

SP 3004

Spray Pyrolysis



EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

SP 3004 Spray Pyrolysis system has been designed for research laboratories in thin films, especially for solar cell development. The system automates various fatigue and error creating processes involved in the technique when performed manually. Moreover, ergonomically designed chamber provides clean and healthy atmosphere suitable for modern lab conditions.

Parameters like dispensing rate of the solution and speed of spray head movement which are difficult to control manually are controlled precisely by PC based automation. A positive displacement pump controlled by stepper motor and microprocessor is used to dispense solution as per requirement. The spray head movement is also controlled by stepper motor driven linear stages in X and Y direction. The temperature of the substrate heater plate is controlled independently through a dedicated controller.

Factors affecting bonding & subsequent build up of the coating:

- Cleanliness
- Surface area
- Surface topography or profile
- Temperature (thermal energy)
- Speed

- Time (reaction rates, cooling rates etc.)
- Physical & chemical properties
- Physical & chemical reactions

A desktop computer with windows OS is used to control the operations through serial port. Our dedicated software for spray pyrolysis system can as well be used for documenting the relevant parameters used for sample preparation like temperature, air pressure, duration, etc

Spray pyrolysis is a process in which a thin film is deposited by spraying a solution on a heated surface, where the constituent react to form a chemical compound. The chemical reactants are selected such that the products other than the desired compound are volatile at the temperature of deposition. The process is particularly useful for the deposition of oxides and has long been a production method for applying a transparent electrical conductor of Tin oxide (SnO₂) or Stannic oxide to glass

Accessories:

Syringe Pump : Syringe pump is preferable to the glass dispenser for solutions which should be sprayed at lower flow rates (<1ml / min). It works with very low volume of solution as the syringe is directly connected to the spray nozzle, avoiding the use of lengthy tubes which should be filled first before the solution can reach the nozzle.



Ultrasonic Spray Head : The standard spray head which uses a compressed air atomization nozzle can be replaced with the ultrasonic spray head which uses an ultrasonic atomizer nozzle. It breaks the solution by vibrating its nozzle at an ultrasonic frequency (Typically 40 kHz), producing a fine spray of droplets of 50 micron average size.



Specifications

Actuator Stepper motor

Dispensing unit capacity 50ml & 250ml

Dispensing rate 1 - 10ml / min.

Sprayer

Drive speed X axis (min-max) 10 - 800mm / sec

Drive speed Y axis (min-max) 1 - 12mm / sec

Sprayer traverse X - Y 200mm max.

Substrate base plate

Dimension 150 x 150mm

Max. temperature 500° C

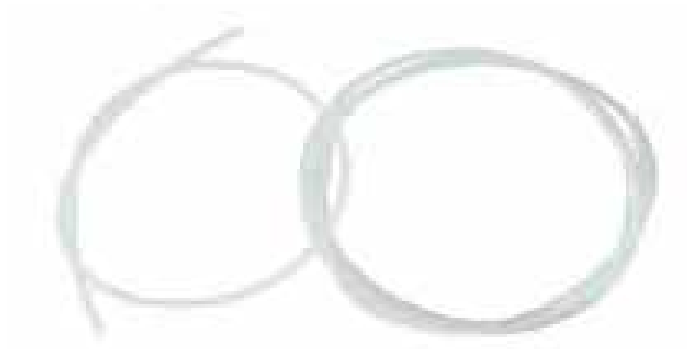
Power input 230V, 50Hz

PC connectivity Serial port (RS 232)

Glass Container : Glass container holds the solution to be sprayed during the coating process. Containers of two volumes (250ml & 50ml) are available as standard accessories.



Nylon Tube : This tube carries the solution from the glass dispenser to the spray head. Nylon is resistant to most of the chemicals which has applications in spray pyrolysis.



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HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

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Our Products & Technologies



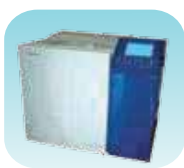
UV/VIS Spectro 2080+ Double Beam



Infra FTIR



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Optima Gas Chromatograph 2979 Plus



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Liquid Partical Counter



Optical Emission Spectrophotometer



DSC/TGA



Semi Auto Bio Chemistry Analyzer



HEMA 2062 Hematology Analyzer



Micro Plate Reader/Washer



URINOVA 2800 Urine Analyzer



Total Organic Carbon 3800



Fully Automated CLIA



NOVA-2100 Chemistry Analyzer



PCR/Gradient PCR/ RTPCR



TOC Analyzer



Laser Particle Size Analyzer



Ion Chromatograph



Water purification system

Regulatory compliances



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Analytical
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2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

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