

Inductively Coupled Plasma Mass Spectrometer

ICPMS-2040/2050

Supplies and Maintenance Parts



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Note: Aq. – Specific for aqueous samples

Org. – Specific for organic samples

HF – Specific for HF samples

One-Year Consumables Kit

Part Name	P/N	Remarks	Appearance
One-Year Consumables Kit	220-95356-88	(2) Mini Torches (1) MicroMist DC Nebulizer (1) Ni Sampling Cone (1) Ni Skimmer Cone (1) Helix CT Locking Screw with Seal (1) Graphite Gasket Package (3/pk.) (5) Packs Black-Black Sample Peristaltic Pump Tubing (6/pk.) (5) Packs Orange-Blue Internal Standard Peristaltic Pump Tubing (6/pk.)	

Sample Introduction

Torches

Part Name	P/N	Remarks	Replacement	Appearance
Aq. Mini Torch, 1.5	211-96077	For standard samples	3 months*	
Aq. Standard Torch, 1.8	211-97216	Standard-size diameter torch for high TDS samples	3 months*	3 0 3
HF Mini Torch	211-95846	For samples containing HF	3 months*	
Organics Torch	211-94021-41	Quadruple tube torch for organic solvents	3 months*	

^{*} Varies depending on sample and the frequency of use.

Torch Fittings

Part Name	P/N	Replacement	Appearance
Aq. HF Mini Torch Adaptor (and HF Torch Adapter)	211-93779-42	1 year*	
Org. Torch Adapter for Organic Solvents	211-93780-42	1 year*	
Aq. HF Quartz Sleeve for Mini Torch (Bonnet)	211-95998	1 year*	
Quartz Sleeve for Organics Torch (Bonnet)	211-94047-00	1 year*	
Aq. HF Shield Screen for Mini Torch	211-93819-00	6 months*	
Org. Shield Screen for Organics Torch	211-93820-00	3-6 months*	
Alumina Injector Tube for HF Torch	211-95846-11	3 months*	
Injector Tube Adaptor for HF Torch	211-95846-12	3 months*	
HF Mini Torch Body	211-95846-13	3 months*	Degr.

^{*} Varies depending on sample and the frequency of use.

Nebulizers

Part Name	P/N	Remarks	Replacememt	Appearance
Aq. Org. MicroMist DC Nebulizer, 0.4 mL/min	211-95988	Standard nebulizer for aqueous samples	3-6 months*	
Aq. Org. MicroMist DC Nebulizer, 0.6 mL/min	220-95356-27	Higher flow nebulizer for aqueous samples	3-6 months*	0
Nebulizer PFA 1S	211-95845	Nebulizer for sample containing HF	3-6 months*	

^{*} Varies depending on sample and frequency of use.

Nebulizer Fittings and Tools

Part Name	P/N	Remarks	Appearance
Sample Uptake Tubing	211-97567-41	Introduces sample to nebulizer from peristaltic pump tube	Sourcestand
Argon Carrier Gas Tubing with Ratchet Connector	046-00092-53	Argon gas tubing for DC nebulizers	
Guardian In-Line Sample Filter	220-95356-93	Protects nebulizer from particulates in sample (120 μm PEEK filter)	
In-Line Filter Flushing Adaptor	220-95356-91	Required to connect Guardian in-line sample filter (220-95356-93) to Eluo nebulizer cleaner (220-95356-02)	
Eluo Nebulizer Cleaner	220-95356-02	Dislodges particles and cleans glass concentric nebulizers	The state of the s

Spray Chambers and Accessories

Part Name	P/N	Remarks	Replacement	Appearance
Aq. Org. Glass Twister Spray Chamber	211-96078	Standard borosilicate glass spray chamber	1 year*	
Quartz Twister Spray Chamber	211-95849	Quartz spray chamber for analysis of trace boron	1 year*	
PFA Spray Chamber	211-95848	Cyclone spray chamber for samples containing HF	1 year*	
Aq. Org. Quartz Extension Pipe	211-95574	Extension pipe for standard aqueous samples	1 year*	
Extension Pipe for HF	211-95847	PTFE extension pipe for samples containing HF	1 year*	
Argon Dilution Gas Line	211-95989	Gas line and fitting for aerosol dilution gas	1 year*	
Ball Joint Clip, 12	210-15508-01	Connects extension pipe to torch and spray chamber	1 year*	
Helix CT Locking Screw with Seal	046-00093-95	Lock nut and seal for spray chamber	1 year*	1000

^{*} Varies depending on sample and frequency of use.

Cones

Part Name	P/N	Remarks	Replacement	Appearance
Nickel Sampling Cone	211-97283-03	Comes standard	6 months*	
Nickel Skimmer Cone (small)	211-90200-43	Comes standard	6 months*	
Nickel Skimmer Cone Spacer	211-95342-01	Comes standard	1 year*	
Platinum Sampling Cone	211-97283-04	For sulfuric acid and other highly corrosive samples	1 year*	
Platinum Skimmer Cone (Pt/Cu -single piece)	220-95356-81	For sulfuric acid and other highly corrosive samples	1 year*	
Copper Sampling Cone	220-95356-82	Alternative sampling cone for ultra trace analysis of nickel	6 months*	The Control of the Co
Copper Skimmer Cone (single piece)	211-90200-41	Alternative skimmer cone for ultra trace analysis of nickel	6 months*	
Sampling Cone Gasket	211-90174-41	Graphite gasket for use beneath sampling cone	Recommended when replacing cones	0
Bolt, STST Hex Socket M3X5	022-27001-00	Screw for sampling cone (4 required)		
Bolt, STST Hex Socket M3X6	022-27002-00	Screw for skimmer cone (2 required)		

^{*} Varies depending on sample and frequency of use.

Peristaltic Pump Tubing

Part Name	P/N	Remarks	Replacement	Appearance
Peristaltic Pump Tubing for Standard Samples	018-31558-44	3 stop, flared, black- black PVC 0.76mm ID tubing (6 per pack)	1 week*	
Peristaltic Pump Tubing for Internal Standard	018-31558-43	3 stop, flared, orange- blue PVC 0.25mm ID tubing (6 per pack). For use with internal standard addition kit	1 week*	
Org. Peristaltic Pump Tubing for Organics (Ethanol, Methanol & IPA)	018-31558-61	3 stop, flared, solva PVC 0.76mm ID tubing (6 per pack)	1 week*	
Org. Peristaltic Pump Tubing for Organics (DMF & NMP)	018-31558-32	2 stop, flared, orange- white 0.64mm ID (6 per pack)	1 week*	
Org. Peristaltic Pump Tubing for Organics (Xylene & Kerosene)	016-46043-01	Pump tube, PUR-T, 381-2232F (6 per pack)	1 week*	

^{*} Varies depending on sample and frequency of use.

Drains

Part Name	P/N	Remarks	Replacement	Appearance
Aq. Org. Drain Trap	211-93814-01	Long glass drain trap	1 year*	
HF Hydrofluoric Acid Resistant Drain	220-95356-23	PTFE drain for samples containing HF	1 year*	E 2
Drain Clip	046-00993-01	Nickel plated, spray chamber to drain trap connector	1 year*	A CO
Aq. HF PTFE Drain Clip	220-95356-35	PTFE, spray chamber to drain trap connector for standard and HF samples	1 year*	
Vinyl Tubing, LMT-55, 7/16 x 9/16 x 1/16	016-31429-10	Drains liquid from drain trap to waste container (specify length needed in meters)	3-6 months*	9 1 8
Clamp, SNP-10	037-61113-04	Affixes the waste tube to the standard drain trap	1 year*	2
Cable Tie	072-60320-01	Affixes the waste tube to the HF drain	3 months*	
Waste Container	038-00516-06	10 L Polyethylene waste container		
Org. Drain Union for Organic Solvents	035-65102-01	Drain union for organic solvents to connect the drain and the flexible tube	1 year*	
Org. Tube Joint for Organic Solvents	035-66230-46	Connects the flexible tube and the waste liquid tube	1 year*	
Org. Waste Tube for Organic Solvents	016-43206-00	Polyethylene drain tubing	3 months*	

^{*} Varies depending on sample and frequency of use.

ICPMS-2040/2050 Main Body

Plasma Stand

Part Name	P/N	Remarks	Replacement	Appearance
Coated RF Coil	211-96032	Standard RF coil	1 year	
Plasma Gas Tube Assembly	211-93868-41	Tubing for plasma gas to torch	1 month	
Org. PVC Tubing, LMT-55, 3/16 x 5	016-31428-00	Oxygen-argon mix gas tube	1 month	0
Tygon Tubing, LMT- 55, 1/8 x 1/4 x 1/16	016-31404-00	Tubing for auxiliary gas to torch (specify length needed in meters)	1 month	
Coupler, MC-04PH	035-60903-01	Connects plasma and auxiliary gas tubing to main unit (2 required)	1 year	
Org. Coupler for Organic Solvents	211-93878	Connects gas tube with outlet for O ₂ -Ar mix gas on main unit (1 required)	1 year	
Connector, GAZFIT04	046-00092-25	Connects plasma and auxiliary gas tubing to torch (2 required)	1 year	indudadedede
Org. Connector, GAZFIT06	046-00092-26	Gas connector for organic solvent introduction, connects O ₂ -Ar mix gas tube to torch	1 year	

ICPMS Main Unit

Part Name	P/N	Remarks	Replacement	Appearance
Air Filter	211-91545-00	Air filter at unit base	1 year [†]	
Duct Adapter	211-93832-41	Exhaust duct connection adapter to reduce exhaust outlet to a 4" diameter		

^{*} Lifespan varies depending on environment where instrument is installed.

Argon Supply

Part Name	P/N	Remarks	Replacement	Appearance
Tube, 44PP, White	016-43505-00	Argon supply tubing (specify length needed in meters)		9 1 8
Half Union, ¼"	035-65503-00	Connects argon supply tubing to regulator (nut and ferrule provided)		
Inline Argon Filter, B-4F-7	210-14037-00	Filter for argon supply	1 year	STE.
Insert, B-405-170	035-69703-01	Insert to connect to inline argon filter (2 required)	1 year	
Sleeve Set, B400SET	035-62974-01	Ferrule used when replacing inline argon filter (2 required)	1 year	0
Parker Pneumatic Regulator	220-95248-05	Protects gas box from inadvertent overpressure on argon tank outlet regulator		P32
Fitting, Ni plated Brass Male Connector	220-95248-06	Used with Parker Pneumatic Regulator, PN 220-95248-05		
Gurdian In-Line Gas Filter	220-95356-92	Protects gas box from liquid siphoning and nebulizer from particulates in the gas supply	1 year*	

^{*} Varies depending on sample and frequency of use.

Vacuum System

Part Name	P/N	Remarks	Replacement	Appearance
Dry Pump	211-96382-91	Oil-free, low- maintenance dry pump		CE CONTRACTOR OF THE PARTY OF T
PFPE Rotary Pump	211-90070-42	Fluorine base oil roughing pump		
PFPE Rotary Pump Oil (Y-VAC 06/6) 0.5L	017-30173-01	Oil for PFPE rotary pump (2 required)	1 year*	FORM IN
Vacuum Hose Elbow Connection	211-96090-41	Required for placing the pump under the support stand		
Caster	225-27850-05	Rotary pump stand with caster wheels		2
Noise Absorbing Box, Large	225-27850-07	Requires a separate rotary pump noise reduction box kit (P/N 211-93825-41)		
Long Vacuum Hose, 4 meters	211-97232-42	Longer rotary pump exhaust hose used when positioning rotary pump further from main unit		
RP Power Cable, 3 meters	211-95576-41	Longer rotary pump power cable used when positioning rotary pump further from main unit		

^{*} Varies depending on sample and frequency of use.

Chillers/Cooling Kits

Part Name	P/N	Remarks	Appearance
Standard SMC Model Cooling Water Circulator	211-97273-41	Requires a separate SMC chiller connection kit, P/N 211-93827-43	
Chiller Connection Kit for SMC Water Circulator	211-93827-43	Chiller connection kit for SMC cooling water circulator, PN 211-97273-41	040
Freon-Free, Apiste Model Cooling Water Circulator	211-97274-41	Requires a separate Apiste chiller connection kit, P/N 211-93827-42	W-0 EEE
Chiller Connection Kit for Apiste Water Circulator	211-93827-42	Chiller connection kit for Apiste cooling water circulator, PN 211-97274-41	

Autosamplers, Parts and Accessories

Autosamplers

Part Name	P/N	Remarks	Appearance
AS-20 Autosampler	211-97400-58	Requires power cord. Rotary-type with 60x 15-mL and 8x 50-mL vial positions	
CETAC ASX-280 Autosampler	220-95336-05	Holds 120x 14-mL vials and 10x 50-mL vials for standards. By replacing the standard rack with a rack sold separately, 80x 20-mL vials or 42x 50-mL vials can be held	
CETAC ASX-560 Autosampler	220-95336-04	Holds 240x 14-mL vials and 10x 50-mL vials for standards. By replacing the standard rack with a rack sold separately, 160x 20-mL vials or 84x 50-mL vials can be held	

Shimadzu AS-20 Parts and Accessories

Part Name	P/N	Remarks	Replacement	Appearance
Peristaltic Pump Tubing	042-00405-24	Tubing for rotary pump	6 months*	
Cassette Head for SR10/30	042-00405-11	Peristaltic pump head	1 year*	
Air Filter	211-88565-00	Intake vent filter	1 year*	
Connection Tube	211-83697-00	For connecting the nebulizer suction unit, the probe suction unit, and the rinse solution suction unit	1 month*	

Shimadzu AS-20 Parts and Accessories (continued)

Part Name	P/N	Remarks	Replacement	Appearance
Probe	211-97461-41	Sample probe		
Turntable	206-59715	Holds sixty 15mL test tubes and eight 50 mL test tubes		
Turntable Cover	211-97415	Cover prevents contamination of samples		
Fuse, 218 3.15P	072-02004-21	250 V, 3.15 A, T-type		8 8
Org. Rinsing Port Expansion Kit for Organic Solvents	211-97460-41	Kit consists of a rinsing port and probe for organic solvents		

ASX-280 and **ASX-560** Parts and Accessories

Part Name	P/N	Remarks	Appearance
2-Rack Enclosure	220-95356-51	For ASX-280	
4-Rack Enclosure	220-95356-50	For ASX-560	
Enclosure Flange for Hood Venting	220-95356-53	Replacement enclosure flange	
Enclosure Filter and Adapter	220-95356-57	Used with fan or external ventilation	
Enclosure Fan	220-95356-52	Maintains positive pressure when vent not possible	
2-Rack Enclosure Base	220-95356-59	Optional base for ASX-280 or AS-10 enclosure, when seal along bottom not possible on bench	
4-Rack Enclosure Base	220-95356-58	Optional base for ASX-560 enclosure, when seal along bottom not possible on bench	
Autosampler Probe	220-95336-10	Replacement probe for ASX-280 & ASX-560. 0.8 mm ID, carbon fiber, red band, replace 6 months	0
Rinse and Drain Hookup Kit for Aqueous Samples	220-95336-11	For ASX-280 & ASX-560. Replace yearly	
Organics Rinse and Drain Tubing Kit for ASX Autosampler	220-95336-12	For ASX-280 & ASX-560. Replace yearly	

ASX-280 and ASX-560 Parts and Accessories (continued)

Part Name	P/N	Remarks	Appearance
Single Channel Peristaltic Pump Tubing Cartridge	220-95336-44	For ASX-280 & ASX-560. Replace yearly	
Sample Rack (60 vials)	220-95336-15	For ASX-280 & ASX-560	
Sample Rack (21 vials)	220-95336-17	For ASX-280 & ASX-560	
Polypropylene Sample Vials (14 mL)	220-95369-00	For ASX-280 & ASX-560; 1000/pk	
Polypropylene Sample Vials (50 mL)	220-95336-20	For ASX-280 & ASX-560; 500/pk	
2-Rack Spill Tray for Flat Bottom Flasks	220-95336-22	For ASX-280	
4-Rack Spill Tray for Flat Bottom Flasks	220-95336-23	For ASX-560	
RS-232 Interface Cable	220-95336-27	For ASX-280 & ASX-560	
Z-Axis Drive Assembly	220-95336-30	For ASX-280 & ASX-560	
Z-Axis Tubing	220-95336-31	For ASX-280 & ASX-560	

ASX-280 and ASX-560 Parts and Accessories (continued)

Part Name	P/N	Remarks	Appearance
24-Volt Power Supply	220-95336-33	For ASX-280 & ASX-560	
X-Axis Drive Belt	220-95336-34	For ASX-280 & ASX-560	
Rinse Station	220-95336-41	For ASX-280 & ASX-560	

Sample Cups and Containers

Part Name	P/N	Remarks	Appearance
Vial, 15 mL	046-00147-04	Polypropylene vial, 15 mL capacity, sold as each	Po
Vials, 15 mL	220-95369-00	Polypropylene vials, 16 mL, 1000/pk, for any autosampler	
Org. Glass Test Tube, 12 mL	046-00150-27	Glass sample tube for organic samples and regents	1
Vials, 50 mL	046-00428-01	50 mL capacity, 25/pk, for any autosampler	
Glass Tube, 53 mL	200-93113-05	Glass reagent tube for organic standards and samples	
Rinse Solution Container	206-87284-91	2 L plastic container for rinse solution	

Chemicals & Reagents

Tuning Solutions

Part Name	P/N	Remarks
ICPMS Tuning Solution	220-95357-63	Used to tune the ICPMS-2030/2040/2050
ICPMS Concentrated Tuning Solution	220-95357-65	1000x concentrated tuning mix for ICPMS tuning. Need to dilute this solution 1000 times before use
200.8 Tuning Solution	220-95357-59	Used to tune the ICPMS for Method 200.8 as required by the EPA

Pure Grade Acids

Part Name	P/N	Remarks
Ultra-Pure Nitric Acid (67-70%)	220-95371-01	Used for digestion and to stabilize metals. For ultra-trace metals analysis at ppt level concentrations
Extra-Pure Nitric Acid (67-70%)	220-95371-02	Used for digestion and to stabilize metals. For trace metals analysis at ppb level concentrations
Ultra-Pure Hydrochloric Acid (32-35%)	220-95371-06	Used for digestion and to stabilize metals. For ultra-trace metals analysis at ppt level concentrations
Extra-Pure Hydrochloric Acid (34-37%)	220-95371-07	Used for digestion and to stabilize metals. For trace metals analysis at ppb level concentrations

Standard Solutions

Part Name	P/N	Remarks
ICPMS Standards Set for EPA 200.8 Rev. 4.4	220-95377-10	Contains the 5 required calibration standards in 125 mL vials
ICPMS Standards Set for EPA 200.8 Rev. 5.4	220-95377-11	Contains the 5 required calibration standards in 125 mL vials
USP 232 Oral Elemental Impurities Standard	220-95357-20	Contains the required calibration standard in 125 mL vial
USP 232 Parenteral Elemental Impurities Standard	220-95357-21	Contains the required calibration standard in 125 mL vial
USP 232 Precious Metals Elemental Impurities Standard	220-95357-22	Contains the required calibration standard in 125 mL vial
ICPMS Standards Set for Cannabis Applications	220-95366-70	Contains 500 mL, 1000 ppm of each individual standard: arsenic, cadmium, mercury, lead, scandium, indium, bismuth.

Peripheral Equipment

Tools

Part Name	P/N	Appearance
RF Coil Positioning Jig	211-93716-41	TH
Org. Torch Positioning Jig	211-93834-41	
Skimmer Cone Removal Tool	211-92103-00	
Allen Wrench for Cone Removal	086-03819-00	
Phillips Screwdriver, 5.5X100 #2	086-11014-01	
Magnifier Inspection Tool with Built-in LED Lights	220-95356-75	

Optional Accessories

Part Name	P/N	Remarks
HFS-6 Hydrofluoric Acid Sample Introduction System Kit	211-93828-42	Directly injects samples that contain HF; includes an HF torch, chamber, extension tube, nebulizer, drain, and the corresponding accessories
Organic Solvent Injection System	211-97019-41	System includes a gas controller for mixed gases, a quadruple torch for organic solvents, and pump tubing for organic solvents
Aq. Standard Torch Kit	211-97222-41	Includes a torch with a 1.8 mm injector bore diameter that supports a 1.6 kW high-frequency output, compatible shield screen, bonnet, and adapter
LC Connection Kit	211-96650-41	For configuring an LC-ICP-MS system that combines ICPMS with Nexera inert series or Prominence inert analysis system
3rd Gas Introduction Unit	211-96095-41	Gas controller unit for using a 10% ammonia/90% helium gas mixture as reaction gas in ICPMS-2050
Aq. Automatic Internal Standard Addition Kit, Glass [†]	220-95356-90	For use with peristaltic pump; glass mixing block; for general applications
Online Internal Standard Kit, PEEK	211-95010-41	For use with peristaltic pump; PEEK mixing block; for HF applications
Elegra Argon Humidifier	220-95356-70	Used to humidify argon gas and prevent clogging of the torch and nebulizer when analyzing high TDS samples
ASXpress Rapid Sample Introduction System	220-95379-01	Increases sample introduction efficiency; works with CETAC ASX-280 and ASX-560 ONLY
Power Conditioner for ICP or ICPMS	220-97823-26	5KVA power conditioner with 208/240 Volts in @ 60 Hz and 120/208/240 Volts out @ 20 amps and 60Hz
UPS 10kVa for ICP or ICPMS	220-97823-33	Uninterruptible Power Supply (UPS) for ICPE and ICPMSincludes power backup for instrument, chiller, computer, autosampler and accessories

 $[\]tau\hbox{: Recommended option}$

Software

Part Name	P/N	Remarks
ICPMS-2040/2050 Software Package	211-97650-92	Software Package, LabSolutions ICPMS Ver. 2.0 (English)
LabSolutions CS Connection Kit	211-49241-92	Used to establish the bridge between ICPMS LabSolutions Software and LabSolutions DB
Second License for LabSolutions CS Kit	211-49245-91	Required for running multiple CS platforms
ICPMS LabSolutions DB Connection Kit	211-49204-92	Used to establish the bridge between ICPMS LabSolutions Software and LabSolutions DB
ICPMS V.2.0 TRM LabSolutions Software Package	211-49200-92	Used for time resolved measurement when coupled to LC systems

Regulators

Part Name	P/N	Remarks
Regulator, Argon or Nitrogen	220-95248-02	Pressure Regulator with 1/4 inch barbed nipple, for Argon. CGA-580
Helium Regulator	220-90001-13	Regulator, for 99.999% helium. Inlet fittings: CGA 580; Outlet fitting: 1/4" Swagelok
Hydrogen Regulator	220-90001-14	Regulator, for 99.999% hydrogen. Inlet fittings: CGA 350; Outlet fitting: 1/4" Swagelok
Ammonia Regulator	220-90001-12	Regulator, for 99.999% 10% ammonia + 90% Helium. Inlet fittings: CGA 705; Outlet fitting: 1/4" Swagelok
Regulator for Oxygen & Argon Mixture	220-90001-15	Regulator for 30% Oxygen & 70% Argon Mixture. Inlet fittings: CGA 296; Outlet fitting: 1/4" Swagelok

Chemical Compatibility: AS-20

Standard Set-up

Chemical Name	Sample	Rinse Solution
Water	✓	✓
Hydrochloric Acid	✓	✓
Nitric Acid	✓	✓
Hydrofluoric Acid	✓	×
Methanol	✓	✓
Ethanol	✓	✓
Xylene	✓	✓
Kerosene	√ *1	√ *2
Acetic Acid	×	×
MIBK	√ *1	√ *2
IPA	√ *1	√ *2
DMF	√ *1	√ *2

 ^{√*1:} Use a glass container for the sample and reagent
 √*2: Use rinse station for organics solvents (optional)

[≭]: Not usable



Shimadzu Corporation www.shimadzu.com/AN/

Shimadzu Scientific Instruments 7102 Riverwood Drive, Columbia, Maryland 21046

Phone: 800-477-1227 www.ssi.shimadzu.com

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