbon analyzer **Dumalyzer CN**
3. Elemental analyzer **Dumalyzer CHNS-O**

The **DUMALYZER** series analyzers are designed for the quantitative determination of Carbon, Hydrogen, Nitrogen, Sulfur, and Oxygen contained in organic and inorganic substances. For example, they are used in pharmaceuticals, feed, soil and fertilizers, and other industrial sectors.

Operating principle of the Dumalyzer series instruments

The operation of the instruments is based on the Dumas method. This involves burning the sample material in oxygen, followed by the separation of combustion products and the sequential determination of each element by a detector.

The application of this method, combined with innovative technical solutions and a unique program developed by the experienced engineers at Costech Microanalytical, has enabled the Dumalyzer instruments to achieve high precision, automation, and reliability.



Advantages of the Dumalyzer series instruments

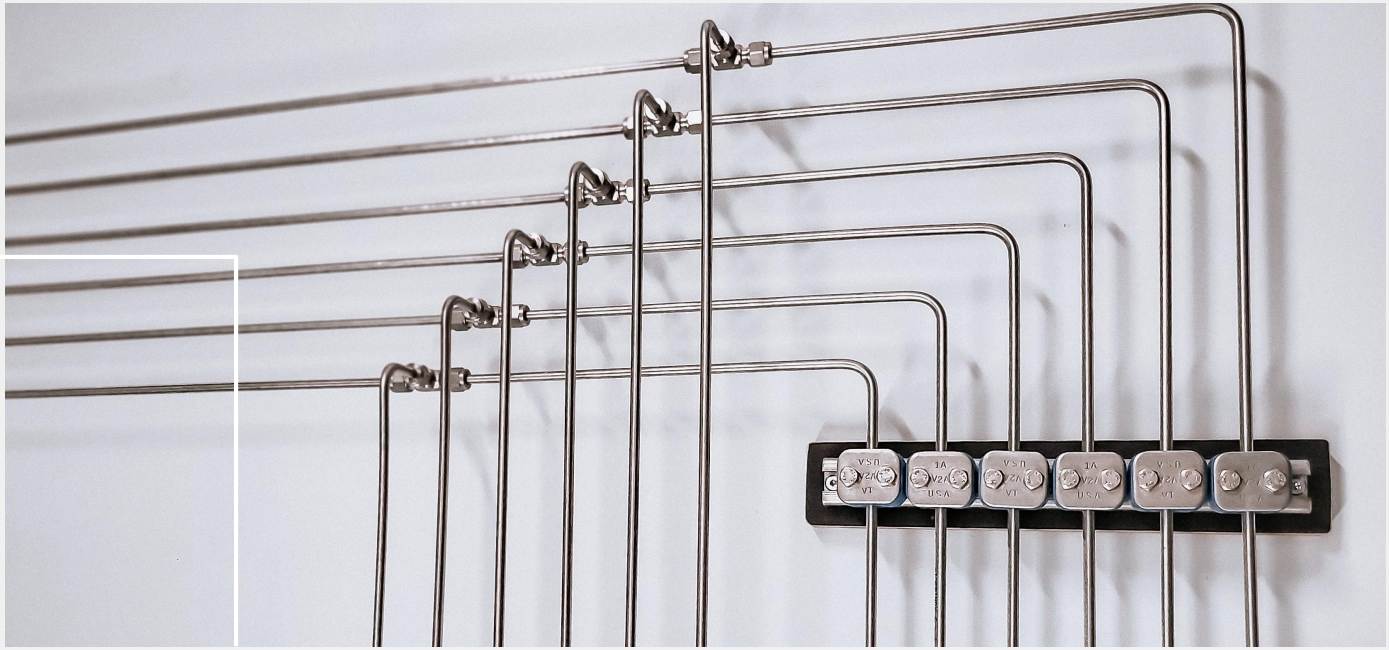
- Proprietary software
- Full automation of the analysis process
- High accuracy and reproducibility of results
- Short analysis time
- Low operational cost of the instruments
- Wide range of applications

Proprietary software:

- The intuitive interface of the **DUMALYZER** instruments' software makes operation easy and accessible.
- The content of elements in the analyzed substance, along with all additional information, is continuously displayed on the screen and stored in memory.
- Measurement results can be printed in the form of a "measurement protocol." The template of the protocol can be modified in agreement with the client.
- The process of analyzing the elements is interactively displayed on the graphical interface within the software, and detailed measurement results are consolidated into a structurally thoughtful database, ensuring simplicity and transparency in information management.
- Periodic updates of the software with new versions are made in agreement with the client.
- Built-in self-diagnostic functions of the devices allow for timely prevention of critical situations, extending their operational lifespan.

Full automation of the analysis process

The use of a unique adjustable gas flow system controlled by microprocessors ensures control over all analysis functions in real time, minimizing human involvement.



High accuracy and reproducibility of results

- Optimized measurement modes, pre-calibration of gas flow regulators and the detector ensure high accuracy and reliability of results.
- The use of an innovative detection method provides stable and reliable analysis results.

Short analysis time

- The analysis time for samples ranges from 3 to 15 minutes, depending on the selected configuration of the instrument.
- The optimized combustion process allows for the analysis of a large number of samples with minimal time expenditure.

Low operational cost of the instruments

The built-in gas-saving feature adapts to the combustion system of the sample relative to the selected measurement configuration.

Wide range of applications

The ability to select measurement modes allows the use of a wide range of standard analysis methods, making the **DUMALYZER** instruments a versatile solution for chemical laboratories in various industries.

Determination of carbon, hydrogen, nitrogen, sulfur, and oxygen in:

- Soil (fertilizer), for example, DIN 11512-20, DIN 19684-Part 4, or AOAC 973.48
- Fertilizers, for example, AOAC 993.13, DIN EN 13654-2
- Cellulose, Petroleum, Coffee, Plastics, Paper, Tobacco, Water, for example, DEV, H11, H28
- And in other substances.

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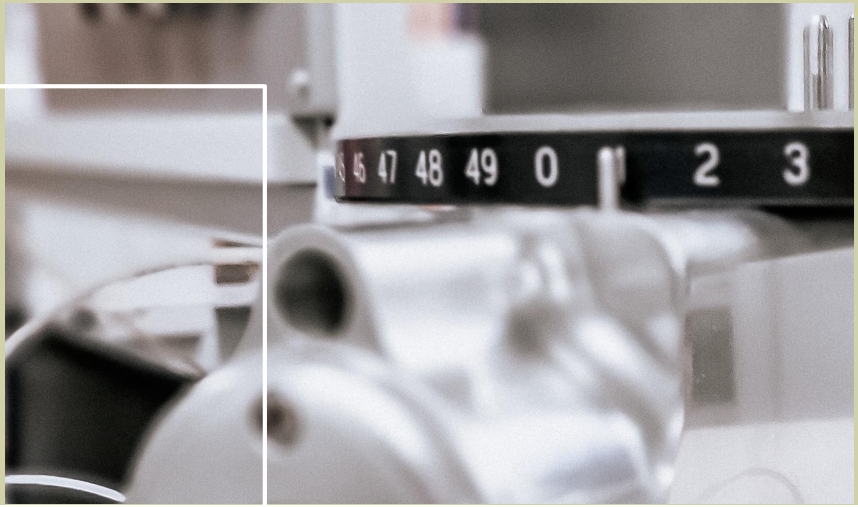
Instrument Specifications



	Dumalyzer N / Protein	Dumalyzer CN	Dumalyzer CHNS-O
Analytical Data			
Sample Type	Liquid or solid substances, weighed in tin or silver capsules		
Sample Weight	0,5 mg - 1 g depending on the content of organic matter		0,05 mg - 50 mg samples with low organic content up to 300 mg
Detection Limits	N 0,01 mg - 50 mg Protein 0,05 - 100 %	N 0,01 mg - 50 mg C 0,02 mg - 100 mg	N 0.002-20 mg C 0.002-20 mg H 0.002-5 mg S 0.002-6 mg O 0.002-2 mg
Measurement Accuracy	< 0,5 % with 150 mg test substance (EDTA)		<0,2 % * with 10 mg certified standard, purity >99,9% *Depending on the type and homogenety of the sample material
Analysis Time	Nitrogen: 3 ÷ 4 минуты, depending on the weight and type of the sample	Nitrogen: 3 ÷ 4 минуты, Carbon: 9 ÷ 12 минут, depending on the weight and type of the sample	CHNS-O - 3 ÷ 15 min, depending on the mass and type of the substance analyzed, as well as the selected analysis mode.
Measurement Modes	N	CN / N	CHNS / CNS / CHN / CN / N / O

	Dumalyzer N / Protein	Dumalyzer CN	Dumalyzer CHNS-O
Technical Data			
Gases Used (and Input Pressures))	He purity 99.999 % (5.0) - 3 bar Ar purity 99.999 % (5.0) - 3 bar O_2 purity 99.999 % (5.0) - 3 bar Compressed air / technical nitrogen purity 99.9 % (3.0) - 4 bar – free from dust, oil traces, and moisture	He purity 99.999 % (5.0) - 3 bar O_2 purity 99.999 % (5.0) - 3 bar Compressed air / technical nitrogen purity 99.9 % (3.0) - 4 bar – free from dust, oil traces, and moisture	He purity 99.999 % (5.0) - 2 bar O_2 purity 99.999 % (5.0) - 2 bar Compressed air / technical nitrogen purity 99.9 % (3.0) - 3 bar – free from dust, oil traces, and moisture
Temperature control limits for the furnaces: **Combustion furnace** **Reduction furnace** **Desorption furnace** **Column thermostat**	 400 ÷ 1100°C 400 ÷ 1100°C 50 ÷ 350°C -		 400 ÷ 1100°C 400 ÷ 1100°C - 30 ÷ 110°C
Operating Temperature:	15 ÷ 35°C		
Operating Voltage:	230 V AC ± 10%		
Frequency:	50/60 Hz		
Power Consumption:	max 6A		max 5A
Dimensions (W x D x H):	805 x 410 x 525 mm (H+180 mm with auto-sampler)		805 x 410 x 525 mm (H+170 mm with auto-sampler)
Weight:	65 kg	66 kg	65 kg

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Information about Costech Microanalytical:

- Over 20 years in the global market.
- Extensive experience in the development and production of analytical equipment.
- Unique patented solutions and the application of innovative technologies.
- Collaboration with leading industry specialists.
- Over 600 laboratories worldwide are equipped with our devices.
- A competent team of engineers-developers and technical specialists.
- Guarantee of quality and reliability of the devices.

Customer Support includes:

- On-site equipment installation (carried out by the regional representative of the company).
- Training of laboratory personnel (conducted by the regional representative of the company).
- Reference and introductory materials (available at www.costech.ee).
- Online technical consultations (via Zoom/Skype).
- Service maintenance.
- Ordering and sales of consumables/accessories.
- Analytical support.

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