

Materials List for:

Synthesis of Nine-atom Deltahedral Zintl Ions of Germanium and their Functionalization with Organic Groups

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Materials

Name	Company	Catalog Number	Comments
D8-Xray diffractometer	Bruker Corporation	Bruker APEX II	
Electrospray mass spectrometer	Bruker Corporation	Microtof-II	
Electrospray mass spectrometer	Micromass	Quattro-LC	triple -quadropole
Drybox	Innovative Technology	S-1-M-DL	IT-Sys1 model
Inert Gas/Vacuum Shielded Arc Welding Arrangement	 LDS Vacuum Products	Special Order	
Arc Welder Power Source	Miller	Maxstar-91	
Welding Rubber Gloves	Home Depot	KH643	
Electric Engraver	Burgess Products	74	Vibro-Graver
Circular Glass Saw	Pistorius Machine Co. Inc	GC-12-B	
Tube Furnace	Lindberg/Blue M	TF55035	Minimite Laboratory Tube Furnace, Moldatherm (1100 °C)
Glass Drying Oven	Fisher Scientific	13-247-650G	
High Vacuum Hg Schlenk-Line	Special Order	Univ Of Notre Dame	Alternative: Edwards E050/60; VWR International; Cat. No. EVB302-07-110
Large Torch	Victor Technologies	JT100C	Welding torch, tip: Victor 5-W-J
Small Torch	Veriflo Co.	3A	Blow-pipe
Tesla Coil	VWR international	KT691550-0000	Leak detector
Stirrer/Hot -Plate	VWR international	12620-970	VWR HOT PLATE STR DY-DUAL120V
Balance	Denver Instrument	100A	XE Series
Centrifuge	LW Scientific, Inc.	E8C-08AV-1501	Variable speed
Graphite Reamer, (flaring)	ABR Imagery, Inc.	850-523 B01	Open holes in Glass Blowing and flaring edges
Striker	Fisher Scientific	12-007	
Vise-Grips	Home Depot	0902L3SM	
Pipe-Cutter	Home Depot	32820	
Cutting Pliers	Home Depot	437	
Plastic Beaker	VWR international	13890-046	
Measuring Cylinder	VWR international	65000-006	Careful, HF etches glass (if using a glass one)
Large Plastic Bottle	VWR international	16128-542	
13 x 100 Test-Tubes	VWR international	47729-572	CULTURE TUBE 13X100 CS1000
Laboratory (Rubber) Stoppers	Sigma-Aldrich	Z164437-100EA	Size 00
Test-Tube Rack	VWR international	60196-702	10-13 mm tube OD

Stir-Bars	StirBars.com/Big Science Inc.	SBM-0803-MIC	PTFE 8x3 mm Micro
Glass Pipettes	VWR international	14673-043	VWR PIPET PASTEUR 9IN CS1000
Rubber Bulbs	VWR international	56311-062	Latex, thin walled
Glass Wool	Unifrax I LLC	6048	Fiberfrax Bulk Fiber Insulation, Ceramic fiber
Glass Slides	VWR international	16004-422	75x25x1mm, Microscope Slides
Paratone-N oil	Hampton Research	Parabar 10312	Known as: Paratone-N, Paratone-8277, Infineum V8512
High Vacuum Silicone Grease	VWR international	59344-055	Dow Corning
Liquid Nitrogen	University of Notre Dame		
Argon Gas Cylinder	Praxair, Inc.	TARGHP	
Nitrogen Gas Cylinder	Praxair, Inc.	QNITPP	
Oxygen Gas Cylinder	Praxair, Inc.	OT	337 cf CYL
Hydrogen Gas Cylinder	Praxair, Inc.	HK	195 cf CYL
Propane Gas Cylinder/source	University of Notre Dame	UND	
Quartz tubing, Lg	Quartz Scientific Inc.	100020B	20 mm id x 22mm od x 48" clear fused quart tubing
Quartz tubing, Md	Quartz Scientific Inc.	100007B	Clear Fused Quartz Tubing, 7mm id x 9mm od x 48"
Round Bottom Quartz Joint	Quartz Scientific Inc.	6160189B	Ball joint
Quartz Safety Glasses	Wale Apparatus	11-1127	waleapparatus.com
Pyrex Safety Glasses	Wale Apparatus	11-2125-B3	For clear and color borosilicate glass
Blow Hose Kit	Glass House	BH020	glasshousesupply.com
Niobium Tubes	Shaanxi Tony Metals Co., Ltd	Niobium Tube, 50 ft	Seamless Niobium Tube Outside diameter: 0.375 (±0.005) inches. Wall thickness: 0.02(±0.003) Inches Niobium should be annealed.
PEEK Starter Kit for Mass Spect	Waters	PSL613321	PEEK (PolyEtherEtherKetone) tubing, nuts, ferrule, fits
Mass Spect Needle Set	VWR international	60373-992	Hamilton Manufacturer (81165)
H ₂ SO ₄	VWR international	BDH3072-2.5LG	ACS Grade
HNO ₃	VWR international	BDH3046-2.5LPC	ACS Grade
HF	VWR international	BDH3040-500MLP	ACS Grade
Distilled Water	University of Notre Dame	UND	
Acetone	VWR international	BDH1101-4LP	
Ethylenediamine	VWR international	AAA12132-0F	99% 2.5 L
Toluene	VWR international	200004-418	99.8 %, anhydrous
Mercury	Strem Chemicals, Inc.	93-8046	
Potassium (K) metal	Strem Chemicals, Inc.	19-1989	Sealed in glass ampoule under Ar
Germanium (Ge) powder	VWR international	AA10190-18	GERM PWR -100 MESH 99.999% 50G
Bis(trimethylsilyl)acetylene, (Me ₃ SiC≡CCSiMe ₃)	Fisher Scientific	AC182010100	
18-crown-6 (1,4,7,10,13,16-Hexaoxacyclooctadecane)	VWR international	200001-954	99%, 25 gm
2,2,2-crypt (4,7,13,16,21,24-Hexaoxa-1,10-diazabicyclo[8.8.8]hexacosane)	Sigma-Aldrich	291110-1G	98%