



Navas Instruments

MMS - 4000



**MULTIPLE MATRIX - MULTIPLE
SAMPLE QUICK MOISTURE AND
ASH ANALYZER WITH
AUTOLOADER FOR LARGE
THROUGHPUT**

(Patented)

- During active analysis the operator can pre weigh crucibles and samples on an external balance.
- Samples of different materials and sizes can be analyzed simultaneously, each sample is analyzed independently.
- Time is not wasted in heating and cooling between batches, the furnace is always hot and operates in a continuous process
- All heated parts inside furnace are made of a stainless steel alloy for high temperature
- The instrument can be loaded and work at night without operator attention

Applications: Food, Feed, Flour, Snacks, whey, dairy products, coal, coke, quick ash in coal, coal preparation plants, coal washing, biomass, biochar, etc...
Determination of: Moisture and ash

Temperature range: 50 ~ 1000 °C ± 1 °C

Sample size: 0.1 ~ 5 g

Standard deviation of ± 0.0002 grams

Weight Loss/Gain range: 0 ~ 100 %

Number of Samples: 15 simultaneously, autoloader with 77 samples



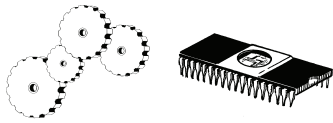
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Navas Instruments are built with name brand balances and temperature controllers from recognized manufacturers who are experts in the business.

While other TGA manufacturers use special electronics and ceramic parts that can only be purchased from them, Navas uses electric and pneumatic parts (magnetic switches, relays, pneumatic valves, pistons, fans etc) that can be purchased locally, eliminating dependence on Navas Instruments. However, for our customers convenience we do maintain a complete parts and service department



Windows software integrated with Microsoft Office allows easy instrument operation and the storing of results in MS Access automatically. Data can also be exported automatically or manually in txt, csv or xls formats, MS Excel or several Laboratory Information Management Systems (LIMS). In addition, after analysis data can automatically or manually printed with customizable layouts. Software includes configurable parameters for all slopes.

EASY TO USE DIAGNOSTICS SCREEN

WITH NAVAS INSTRUMENTS MMS - 4000 YOU SAVE

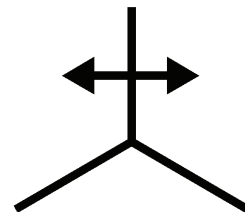
- Labor cost



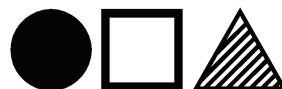
- Time



- Lab. space



- Complexity



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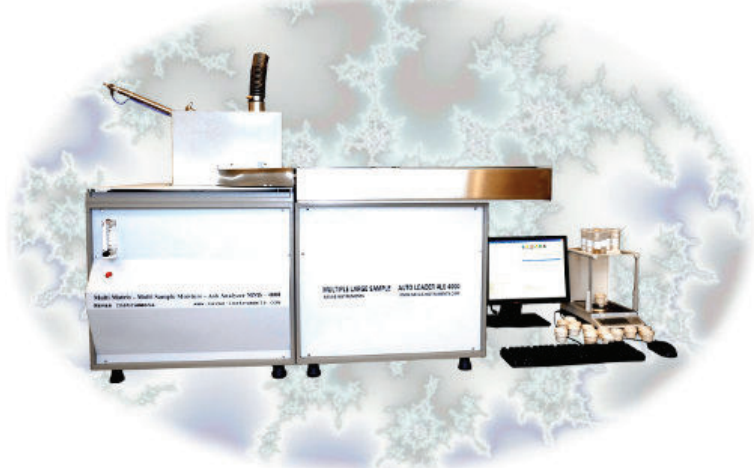
Multiple Sample Quick
Moisture and Ash Analyzer with
AUTO LOADER for large
throughput , **Patented**
(**Accurate TGA method**)

Navas Instruments MMS - 4000 Series

For laboratory or production control

Multiple Matrix - Multiple Sample Quick Moisture-Ash analyzer
Applications: Food, animal feed, snacks, dough, wheat, flour, whey,
dairy products, biomass, biochar, calcium carbonate,
coal (Ash in 20-25 minutes), etc ...

Determination of: Moisture and ash



Fast and accurate analysis, Auto loader with capacity for 77 samples + 15 samples inside furnace for simultaneous analysis (Patented), 120 minutes for ash in flour

- 1 - Continuous operation (Furnace always hot)
- 2 - Crucibles and samples weighing on external balance during analysis time (Not dead furnace time)
- 3 - Crucibles deposited by hand on autoloader external carousel and automatic insertion on furnace carousel, automatic removal after analysis completion .

No operator attendance needed for crucibles removal, crucibles are inserted and removed from furnace carousel automatically.

- 4 - Samples are treated independently one to other, samples needing longer analysis time stay longer time, samples with result are automatically removed.

5 - SAMPLES CAN BE LOADED ON AUTOLOADER AT AFTERNOON BEFORE LEAVING THE LAB, AND THE INSTRUMENT WILL WORK AUTOMATICALLY OVERNIGHT WITHOUT THE NEED OF OPERATOR ATTENTION (AUTOMATIC ANALYSIS, LOADING AND UNLOADING OF SAMPLES).



Advantages

- 1 - The user can weigh crucibles and samples during the analysis in the same PC that manages the instrument. There is not time wasted in getting the initial weights of crucibles and samples and entering the samples identification codes because initial weights are not obtained inside the instrument but in an external balance during analysis time.
 - 2 - Samples of different materials can be analyzed, no samples condition others, the first to finish will be the first to be unloaded on external carousel and replaced by other sample.
 - 3 - All heated parts inside furnace are made of a stainless steel alloy for high temperature (Carousel, spindle and pedestal). The carousels do not bend nor warp under temperature stress, metal does not break like ceramics. Ceramic crucibles allow analysis of materials that may attack metal crucibles (Metal crucibles used in other models)
- 1 Full year warranty on all components including carousel and spindle.**

Standard components

Navas Instruments buys complete brand name balances and temperature controllers from recognized manufacturers.

The balances have display FOR EASY service.

The temperature controller has 2 displays: 1 for the set point and other for the present temperature.

The balance and the temperature controller are programmable using the buttons in the devices.

These devices are manufactured by the experts in the business.

All the electric and pneumatic parts in the TGA can be acquired in the market: Magnetic switches, relays, pneumatic valves, pistons, etc...

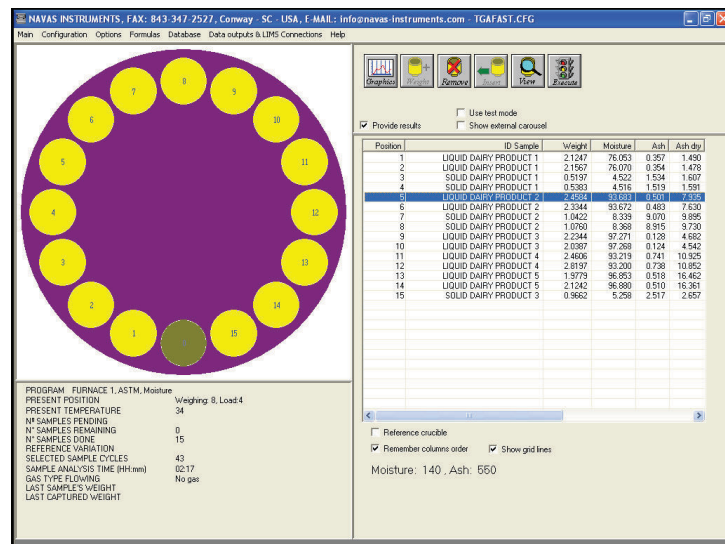
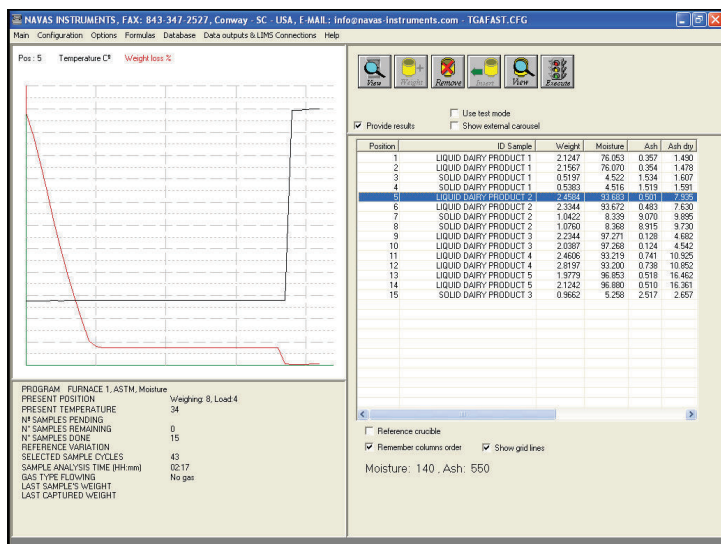
With no dependency on Navas Instruments, However for our customers convenience we do maintain a complete parts and service department.

Other TGA manufacturers use special electronics that can only be purchased from the manufacturer at very high price.

All the sensors are magnetic not affected by dust.

Very few proprietary electronics (Only 2 boards), that are located in 2 PC slots.

ACCESS FOR SERVICE from back, sides, front and underneath.



MMS TGA application

The **Windows software** allows easy instrument operation.

Integration with **Microsoft Office**, results are stored in Microsoft Access Data base automatically, data can be exported automatically and manually in TXT, CSV and XLS formats to Microsoft Excel or several Laboratory Information Management Systems (**LIMS**).

Configurable parameters for all slopes up to 8 sets of settings: Final temperatures, plateau deviations, gases, etc...

The process variables are displayed dynamically during analysis (Samples in furnace carousel, present temperature, present carousel position, last samples weight etc...)

The user can view the state of the furnace carousel and the external carousel dynamically, this provides a visual indication of the amount of samples inside and outside the furnace.

EASY TO USE DIAGNOSTICS SCREEN.

Navas Instruments MMS - 4000 Series

Multiple Matrix - Multiple Sample Moisture-Ash analyzer With Auto Loader

Brief technical specifications ...

Temp. range: 50 ~ 1000 ° C ±1 ° C

Sample size: 0.1 ~ 10 grams.

Standard deviation of ± 0.0002 g

Weight Loss/Gain range: 0 ~ 100 %

etc ...



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