

Materials List for

MRM Microcoil Performance Calibration and Usage Demonstrated on *Medicago truncatula* Roots at 22 T

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Materials

Name	Company	Catalog Number	Comments
Reference solution preparation			
CuSO ₄	Sigma-aldrich	469130	Crystalline powder for creating reference solution
D ₂ O	Sigma-aldrich	151882	Liquid used to prepare reference sample
Weigh Scale	Sartorius	PRACTUM513-1S	Scale for weighing compounds
Sample preparation			
Capillary 1000 μm (Outer diameter)	Hilbenberg GmbH	1408410	Sample capillaries
Capillary wax	Hampton Research	HR4-328	Solid wax used to seal samples
Disposable Scalpel	Swann-Morton	No. 11	Used to excise samples
Perfluorodecalin	Sigma-aldrich	P9900	Liquid used for submerging sample
Stereo Microscope	Olympus	SZ40	Tabletop binocular microscope
Syringe	Generic	-	Used to apply PFD and manipulate the sample
Vacuum Pump	Vacuubrand	MZ2C	Two-stage membrane vacuum pump used for removing air pockets from samples.
Wax pen	Hampton Research	HR4-342	Handheld wax pen used to melt and apply capillary wax to samples
Imaging Hardware			
22.3 T Magnet	Bruker GmbH	950 US ²	Narrowbore superconducting magnet
Air cooler	Bruker GmbH	-	Used to regulate probe temperature
Console	Bruker GmbH	Avance III HD	Controls operation of the spectrometer
Micro5 gradient coils	Bruker GmbH	Mic5	Removable gradient coils mount on the Micro5 probe body
Micro5 Probe body	Bruker GmbH	Mic5	Holds microcoils and gradient coils
RF microcoil	Home-built	-	contains Fomblin

Vector Network Analyzer	Copper Mountain Technologies	TR1300/1	Used to perform S11 reflectance test, frequency range 300kHz to 1.3 GHz
Water cooler	Bruker GmbH	BCU-20	Open loop watercooling to dissipate heat from gradient coil operation.