

Materials List for:

High Throughput Analysis of Liquid Droplet Impacts

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Materials

Name	Company	Catalog Number	Comments
24 gauge blunt tip needle	Sigma Aldrich	CAD7930	
4 x 4 mm alignment square (chrome on glass)			Made in-house using lithography.
5 ml syringe	~	~	Should be compatible with syringe pump. Leur lock connectors join the syringe to the needle.
Aspheric condenser lens	Thor Labs	ACL5040U	Determines beam width, which should cover the field of view.
Cat 5e ethernet cable	~	~	A fast data connection between the high-speed camera and PC, suitable for Photron cameras.
Droplet impact analysis software	~	~	Provided as Supplementary Coding File. Outline data are stored in .mat files. Calculations are output as .csv files.
Front surface high-power LED	Luminus	CBT-40-G-C21-JE201 LED	Separate power supply should be DC to avoid flickering.
High-speed camera	Photron	Photron SA5	Typically operated at ~10,000 fps for drop impacts.
High-speed camera software	Photron	Photron Fastcam Viewer	Protocol assumes camera has an end trigger; that movie files can be saved in .avi format, and screenshots in .tif format, to a designated folder; and that movies can be cropped.
Linear translation stages	Thor Labs	DTS25/M	Used to position the LED, sample and camera.
Macro F-mount camera lens	Nikon	Nikkor 105mm f/2.8 Lens	Choice of lens determines field of view.
PC running Matlab 2018b	Matlab	~	PC processing power and RAM can effect protocol speed and hence efficiency.
Polydimethylsiloxane (PDMS)	Dow	SYLGARD™ 184 Silicone Elastomer	Substrates made using a 10:1 (monomer:cross-linker) ratio.
PTFE tubing	~	~	
Syringe pump	Pump Systems Inc	NE-1000	Protocol assumes this can be set to dispense a specific volume.