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Droplet sizing of opaque liquid with integrated transmitting and receiving optical arrangement WING T. LAI, DAN TROOLIN, TSI Incorporated — A number of industrial applications require the precise sizing of droplets. Some examples are spray drying in drug formation and ink jet printing for TV panels. The technique of ink jet printing for making TV panels requires the droplets emitting from the printer nozzles to be monodisperse and uniform for a long period of time. A typical printer head consists of multiple nozzles, from 256 to 1046. Every nozzle is designed to be producing the same droplet size of liquid over the period of time when the panel is being made. Hence it is important to be able to monitor all the nozzles regularly to ensure the uniform droplets are produced. If there is any size deviation of the droplets from the nozzles, the quality of the panel can be substantially degraded, making it non-useable. An integrated transmitting and receiving optical probe was designed specifically for the measurement of the droplets from all the nozzles in a sequential fashion such that every nozzles in the printer head can be characterized. The droplet result provides the feedback of any faulty nozzle behavior (one not giving the correct droplet size) and adjustment of the flow system can be made to get the nozzle working normal again.

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