

Materials List for:

Combustion Characterization and Model Fuel Development for Micro-tubular Flame-assisted Fuel Cells

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Materials

Name	Company	Catalog Number	Comments
Gas chromatograph	SRI Instruments, Inc.	SRI 8610C	
K type thermocouples	Omega	KQXL-116G-6	Custom length
K type thermocouple extension wire	Omega	EXTT-K-20-SLE-100	
Mass flow controller	Omega	FMA5427	0-40 L/min (N ₂) Used for methane
Mass flow controller	Omega	FMA5443	0-200 L/min (N ₂) Used for air
Mass flow controller	Omega	FMA5402A	0-10 ml/min (N ₂) Used for CO
Mass flow controller	Brooks Instrument	SLA5850	200 SCCM (Propane) Used for CO ₂
Mass flow controller	Brooks Instrument	SLA5850	5 L/min (Air) Used for N ₂
Mass flow controller	Brooks Instrument	SLA5850	500 SCCM (N ₂) Used for H ₂
Regulator	Harris Products Group	HP721-125-350-F	Methane tank
Regulator	Harris Products Group	HP702-050-590-E	Air tank
Regulator	Airgas	Y11-SR145B	CO tank
Regulator	Harris Products Group	HP702-050-320-E	CO ₂ tank
Regulator	Airgas	Y12-215B	N ₂ tank
Regulator	Harris Products Group	HP702-015-350-D	H ₂ tank
Methane, Compressed, Ultra high purity	Airgas	UN1971	Extremely Flammable
Air, Compressed, Ultra pure	Airgas	UN1002	Not classified as hazardous to health.
CO, Compressed, Ultra high purity	Airgas	UN1016	Toxic by inhalation, Extremely flammable
CO ₂ , Compressed, Research grade	Airgas	UN1013	Asphyxiant in high concentrations
N ₂ , Compressed, Ultra high purity	Airgas	UN1066	Not classified as hazardous to health.
H ₂ , Compressed, Ultra high purity	Airgas	UN1049	Extremely flammable, burns with invisible flame
Source meter	Tektronix, Inc.	Keithley 2420	Connects to computer via USB
Horizontal split tube furnace	MTI Corporation	OTF-1200X	
Data acquisition	National Instruments	NI cDAQ-9172	Connects to computer via USB

Thermocouple input	National Instruments	NI 9211	Connects to cDAQ-9172
Computer control for Mass Flow Controllers	National Instruments	NI 9263	Connects to cDAQ-9172 Computer control for Mass Flow Controllers
Testing software	National Instruments	LabVIEW 8.6	
Ceramabond	Aremco	552-VFG	1 Pint