

**Costech**  
MICROANALYTICAL



**DUMALYZER™ CN**

**Automated Carbon & Nitrogen Analyzer  
by Dumas Combustion Method**

# Overview & Purpose of Dumalyser™ CN

**Dumalyser™ CN** is a fully automated analyzer for accurate and rapid determination of **carbon (C)** and **nitrogen (N)** in organic and inorganic samples using the Dumas combustion method.

It is used in agricultural, environmental, food, feed, industrial and research laboratories requiring reliable, high-throughput CN analysis.

Typical applications include soils, sediments, fertilizers, feedstuffs, plant tissues, organic materials, chemicals and various environmental samples.



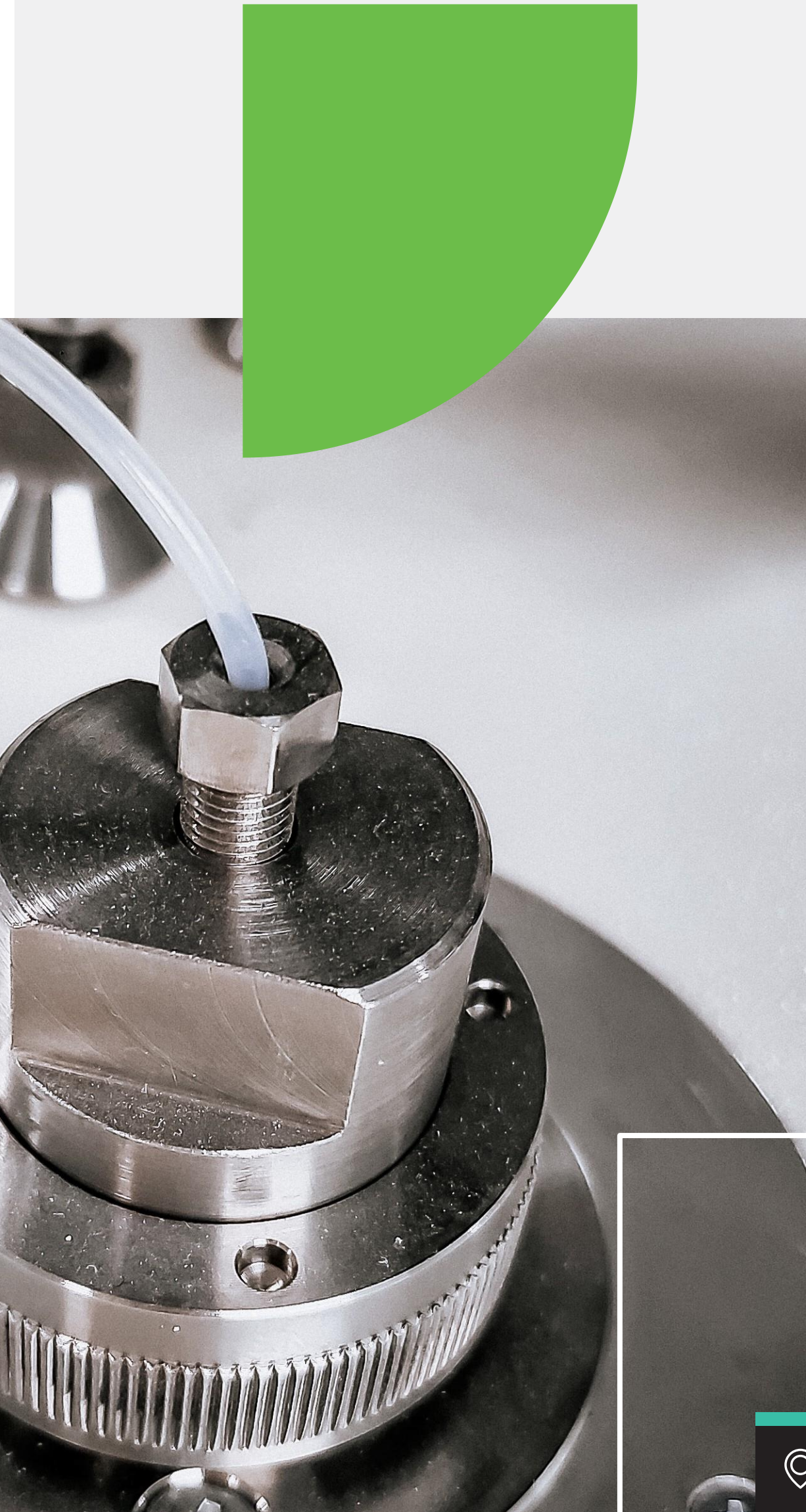
# Principle of Operation Dumalyzer™ CN

A precisely weighted sample is combusted in oxygen atmosphere at the high-temperature. The generated combustion gases pass through oxidation, reduction and purification stages, removing CO<sub>2</sub>, H<sub>2</sub>O and by-products. The remaining nitrogen and carbon-derived gases are quantified by a Thermal Conductivity Detector (TCD).

- Dumalyser™ Manager software automatically controls all analytical stages in real time and calculates the final C and N content.
- The combination of the Dumas method with optimized combustion chambers and microprocessor-controlled gas-flow technology ensures high precision, full automation and long-term reliability of the **Dumalyser CN** analyzer.



# Key Advantages:



- **Short analysis time**

(4–12 minutes) Optimized combustion and processing enable rapid results and efficient high-throughput workflows.

- **High analytical accuracy and outstanding reproducibility**

Stable temperature control, optimized flow rates and precise TCD detection ensure consistent analytical performance.

- **Full automation of all analytical steps**

A microprocessor-controlled gas-flow system provides real-time control of combustion, reduction and detection stages, minimizing human involvement and eliminating manual adjustments.

- **Low operational cost**

The gas-saving architecture dynamically adjusts consumption based on the selected mode, significantly reducing helium and oxygen usage.

- **Wide range of applications**

Supports recognized Dumas-based methods for nitrogen and carbon determination across food, feed, agriculture and environmental testing.

- **Proprietary software platform**

Dumalyser<sup>TM</sup> Manager provides automated workflow control, data traceability,

# Applications & Standard Methods

**Dumalyser™ CN** supports carbon/protein determination for:

## **Soils & Agriculture:**

ISO 10694 · ISO 13878 · EN 13654-2 · AOAC 973.48

## **Environmental:**

EPA 440.0 · ISO 15178

## **Food & Feed:**

AOAC 990.03 · AACC 46-30 · ISO 16634

## **Industrial & Organic Materials:**

C & N in plant tissue, biomass, chemicals and other organic/inorganic matrices.



Analytical Data	Dumalyzer CN
<b>Sample Type</b>	Liquid or solid substances, weighted in tin or silver capsules
<b>Sample Weight</b>	0,5 mg - 1 g depending on the content of organic matter
<b>Detection Limits</b>	N 0,01 mg - 50 mg C 0,02 mg - 100 mg
<b>Measurement Accuracy</b>	< 0,5 % with 150 mg reference substance (EDTA)
<b>Analysis Time</b>	Nitrogen: 3 ÷ 4 минуты, Carbon: 9 ÷ 12 минут, depending on the weight and type of the sample
<b>Measurement Modes</b>	CN / N

Technical Data	Dumalyzer CN
<b>Gases Used (and Input Pressures))</b>	He purity 99.999 % (5.0) - 3 bar O <sub>2</sub> 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
<b>Temperature control limits for the furnaces:</b> Combustion furnace Reduction furnace Desorption furnace	400 ÷ 1100°C 400 ÷ 1100°C 50 ÷ 350°C
<b>Operating Temperature:</b>	15 ÷ 35 °C
<b>Operating Voltage:</b>	230 V AC ± 10%
<b>Frequency:</b>	50/60 Hz
<b>Power Consumption:</b>	max 6A
<b>Dimensions (W x D x H):</b>	805 x 410 x 525 mm (H+180 mm with auto-sampler)
<b>Weight:</b>	66 kg



## Information about Costech Microanalytical:

- 23+ years on the market
- 800+ analyzers installed
- Collaboration with leading laboratories
- Patented technologies
- Engineering & technical support



## Customer Support includes:

- **On-site equipment installation** (performed by the company's regional representative).
- **Training of laboratory personnel** (conducted by the regional representative).
- **Reference and introductory materials** (available at [www.costech.ee](http://www.costech.ee)).
- **Online technical consultations** (Zoom / Skype).
- **Service maintenance** according to the customer's request.
- **Ordering and sales** of consumables and accessories.
- **Analytical support** for carbon/nitrogen

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