

Materials List for:

Measuring the Densities of Aqueous Glasses at Cryogenic Temperatures

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Materials

Name	Company	Catalog Number	Comments
centrifuge tube	Falcon	6029236	15 mL conical centrifuge tube
glycerol, >99.5%	Sigma	G9012-100 mL	
ethylene glycol, >99.8%	Sigma	324558-100 mL	
analytical microbalance	Mettler	AE240	Analytical balance, 0.01 mg resolution, has hook on bottom for weighing below the balance
vortexer	Scientific Industries	SI-0236	Vortex-Genie 2
Apparatus enclosure framing	Unistrut	1-5/8" metal framing	48" wide x 24" deep x 40" tall
Apparatus enclosure air barrier			any clear plastic sheeting
neoprene rubber disk			4" diameter, 1/8" thick
dewar flask	Scilogix Dilvac	SS333	4.5 liter dewar flask with steel case and clamp lid
copper chamber			This fabricated part is comprised of a 1.43" diameter, 0.017" wall thickness copper tube with a solid cylindrical copper base soldered to seal one end. The copper base is 0.87" tall and the overall chamber height is 7".
nitrogen gas	Airgas	NI HP300	99.998% pure N2 gas
argon gas	Airgas	AR HP300	99.998% pure Ar gas
rotameter	Omega	FL3692ST	2.52 L/min max flow rate
foam insulating lid			This part is fabricated from 4 lb/ft ³ crosslinked polyethylene foam (supplied by Technifab, 1355 Chester Industrial Parkway, Avon, OH), and has an OD of 2.42", and ID of 1.52", and a thickness of 0.79".
PTFE test mass			This fabricated part is a 0.246" diameter, 0.580" tall cylinder with a 0.060" diameter hole running perpendicular to and intersecting the cylinder axis ~0.10" from one end.
microbalance platform	Unistrut	1-5/8" metal framing	11" wide x 24" long x 24" high rectangular frame with an top aluminum sheet containing a hole for the monofilament and hanging test mass
2 mil (50 um) monofilament line	Berkley	NF1502-CM	Nanofil fishing line

Argon precooling coil tubing	VWR	60985-512	1/8" ID x 1/4" OD PVC tubing
perforated copper foil mixer			1.4" diameter, 35 micron thick copper disk, cut from 1 ounce/ft ² copper sheet and perforated with holes using an awl or other sharp pointed tool. Insert 1-2 mm diameter rigid thermally insulating (plastic or wood) rod into the center and fix using epoxy as needed.
syringe	BD	309628	1 mL Luer-Lok tip syringe
vacuum generator	Gast	VG-015-00-00	compressed air venturi single stage vacuum generator
hydrophobic coating spray	RainX	620036	plastic water repellent
long focal length stereo microscope	Bausch and Lomb Stereozoom 6		0.67-4 x zoom pod with 20X eyepieces, 10 cm working distance
LED ring illuminator	Amscope	LED144S	
LED spot illuminator	Newhouse Lighting	NHCLP-LED	3W LED gooseneck clamp lamp
1.8 ml cryo vial	Nunc	V7634-500EA	Any 1.8 or 2 mL cryovial is adequate