

Recommended ICP-OES Consumables, Standard Solutions, and Tools For the Lithium Battery Industry



Lithium battery industry consumables workflow

In the upstream and midstream of the lithium-ion battery industry chain, the quality control of raw materials and products requires the testing of anode and cathode materials, electrolytes, diaphragms and other materials by means of instrumental analysis for suppliers of the raw materials, battery manufacturers, and emerging industries such as the electric vehicle power battery sector. In the midstream of the lithium-ion battery industry chain, the research and development of product and safety performance also requires the use of analytical instruments to carry out physical and chemical analysis of each part of the battery.

As a global leader in analytical technology, Agilent has accumulated experience and data in the field of lithium-ion battery material testing. Whether in raw material testing or scientific research work, accurate and effective tolerance accessories are matched to the different needs of the sample introduction system to meet the durability and data quality requirements of different users. At the same time, Agilent also offers a one-stop supply of standard solutions, general consumables, and consumables for the whole production process.



Agilent 5000 Series ICP-OES sample introduction system supplies

Application	Part No.	Description
Lithium carbonate, lithium hydroxide	3710034400	Pump tube, PVC, white/white
	3710034600	Pump tube, PVC, blue/blue
	G8010-60255	U-series Seaspray concentric glass nebulizer
	G8010-60256	Double-pass glass cyclonic spray chamber
	G8010-60236	Torch, semi-demountable with 1.8 mm id injector
	G8010-60264	RV quartz outer tube set
Raw materials and anode materials	1610132400	Y-Piece for online addition of internal standard/ionization buffer
	3710068300	Pump Tube, PVC, orange/green
Lithium sulfate	3710034400	Pump tube, PVC, white/white
	3710034600	Pump tube, PVC, blue/blue
	CP913246	Mira Mist PTFE nebulizer
	G8010-60256	Double-pass glass cyclonic spray chamber
	G8010-60236	Torch, semi-demountable with 1.8 mm id injector
	G8010-60264	RV quartz outer tube set
	1610132400	Y-Piece for online addition of internal standard/ionization buffer
	3710068300	Pump Tube, PVC, orange/green

Application		Part No.	Description	
Raw materials and anode materials	Lithium fluoride	3710034800	Pump tube, PVC SolvaFlex, black/black	
		3710035200	Pump tube, PVC SolvaFlex, grey/grey	
		CP913246	Mira Mist PTFE nebulizer	
		G8014-68002	Inert cyclonic spray chamber	
		G8010-60234	Semi-demountable torch with inert 1.8 mm id ceramic injector, recommended for HF digests	
			G8010-60264	RV quartz outer tube set
			1610132400	Y-Piece for online addition of internal standard/ionization buffer
			3710068000	Pump Tube, SolvaFlex, orange/green, flared ends
		Other samples	3710034400	Pump tube, PVC, white/white
			3710034600	Pump tube, PVC, blue/blue
	G8010-60255		U-series Seaspray concentric glass nebulizer	
	G8010-60256		Double-pass glass cyclonic spray chamber	
	G8010-60236		Semi-demountable torch with 1.8 mm id injector	
		G8010-60263	DV quartz outer tube set	
		1610132400	Y-Piece for online addition of internal standard/ionization buffer	
		3710068300	Pump Tube, PVC, orange/green, flared ends	
Cathode materials	Standard sample introduction system	3710034400	Pump tube, PVC, white/white	
		3710034600	Pump tube, PVC, blue/blue	
		G8010-60255	U-series Seaspray concentric glass nebulizer	
		G8010-60256	Double-pass glass cyclonic spray chamber	
		G8010-60236	Semi-demountable torch with 1.8 mm id injector	
		G8010-60263	DV quartz outer tube set	
		1610132400	Y-Piece for online addition of internal standard/ionization buffer	
		3710068300	Pump Tube, PVC, orange/green	
Lithium hexafluorophosphate electrolyte	Organic solution-tolerant pump tube and inert sample introduction system Can directly analyze organic samples containing HF	3710068100	Pump tube, PVC SolvaFlex, orange/green, flared ends	
		3710035200	Pump Tube, PVC SolvaFlex, grey/grey	
		G8010-60293	Inert OneNeb Series 2 nebulizer	
		G8014-68002	Inert cyclonic spray chamber	
		G8010-60231	Semi-demountable torch with inert 1.8 mm id ceramic injector	
		G8010-60263	DV quartz outer tube set	
		1610132400	Y-Piece for online addition of internal standard/ionization buffer	
N-Methylpyrrolidone (NMP)	Organic sample introduction system	3710044200	Pump tube, Marprene, white/white	
		3710044400	Pump tube, Marprene, blue/blue	
		G8010-60270	Conikal glass concentric nebulizer, only for organic use	
		G8010-60256	Double-pass glass cyclonic spray chamber	
		G8020-68002	Fully demountable torch for organic solvents with 1.4 mm id injector, outer tube and injector can be replaced separately	
		3710035700	Drain tube (connecting the drain pump tube to the waste tank), aldehydes and ketones-tolerant, 1 m/piece. Recommend ordering 2m (2x 3710035700).	
		G8020-60806	Replacement 1.4 mm id quartz injector, to be used with G8020-68002	
		G8014-60022	Replacement high-purity quartz DV outer tube for use with fully demountable torch. Dedicated to organic samples	

Standard Solutions

	Element	Concentration/Substrate	Size	Part No.
Standard solutions	Li	1000 µg/mL, 5% HNO ₃	100 mL	5190-8289
	Ni	1000 µg/mL, 5% HNO ₃	100 mL	5190-8298
	Co	1000 µg/mL, 5% HNO ₃	100 mL	5190-8277
	Mn	1000 µg/mL, 5% HNO ₃	100 mL	5190-8293
	Fe	1000 µg/mL, 5% HNO ₃	100 mL	5190-8285
	S	1000 µg/mL, H ₂ O	100 mL	5190-8529
	P	1000 µg/mL, 5% HNO ₃	100 mL	5190-8499
	Hg	1000 µg/mL, 5% HNO ₃	100 mL	5190-8295
	Mixed standard solution Quality control standard, QCSTD-27	100 mg/L, 5% HNO ₃ , tr. HF	100 mL	5190-9418

Note: Mixed standard QCSTD-27 contains: Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Si, Ag, Sr, Na, Ti, V and Zn

General ICP-OES Supplies

Name	Part No.	Recommended Service Life
Nebulizer cleaner for glass concentric nebulizers	G3266-80020	36 months
Torch tube cleaning stand	G8010-68021	36 months
Torch tube storage stand	G8010-67000	36 months
Wavelength calibration solution	6610030100	18 months
Argon gas inlet filter	G8010-60136	6–12 months
Replacement inlet cooling air filter for 5100/5110 ICP-OES systems	G8000-68002	12 months
Replacement air inlet filter for 5800/5900 ICP-OES systems	G8020-68016	12 months
Waste tank components with activated carbon filter (10 L capacity)	5043-1338	6 months for activated carbon filter
	5043-1193	
	5043-1198	
	5043-1207	

Need further guidance?

If you would like additional advice combined with tips and tricks to help ensure you are able to achieve the best performance, refer to the ICP-OES Resource Hub - <http://www.agilent.com/chem/icp-oes-resource>

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Contact us:

info_agilent@agilent.com

www.agilent.com

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