

Materials List for:

# Protein Film Infrared Electrochemistry Demonstrated for Study of H<sub>2</sub> Oxidation by a [NiFe] Hydrogenase

Philip A Ash<sup>\*1</sup>, Ricardo Hidalgo<sup>\*1</sup>, Kylie A Vincent<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of Oxford, Inorganic Chemistry Laboratory

\*These authors contributed equally

Correspondence to: Kylie A Vincent at [kylie.vincent@chem.ox.ac.uk](mailto:kylie.vincent@chem.ox.ac.uk)

URL: <https://www.jove.com/video/55858>

DOI: [doi:10.3791/55858](https://doi.org/10.3791/55858)

## Materials

Name	Company	Catalog Number	Comments
Spectrometer	Agilent	680-IR	with an external MCT detector
ATR accessory	Pike Technologies	GladiATR	Customised for use with a 5-reflection Si IRE
Glovebox	Glove Box Technology Ltd.	N/A	Custom designed 'wet' and 'dry' box for anaerobic sample handling and measurement
KBr window	Crystran	Custom	To allow coupling of the glovebox with the external beam of the FTIR spectrometer
Additional optics	Agilent	N/A	Components from a PM-IRRAS accessory
Silicon IRE	Crystal GmbH	Custom	Trapezoidal: 8.4 mm x 5 mm (large face), 1 mm thickness, ca 39 degree face angle
Potentiostat	Metrohm	Autolab PGSTAT 128N	
Nova 10.1	Metrohm		Software for controlling the potentiostat
Peristaltic pump	Williamson Manufacturing Company Ltd	QL-1000-024-300	
Pt wire	Surepure Chemetals	3272	99.95% Pure Platinum Wire, 0.014 inch Diameter
Carbon rod	WH Smith	30729209	0.7 mm HB pencil lead
Carbon black	Cabot Corporation	Black Pearls 2000	
Ultrasonic bath	Ultrawave	U100	35 W
Centrifugal filter	Merck Millipore	UFC5050BK	Amicon Ultra, 50 KDa MW cutoff
Microcentrifuge	Eppendorf	5452000018	MiniSpin
NaCl	Sigma	71376	
H <sub>2</sub> SO <sub>4</sub>	Fisher	S/9240/PB17	
HNO <sub>3</sub>	Fisher	N/2300/PB17	
silicone sealant	Cow Corning Toray Co., Ltd.	SE 4486	
Carbon paper	Toray	TGP-H-030	
H <sub>2</sub> gas	BOC		
N <sub>2</sub> gas	BOC		
OriginPro 2015	OriginLab		Data analysis/graphing software
Resolutions Pro 4.0	Varian		Software for controlling FTIR spectrometer