

Turbotrac

TURBOTRAC from Microtrac is a dry powder dispersion system for use with the Microtrac S3500 Series Particle Size Analyser. Turbotrac's primary function is to deliver a properly dispersed sample to the measuring cell in the Microtrac optical bench allowing for consistent and repeatable particle size analyses of dry powders.

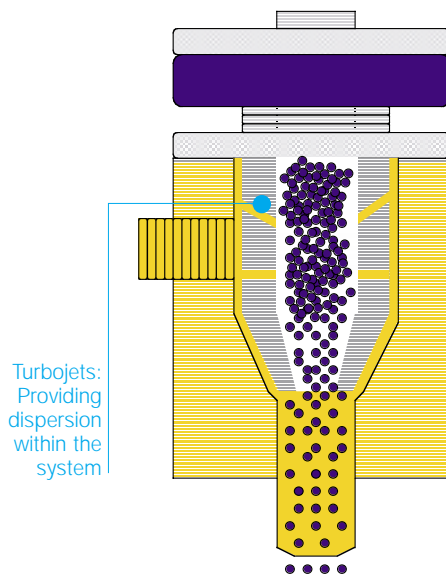
Main features of the Turbotrac System are

- Flexibility of compressed air and flow conditions settings allow the operator to achieve dispersion usually associated with fluid dispersal systems for highly agglomerated materials such as alumina. Dispersion conditions can be altered for the measurement of the most fragile crystals.
- Small Sample Volumes. Sample volumes can be as small as 0.1 cc. Ideal for applications where sample is expensive to produce or produced in small volumes.
- Rapid Measurements. Measurement time is typically 10 seconds with the Turbotrac Autoscan or even shorter using the Microtrac One-Shot accessory for very small sample volumes.
- Automatic Sampling. Microtrac FLEX software facilitates easy programming of measurement cycles. Simply place the sample in the sample tray, enter identifiers and press RUN. Data is saved on the system PC or can be exported to user networks or LIMS systems.
- Data Consistency. Data is comparable to fluid dispersions in most cases.
- Repeatability. Consistent control of aspiration settings deliver excellent sample to sample and bench to bench repeatability



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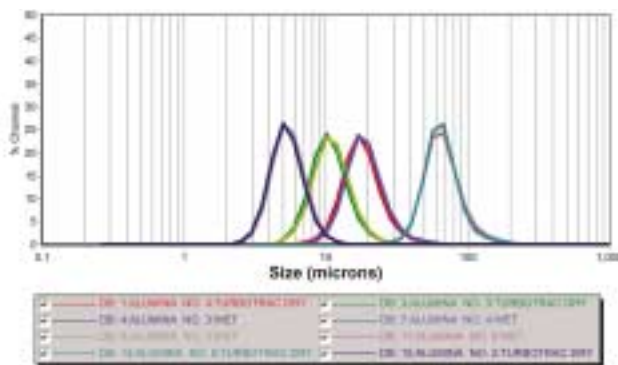
Turbotrac: How it works



A compressed air stream is used both as a carrier and a dispersing agent for the dry powder. The air stream is connected to the eductor block. The Turbostrac eductor nozzle incorporates a series of TURBOJETS set at multiple angles to the sample flow. This arrangement creates a number of mini-vortices within the sample flow which disperse the material. The eductor gap can be adjusted by raising or lowering the eductor nozzle resulting in increased or decreased sample dispersion. Air pressure settings and eductor gap settings are determined on the basis of the degree of dispersion required and the friability of the material being measured. The measured material is then collected by a vacuum system.

This combination provides unparalleled dispersion of dry powders for use in the pharmaceutical, biotech, food and beverage, ceramics, cement, metal powders and oxides, abrasives and general materials processing industries.

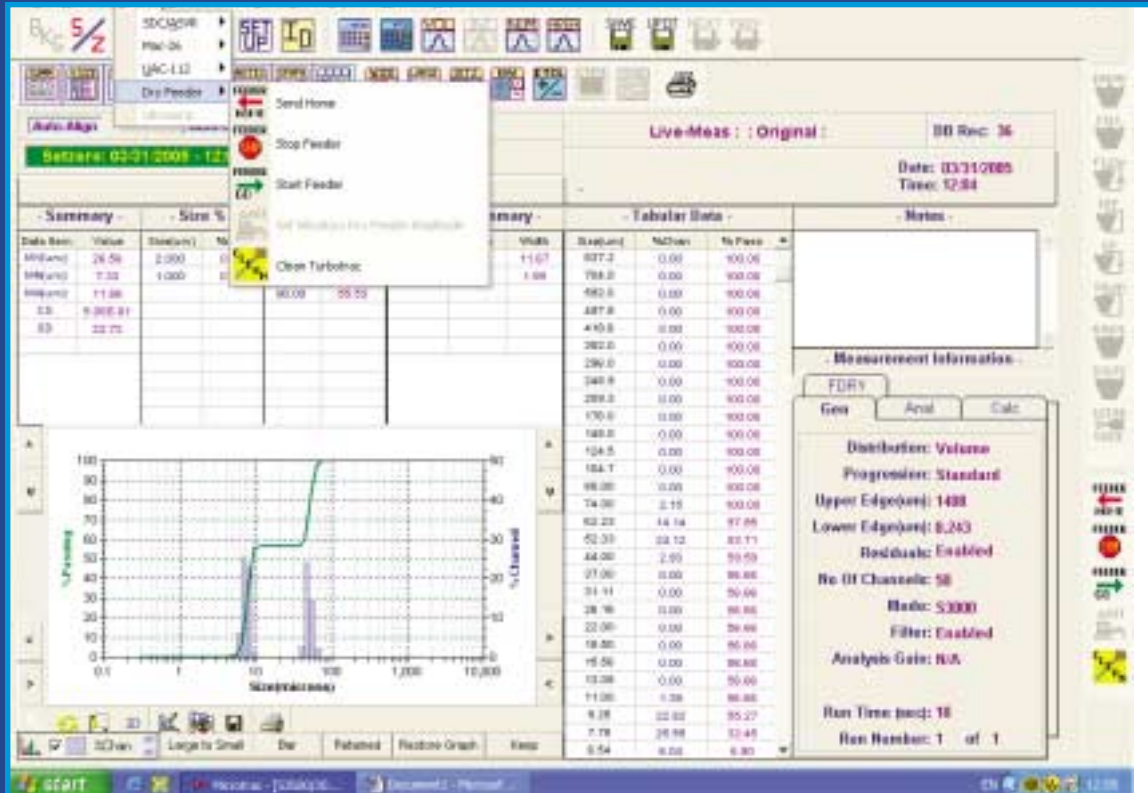
Turbotrac: Wet-Dry Data Comparison



Microtrac S3500 Wet-Dry Comparison
Aluminum Oxide --5, 10, 18 and 65 Microns
TURBOTRAC DRY versus SDC WET

The Turbostrac eductor system provides superb dispersion of dry powders through its unique Turbojet feature. Four different Aluminum Oxide samples were run in the Microtrac S3500 Particle Size Analyser. The samples were run wet in the Sample Dispersion Controller (SDC) and dry in the Turbostrac Dry Powder Dispersion System. The samples had mean volume particle sizes of 5, 10, 18 and 65 microns respectively. As shown in the graphic, the dry Turbostrac data shows excellent agreement with the corresponding wet analyses.

Turbotrac: The software



Turbotrac operation is controlled from the Microtrac FLEX operating system. Feeder START, STOP, SEND HOME and CLEAN functions can be controlled by simply clicking on the relevant icon on the main FLEX screen. The Turbotrac Autoscan function allows the user to perform a full particle size analysis by simply clicking the AUTO icon to initialize the sequence. The sample to be measured is laid evenly on the sample tray. On starting the sequence the system invites the user to identify the sample by providing the relevant sample ID. Subsequently the vacuum system is activated followed by the activation of the pressurised airstream, both of which are controlled by internal valves.

A background check is then initiated to ensure the system is clean and to ensure validity of the analysis. The measurement cycle is started and the aspirator travels the length of the sample tray carrying the sample to the educator. Microtrac performs the sample analysis and saves the data to the previously selected database. The pressurised airstream is turned off, followed by the vacuum system and the Turbotrac is then ready for the next measurement sequence.

Turbotrac: Specifications

Particle Size	0.25 to 3000 microns
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Physical

Dimensions	5.25 H x 5 W x 13.5D in. (133H x 127W x 343D mm)
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Weight	9 lbs (4.1 kg)
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Case Material	Steel, exterior surfaces finished with corrosion resistant paint or plating.
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Electrical

Power	12VDC and 24VDC provided by Microtrac Sample Delivery Controller (SDC)
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Power Consumption	Included in maximum VA rating of SDC
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Recirculator Interface	Standard 9 pin male-male straight through interface cable
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Environmental

Temperature (operating)	10 to 35 Degrees C
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Temperature (storage)	-10 to 50 Degrees C
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Humidity	90% RH, non condensing maximum
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Pollution	Degree 2
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Connection Ports

Vacuum Connection	Quick disconnect fitting on S3500, 1.25 in tube (Standard Vacuum hose.) If supplied by user, vacuum source must exceed 50 CFM, 50 "H2O
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Eductor Sample Connection	3/8" tube fitting
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Eductor Air Connections	Push to connect fittings
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Eductor Air Supply	100 psi (689kPa) maximum supply pressure 5 CFM at 50 psi (345 kPa) minimum flow rate free of dry contaminants, moisture and oil.
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Materials in Contact with Sample

Dry operation	Stainless steel, anodized aluminium (black chrome plated, stainless steel optional), PVC, HDPE
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	Vacuum (subject to change by manufacturer), paper, cotton, glass fibre, aluminium, EVA
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Contact Details

For more information on Turbotrac as well as other Microtrac products contact Microtrac Inc at (+1) 727 507 9770 or contact your local Microtrac Representative or log on to our website at www.microtrac.com

Your local Microtrac Representative is