



LABSOLUTIONS

NDA

Dumas Nitrogen Analyzer

Nitrogen / Protein
Determination in a Flash!



NDA is the innovative VELP Scientifica solution for nitrogen/protein determination, using the Dumas method (also known as combustion method) and offering high performance on both solid and liquid samples. NDA works in accordance with a variety of Standards (such as AOAC, AACC, ASBC, ISO, IFFO, OIV, etc.).

NDA Dumas Nitrogen Analyzer

The new and completely innovative step forward for nitrogen determination by VELP Scientifica. VELP is now able to offer different solutions for nitrogen determination, from the standard Kjeldahl method to the flash of Dumas combustion. In accordance with the Dumas method, NDA is ideal for high throughput, being fully automated and requiring just 3-4 minutes per analysis.

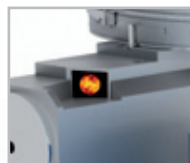
Must be connected to



PC can be connected to



NDA Dumas Nitrogen Analyzer



Analysis in a Flash!
Fully automated, high productivity, 24/7 operation.



Eco-Friendly
Limited energy consumption, stand-by and Helium-saving mode and no wastes.



Long-life VELP Consumables

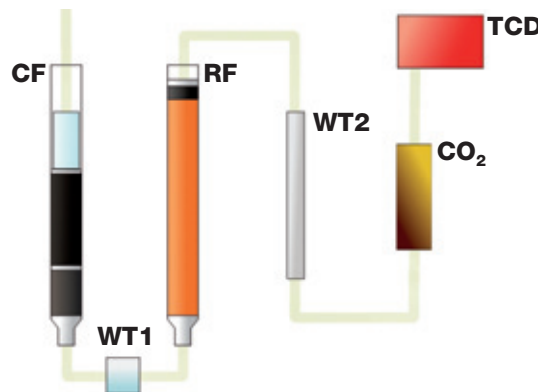
Flexibility
Choose between NDA 701 and NDA 702, for a customized solution.

Precision and Accuracy
High repeatability, very low detection limit (0.001 mg N).

Analysis Flowpath

HELIUM as carrier gas on NDA 701

HELIUM or ARGON as carrier gas on NDA 702



Combustion Reactor (CF)
Physical Water Trap (WT1)
Reduction Reactor (RF)
Chemical Water Trap (WT2)
CO₂ Regenerating Adsorbers (CO₂)
Innovative TCD (TCD)

allows combustion at 1030 °C in order to break all of the sample into its elemental substances. the maintenance-free DriStep™ cooler permits 99% of water to be removed. enables the elimination of unwanted compounds and oxygen, transforming NO_x into N₂. eliminates the residual water. used to get rid of all the CO₂. Auto-regenerating, maintenance-free system. LoGas™ determines nitrogen content without the need for a reference gas. Maintenance-free.

Features and Benefits

- Fast
- Fully Automated for Unsupervised Analysis
- Long Lifespan
- Flexible and Versatile
- Compact Profile
- Safe

GLP Good Laboratory Practice
AOAC • AACC • ASBC
ISO • IFFO • OIV

The autosampler can hold up to 4 discs, 30 positions each. The samples need to be accurately homogenized, in order to maximize the results precision and to achieve a representative analysis.



TEMS technology saves
Time, Energy, Money and Space

- Time Saving: Unparalleled productivity, results in only 3-4 minutes
- Energy Saving: Excellent engineering, low consumption
- Money Saving: Limited cost per analysis, less gas and reagent used (LoGas™ and DriStep™), minimum maintenance
- Space Saving: Just one slim unit required for the whole analysis



DUMASoft™ SOFTWARE

NDA is completely controlled and operated by the DUMASoft™ software, offering all the most important info at a glance in one window!



...before the analysis

Simply position the capsule in the autosampler, enter sample name, type and weight and select the method and the calibration curve. Automatically, the software will set the analytical conditions according to the entered data. The dosing of gases is optimized by the software, in order to achieve complete combustion of the sample with minimum consumption. Create and save calibration curves using standards, pure test substances with a well-known nitrogen content. No need to create a new calibration curve every day. Recall it before starting the analysis. A good calibration curve requires 5-6 points. These should represent different standard quantities (in mg) to create a range (in mg of nitrogen) that will then contain the nitrogen content of the analyzed sample. The more that the content of mg of nitrogen is centered in the range, the greater are the accuracy and precision of the analysis. The software accepts weight values directly from the balance.



...during the analysis

In the main window the user can continuously check the instrument status, controlling the flow rate and the reactor temperatures on the right side of the page. Beneath, the user can also read suggestions about the maintenance, monitoring the number of analyses that can be performed before the next replacement. The real time graph shows the progress of the analysis, creating the peak as soon as the nitrogen starts reaching the Thermal Conductivity Detector (TCD).



...after the analysis

Once the analysis is completed, the operator will find all the test information in the main window, with a real-time graph, info about the method and results in different formats (nitrogen mg, nitrogen % and protein %). All analysis data are stored into databases and can be exported in .xls, .txt and .csv format to PC or LIMS. The operator can also create test reports for a single test or multiple analyses for a better interpretation of the data. Results can be also recalculated using different calibration curves, without performing a new test, but only selecting the new curve. A particularly useful additional function can be the reintegration of the peak area. Results can be output to a printer.

DUMAS

- **High Productivity** - Non-stop performance
- **Time Saving** - Few minutes required
- **Low Cost of Ownership** - Moderate running costs
- **Totally Unsupervised** - Fully automated process
- **Dry Chemistry** - No chemicals
- **Eco-friendly** - Less residues and no wastes produced
- **Officially recognized method** - Gaining in international use with advanced instruments

KJELDAHL

- **Less Productivity** - Inability to operate continuously
- **Time-consuming** - Analyses last hours
- **Affordable Equipment Cost**
- **Partly Unsupervised** - Not entirely automated process
- **Wet Chemistry** - Uses chemicals
- **Costly Wastes Produced** - Residues must be disposed of
- **Worldwide Official Method** - Traditional technique, simple equipment

Fields of Application

The NDA is extremely versatile, being suitable for nitrogen and protein determination in several kinds of sample, in accordance with official AOAC, AACC, ASBC, ISO and OIV methods.



Food, feed and beverage industry



Environmental industry



Pharmaceutical and chemical industry

Fields of Application

INSTRUMENT	POWER SUPPLY	CODE No
NDA 701	230 V / 50–60 Hz	F30800070
NDA 702	230 V / 50–60 Hz	F30800080

SUPPLIED WITH



A00000193 Start-up kit	40001065 Autosampler with disc 1	40001504 DUMASoft™ Software	40001693 USB cable for PC, 5m	10003926 RS232 Cable for balance
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The Dumas Analyzer contains all necessary parts to perform up to 1000* analyses (inclusive of catalysts, copper, quartz wool, reagents and seals). In addition, it contains chemicals and small consumables spares for maintenance.

Consumables and spare parts can also be ordered separately.

* 1000 is an estimated value. The effective life of the kit depends on the quantity and the kind of sample.

OPTIONAL ACCESSORIES	CODE No
1000 analyses kit	A00000194
Disc 2 for autosampler	A00000199
Disc 3 for autosampler	A00000200
Disc 4 for autosampler	A00000201
Chromosorb 10g	A00000148
Quartz wool, 50g	A00000154
Vcopper™ High Reduction Efficiency, 470g	A00000240
Copper oxide, 50g	A00000157
VHT catalyst, 50g	A00000159
VLT catalyst, 25g	A00000160
EDTA, 100g	A00000149
Tin Foil Cups, 150pcs	A00000153
Tin Foils 50x50 mm, 450pcs	A00000260
Quartz reactor tube	A00000162
Anhydrone, 454g	A00000225
High temperature sealing grease	A00000236
Rice flour	A00000235
Ceramic ash insert	A00000198
Quartz ash insert	A00000161
Tin foil cup closing device	A00000217
Mold for tin foil 50x50 mm	A00000262
Pre-Packed Combustion Reactor	A00000158
Pre-Packed Reduction Reactor	A00000226
NDA IQ/OQ/PQ Manual	A00000192



NDA DUMAS NITROGEN ANALYZER

Method of analysis:	Dumas method / Combustion
Detector:	Innovative autocalibrating TCD (no need for a reference gas)
Carrier gas:	NDA 701: Helium NDA 702: Helium or Argon
Sample weight:	Up to 1 g
Autosampler capacity:	Up to 4 discs, 30 positions each
Autosampler type:	Pneumatic
Reproducibility (RSD):	< 0.5% for EDTA standards approx. 100 mg (9.57% N)
Recovery:	> 99.5%
Detection limit:	NDA 701: 0.001 mg N (He) NDA 702: 0.001 mg N (He) or 0.01 mg N (Ar)
Combustion temperature:	1030 °C / 1886 °F
Helium (He) / Argon (Ar):	purity 99.999% (grade 5.0)
Oxygen (O ₂):	purity 99.999% (grade 5.0)
Carrier gas pressure:	2 bar
Oxygen (O ₂) pressure:	2 bar
Interfaces:	USB, RS232
Power:	1400 W
Power supply:	230 V / 50 - 60 Hz
Weight:	54 kg / 119 lb
Dimensions (WxHxD):	655 x 510 x 410 mm (655 x 690 x 410 mm including autosampler) 25.8 x 20.1 x 16.1 in (25.8 x 27.0 x 16.0 in including autosampler)

Constant Commitment to
Knowledge Development

Your authorized agent:

We reserve the right to make technical alterations
We do not assume liability for errors in printing, typing or transmission



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