

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 Number	Description
Raw materials and anode materials	Lithium sulfate	Inert high TDS nebulizer and RV torch outer tube set Lithium sulfate-tolerant samples	3710034400	Pump tube, PVC, white/white
			3710034600	Pump tube, PVC, blue/blue
			G8020-69001	V-groove, inert high TDS 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
	Lithium fluoride	Inert sample introduction system + RV torch outer tube set HF and high salt-tolerant sample introduction system	3710034800	Pump tube, PVC SolvaFlex, black/black
			3710035200	Pump tube, PVC SolvaFlex, grey/grey
			G8020-69001	V-groove, inert high TDS nebulizer
			G8014-68002	Inert cyclonic spray chamber
			G8020-68022	Fully demountable torch with inert 2.4mm id alumina injector
			G8010-60264	Replacement RV quartz outer tube set
			1610132400	Y-Piece for online addition of internal standard/ionization buffer
			G8020-47004	Injector replacement, 2.4mm id alumina (inert)
			3710068000	Pump Tube, SolvaFlex, orange/green, flared ends
	Other samples	High salt-tolerant sample introduction system	3710034400	Pump tube, PVC, white/white
			3710034600	Pump tube, PVC, blue/blue
			G8020-69001	V-groove, inert high TDS nebulizer
			G8010-60256	Double-pass glass cyclonic spray chamber
			G8020-68003	Fully demountable torch with inert 1.8mm id alumina injector
			G8010-60263	Replacement DV quartz outer tube set
			G8020-47005	Injector replacement, 1.8mm id alumina (inert)
			G8020-47004	Injector, optional 2.4mm id alumina (inert) for increased salt (TDS) handling
			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	Replacement 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				

Application	Part Number	Description
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	Injector replacement, 1.4mm id quartz
	G8014-60022	Replacement DV high-purity quartz outer tube for use with organic samples
	G8020-47003	Injector optional 1.4mm id alumina (inert), for increased robustness

Standard Solutions

	Element	Concentration/Substrate	Size	Part Number
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, Tl, Ti, V and Zn

General ICP-OES Supplies

Name	Part Number	Recommended Service Life
Nebulizer cleaner for glass concentric nebulizers	G3266-80020	36 months
Cleaning wire for V-groove inert high TDS nebulizer	5005-0451	
Torch cleaning stand	G8010-68021	36 months
Torch 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 (10 L capacity)	5043-1193	6 months
InfinityLab Stay Safe charcoal filter with time strip, 58 gram	5043-1193	6 months
InfinityLab Stay Safe venting valve with time strip, for rinse bottle kit	5005-1190	6 months

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](#).

Find a local Agilent customer center:

www.agilent.com/chem/contactus

Contact us:

info_agilent@agilent.com



www.agilent.com

DE27845415

Agilent is not responsible for any potential errors in this publication or for any indirect losses resulting from the provision, display or use of this publication.

Information, descriptions, and technical specifications in this publication are subject to change without notice.

© Agilent Technologies, Inc. 2024
Printed in the USA, September 13, 2024
5994-4915EN

