

Materials List for

Electrochemical Preparation of Poly(3,4-Ethylenedioxythiophene) Layers on Gold Microelectrodes for Uric Acid-Sensing Applications

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Materials

Name	Company	Catalog Number	Comments
Acetonitrile	Baker Analyzed HPLC Ultra Gradient Solvent	75-05-8	HPLC grade
Alumina polishing pad	BASi, USA	MF-1040	tan/velvet color
Belgian chocolate milk	Puhoi Valley dairy company, Auckland, NZ	–	Buy from local supermarket
Caramel/white chocolate milk	Puhoi Valley dairy company, Auckland, NZ	–	Buy from local supermarket
CH instrument	CH instruments, Inc. USA	–	Model CHI660E
Counter electrode	BASi, USA	MW-1032	7.5 cm long platinum wire (0.5 mm diameter) auxiliary/counter electrode, 99.95% purity
Disodium hydrogen phosphate (Na ₂ HPO ₄ , 2H ₂ O)	Scharlau Chemie SA, Barcelona, Spain	10028-24-7	Weigh 17.8 g
DURAN bottle	University of Auckland	–	The glasswares were made locally at the University of Auckland
Electrochemical cell	BASi, USA	MF-1208	5-15 mL volume, glass
Electrode Polishing Alumina Suspension	BASi, USA	CF-1050	7 mL of 0.05 μm particle size alumina polish
Espresso milk	Puhoi Valley dairy company, Auckland, NZ	–	Buy from local supermarket
3,4-Ethylenedioxythiophene (EDOT), 97%	Sigma-Aldrich	126213-50-1	Take 10.68 μL from bottle
FEI ESEM Quanta 200 FEG	USA	–	SEM equipped with a Schottky field emission gun (FEG) for optimal spatial resolution. The instrument can be used in high vacuum mode (HV), low-vacuum mode (LV) and the so called ESEM (Environmental SEM) mode.
Gold microelectrode	BASi, USA	MF-2006	Working electrode (10 μm diameter)

Lithium perchlorate, ACS reagent, $\geq 95\%$	Sigma-Aldrich	7791-03-9	Make 0.1 M solution
Micropipettes	Eppendorf	–	10-100 μL and 100-1000 volumes
MilliQ water	Thermo Scientific, USA	–	18.2 M Ω /cm at 25°C, Barnstead Nanopure Diamond Water Purification System
Propylene carbonate, Anhydrous, 99.7%	Sigma-Aldrich	108-32-7	Take 20 mL from bottle
Reference electrode	BASi, USA	MF-2052	Silver/silver chloride (Ag/AgCl) electrode to be kept in 3 M sodium chloride
Replacement glass polishing plate	BASi, USA	MF-2128	Glass plate as a stand to attach the polishing pad on it
Sodium dihydrogen phosphate ($\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$)	Sigma-Aldrich	10049-21-5	Weigh 13.8 g
Sodium hydroxide pearls, AR	ECP-Analytical Reagent	1310-73-2	Make 0.1 M solution
Sodium perchlorate, ACS reagent, $\geq 98\%$	Sigma-Aldrich	7601-89-0	Make 0.1 M solution
Sulfuric acid (98%)	Merck	7664-93-9	Make 0.5 M solution
Uric acid	Sigma-Aldrich	69-93-2	Make 1 mM solution
Whole milk	Anchor dairy company, Auckland, NZ		Blue cap milk, buy from local supermarket