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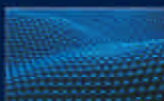
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# Product Catalog

PARTICLE SIZE  
SURFACE AREA  
POROSIMETRY  
DENSITY  
CHEMISORPTION



**2007**

# MultiVolume Pycnometer 1305 and Accessories



For rapid volume measurement of dry powders and solids. Uses sample sizes from 150 to 0.5 cm<sup>3</sup> with  $\pm 0.1$  to 0.2% volume accuracy over the entire measurement range.

130-50000-00 Universal electrical input

## VACUUM GREASE



008-16045-00 Silicone, high vacuum, 150 g

## FUSE



003-51135-00 Slow-Blow, 3 AG, 0.5 A, for 100/120 V mains  
003-51141-01 Slow-Blow, 5 x 20 mm, for 200/240 V mains

## REDUCER



004-25549-00 1/8-in. (0.32-cm) compression fitting to 1/4-in. (0.64-cm) tube

## VOLUME DISPLACEMENT INSERT



135-25803-00 For a 5-cm<sup>3</sup> sample cup  
135-25802-00 For a 35-cm<sup>3</sup> sample cup

## FILTER GASKET



004-27039-00 Cajon (Swagelok) filter gasket for plumbing assembly

## CALIBRATION STANDARD



135-25813-00 2.43 cm<sup>3</sup>  
130-25658-00 16.76 cm<sup>3</sup>  
135-25815-00 25.49 cm<sup>3</sup>

## SAMPLE CUP



135-25805-00 5-cm<sup>3</sup> sample capacity  
135-25804-00 35-cm<sup>3</sup> sample capacity  
135-25812-00 150-cm<sup>3</sup> sample capacity

## FERRULE



004-25103-00 Front, Teflon, for 1/4-in. (0.64-cm) OD tubing  
004-25198-00 Front, Brass, for 1/8-in. (0.32-cm) OD tubing  
004-25104-00 Rear, Nylon, for 1/4-in. (0.64-cm) OD tubing  
004-25199-00 Rear, Brass, for 1/8-in. (0.32-cm) OD tubing

### O-RING



004-25078-00 Buna-N, Size 032, for sample chamber cap

### GAS REGULATOR



004-62230-58 CGA 580 fitting, 30 psig  
004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.

### GAS INLET ASSEMBLY



230-02001-00  
Copper, 1/8-in. with 1/8-in. Swagelok nut and ferrules (6-foot length)

### MANUAL



135-42801-00 Operator's

### KIT

135-33603-00 Extended Operation Supplies; includes fuses, O-rings, filters, and sample cups.

# AccuPyc 1340 Pycnometer and Accessories; AccuPyc 1330 Accessories



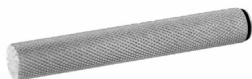
Analysis Module

Control Module

The AccuPyc accurately and precisely measures the density of solids having volumes from 0.1 to 350 cm<sup>3</sup>.

- 134-00000-00 10-cm<sup>3</sup> sample capacity control module
- 134-00001-00 1-cm<sup>3</sup> sample capacity control module
- 134-00002-00 100-cm<sup>3</sup> sample capacity control module
- 134-00010-00 10-cm<sup>3</sup> sample capacity control module, with temperature control capability
- 134-00020-00 100-cm<sup>3</sup> sample capacity control module, with temperature control capability
- 134-00030-00 10-cm<sup>3</sup> sample capacity analysis module, with glove box module
- 134-00031-00 1-cm<sup>3</sup> sample capacity analysis module, with glove box module
- 134-00032-00 100-cm<sup>3</sup> sample capacity analysis module, with glove box module
- 134-00033-00 350-cm<sup>3</sup> sample capacity analysis module, with glove box module
- 134-00040-00 10-cm<sup>3</sup> sample capacity analysis module
- 134-00041-00 1-cm<sup>3</sup> sample capacity analysis module
- 134-00042-00 100-cm<sup>3</sup> sample capacity analysis module
- 134-00043-00 350-cm<sup>3</sup> sample capacity analysis module

## HANDLING TOOL



133-09810-00 For handling 1-cm<sup>3</sup> sample cups

## SAMPLE CUP



- 133-25855-00 1-cm<sup>3</sup> sample capacity
- 133-25805-00 10-cm<sup>3</sup> sample capacity
- 133-25845-00 100-cm<sup>3</sup> sample capacity
- 133-25845-02 350-cm<sup>3</sup> sample capacity

### Filtered Cup Assembly

Used to constrain powdered samples



- 133-25862-00 10-cm<sup>3</sup>
- 133-25863-00 100-cm<sup>3</sup>
- 004-27055-00 Filter paper for 100-cm<sup>3</sup> cup, package of 100

## GREASING DISK



133-25825-00 Used to grease the O-ring in the chamber cap

## SAMPLE CUP INSERT



Allows measurement of smaller samples with the 1-cm<sup>3</sup> AccuPyc

133-25855-01 0.1-cm<sup>3</sup> sample capacity

### Retaining Pliers



133-09601-00 For handling 0.1-cm<sup>3</sup> sample cup insert

## KEYPAD TEMPLATE



- 133-42701-01 French
- 133-42701-02 German
- 133-42701-03 Spanish
- 133-42701-04 Italian

## VACUUM GREASE



008-16045-00 Silicone, high vacuum, 150 g

**GAS REGULATOR**



- 004-62230-58 CGA 580 fitting, 30 psig
- 004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.
- 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

**GAS INLET ASSEMBLY**



- Copper, 1/8-in. with 1/8-in. Swagelok nut and ferrules (6-foot length)
- 290-25846-00 For AccuPyc 1340; uses Valco ferrules
  - 230-02001-00 For AccuPyc 1330

**O-RING**



- 004-25637-00 Chamber cap, 1-cm<sup>3</sup> sample module
- 004-25575-00 Chamber cap, 10-cm<sup>3</sup> sample module
- 004-25577-00 Chamber cap, 100-cm<sup>3</sup> sample module
- 004-25689-00 Chamber cap, 350-cm<sup>3</sup> sample module
- 004-25469-00 For inlet filter

**TUBING**



- 008-32131-00 4 ft. flexible; for connecting a circulating bath unit to the AccuPyc 1330TC



- Tube Fitting**
- 004-25549-00 1/8-in. (0.32-cm) compression fitting to 1/4-in. (0.64-cm) tube
  - 004-25681-01 1/4 in. (0.64), set of 2; for bath circulator connectors on temperature-controlled units.

**CALIBRATION STANDARD**



- 133-34901-00 For 1-cm<sup>3</sup> AccuPyc
- 133-34900-00 For 10-cm<sup>3</sup> AccuPyc
- 133-34902-00 For 100-cm<sup>3</sup> AccuPyc
- 133-34903-00 For 350-cm<sup>3</sup> AccuPyc

**SOFTWARE AND MANUAL**



**AccuPyc II 1340**

Stand Alone

- 134-33003-00 FoamPyc Option, for analysis of rigid foam materials; includes software and operator's manual
- 134-42801-00 Operator's manual
- 134-42803-00 Operator's manual, FoamPyc Option

Windows®

- 134-33005-00 FoamPyc Option, for analysis of rigid foam materials; includes software and operator's manual
- 134-42802-00 Operator's manual
- 134-42804-00 Operator's manual, FoamPyc Option

**AccuPyc 1330**

- 133-33006-00 FoamPyc Option, for analysis of rigid foam materials; includes software and operator's manual
- 133-42808-00 Operator's manual, 10- and 100-cm<sup>3</sup>
- 133-42807-00 Operator's manual, 1-cm<sup>3</sup>
- 133-42810-00 Operator's manual, temperature-controlled unit

**KIT**

- 134-33020-00 Multigas manifold option
- 133-33009-00 FoamPyc Sample Preparation Kit
- 133-33601-00 Extended Operation Supplies for AccuPyc 1330; includes O-rings, fuse, frit, and grease

MultiVolume Kit; allows analysis of smaller samples without sacrificing accuracy or reproducibility.

**AccuPyc 1340**

- 133-33604-00 100-cm<sup>3</sup>, contains 10 cm<sup>3</sup> & 35 cm<sup>3</sup> inserts
- 133-33605-00 10-cm<sup>3</sup>, contains 1 cm<sup>3</sup> & 3.5 cm<sup>3</sup> inserts
- 134-33006-00 1-cm<sup>3</sup>, contains 0.1 cm<sup>3</sup> insert

**AccuPyc 1330**

- 133-33002-00 100-cm<sup>3</sup>
- 133-33003-00 10-cm<sup>3</sup>

# GeoPyc 1360 Pycnometer



Determines envelope or T.A.P. densities and/or volumes using a unique displacement method. When absolute density is provided (AccuPyc 1340), the GeoPyc® also calculates pore volume and percent porosity. Universal electrical input.

136-00000-00	GeoPyc 1360 Envelope Density Analyzer
136-00001-00	GeoPyc 1360 T.A.P.™ Density Analyzer
136-33005-00	T.A.P. Density Upgrade
136-33006-00	Envelope Density Upgrade

## SAMPLE CHAMBER ASSEMBLY



Includes plunger, cup seal, and quad ring. One sample chamber of choice included with purchase of instrument.

136-25801-00	12.7-mm ID
136-25802-00	19.1-mm ID
136-25803-00	25.4-mm ID
136-25804-00	38.1-mm ID
136-25805-00	50.8-mm ID

### Sample Chamber

136-25801-10	12.7-mm ID
136-25802-10	19.1-mm ID
136-25803-10	25.4-mm ID
136-25804-10	38.1-mm ID
136-25805-10	50.8-mm ID

### Plunger Assembly

Consists of piston and piston rod.

136-25801-11	For 12.7-mm ID chamber
136-25802-11	For 19.1-mm ID chamber
136-25803-11	For 25.4-mm ID chamber
136-25804-11	For 38.1-mm ID chamber
136-25805-11	For 50.8-mm ID chamber

## PLUNGER ACCESSORIES

### Piston



136-25801-07	For 12.7-mm ID chamber
136-25802-07	For 19.1-mm ID chamber
136-25803-07	For 25.4-mm ID chamber
136-25804-07	For 38.1-mm ID chamber
136-25805-07	For 50.8-mm ID chamber



### Piston Rod

136-25801-03	Small, for 12.7-, 19.1-, and 25.4-mm chambers
136-25804-03	Large, for 38.1- and 50.8-mm chambers



### Piston Coupling Extender

136-25852-01	For T.A.P. density measurements using the 38.1- and 50.8-mm ID chambers
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## DRYFLO®



004-16831-00	3 Liters
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### SIEVE



004-27059-00 No. 35, 500 mm  
004-27065-00 Pan; used to catch DryFlo

### FUNNEL



004-32177-00 Plastic, for adding DryFlo to  
the sample chamber

### BRUSH



004-54613-00 3/8-in. wide x 3/4-in. long

### MAT



136-25815-00 Black, for sample  
compartment

### KEYPAD TEMPLATE



136-42001-00 English  
136-42002-00 Spanish  
136-42003-00 French  
136-42004-00 German  
136-42005-00 Italian

### SOFTWARE AND MANUALS



136-42801-00 Operator's, Envelope  
Density  
136-42805-00 Operator's, T.A.P. Density

# ASAP 2020 Physisorption and Accessories; ASAP 2010 Accessories



Measures surface area and pore size by physisorption. The one-port analysis manifold/vacuum system and two-port degas manifold/vacuum system are independent and operate concurrently. Powerful Windows-based operating program. Includes DFT Plus® software.

202-00000-11	Nitrogen System, 110 V
202-00000-22	Nitrogen System, 220 V
202-00103-00	HiVac System
202-00123-00	HiVac System, Kalrez
202-00117-00	Micropore System
202-00127-00	Micropore System, Kalrez

## REFERENCE MATERIAL



004-16816-00	Alumina, 0.49 m <sup>2</sup> /g (Krypton), 10 g
004-16818-00	Glass, 5.8 m <sup>2</sup> /g, 10 g
004-16821-00	Silica-alumina pellets, surface area 198 m <sup>2</sup> /g, 10 g
004-16843-00	Micropore, 13X, 10 g, ASAP 2020
004-16844-00	Micropore, Y-zeolite, 2.5 g, ASAP 2020
004-16826-00	Micropore, 10 g, ASAP 2010
004-16833-00	Carbon Black, 24.1 m <sup>2</sup> /g, 10 g

## LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00	Model 021
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## FILTER DISK



004-27041-00	For port fittings, 20-micron, 1/4-in. diameter x 1/16-in. thick
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## DEWAR AND ACCESSORIES



### ASAP 2020

202-25850-00	3 Liter, analysis
202-25849-00	3 Liter, cold trap

### ASAP 2010

004-25871-00	1.9 Liter, standard
004-25872-00	1.9 Liter with hanging clip, for cold traps
200-25928-00	1 Liter, wide mouth, for monolith sample tube
201-33027-00	Dewar Kit, extended life; includes 1 each 2.5 Liter analysis Dewar and cold trap Dewar, and required hardware

### Dewar Cover



### ASAP 2020

202-31707-00	Analysis
202-31708-00	Cold Trap

### ASAP 2010

200-25846-00	Cold trap, steel
200-25846-01	Cold trap, glass
240-25814-00	For 1.9-Liter Dewar
200-25929-00	For 1-Liter Dewar

### Dewar Depth Gauge



240-25901-00	For checking liquid nitrogen level
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**SAMPLE TUBE AND ACCESSORIES**



- 240-61001-00 10-cm<sup>3</sup> bulb, 1/4-in. (0.64-cm) OD stem
- 240-61002-00 10-cm<sup>3</sup> bulb, 3/8-in. (0.96-cm) OD stem
- 240-61003-00 10-cm<sup>3</sup> bulb, 1/2-in. (1.27-cm) OD stem
- 240-61007-00 Monolith, 1/4-in. (0.64-cm) OD stem, with springs, 1/2-in. (1.27-cm) ID x 1-in. (2.5-cm) capacity
- 240-61020-00 Monolith, 1/2-in. (1.27-cm) OD stem, with springs, 1-in. (2.5-cm) ID x 1-in. (2.5-cm) capacity
- 004-61066-00 Straight-wall, 1/2-in. OD (1.27-cm) stem, 10-1/2 in. (26.67 cm) long
- 004-61063-00 Glass, 1/2-in. (1.27-cm) OD stem, 11 in. long, for cold trap

**Filler Rod**



- 240-61014-00 For 1/4-in. (0.64-cm) OD sample tube stem
- 240-61015-00 For 3/8-in. (0.96-cm) OD sample tube stem
- 240-61016-00 For 1/2-in. (1.27-cm) OD sample tube stem

**Rubber Stopper**



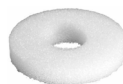
- 240-32000-00 For 1/2-in (1.27-cm) sample tube stems
- 004-32004-00 For 1/4-in. (0.64-cm) & 3/8-in (0.96 cm) sample tube stems

**Funnel**



- 240-25853-00 For filling sample tubes

**Weighing Support**



For supporting sample tubes while weighing

- 240-32805-00 For bulb sample tube
- 280-32800-00 For straight-wall sample tube



**Brush**

- 004-54609-00 For cleaning sample tubes

**Sample Tube Rack**



- 240-14855-00 For holding sample tubes

**SAMPLE TUBE AND ACCESSORIES (continued)**



**Transeal**

Allows transferal of the sample while still under vacuum from the preparation station to the analysis station. Fits only 1/2-in (1.27-cm) sample tubes.

- 201-33026-00 Starter kit; includes three Transeals, hardware, and instructions
- 300-25862-00 Transeal assembly

**ISOTHERMAL JACKET**



**ASAP 2020**

- 202-25901-00 For 1/4-in. (0.64-cm) OD sample tube stem
- 202-25902-00 For 3/8-in. (0.96-cm) OD sample tube stem
- 202-25903-00 For 1/2-in. (1.27-cm) OD sample tube stem

**ASAP 2010**

- 240-32803-03 For 1/4-in. (0.64-cm) OD sample tube stem
- 240-32803-02 For 3/8-in. (0.96-cm) OD sample tube stem
- 240-25867-00 For 1/2-in. (1.27-cm) OD sample tube stem

**HEATING MANTLE WITH THERMOCOUPLE**



Clip

**ASAP 2020**

- 003-26043-00 450 °C, 24 VDC
- 230-25808-00 Heating Mantle Clip

**ASAP 2010**

- 003-26042-00 450 °C, 24 VDC (CE units)
- 200-26001-00 350 °C, Glass, 115 VAC, with K thermocouple
- 200-26002-00 450 °C, Quartz, 115 VAC, with K thermocouple
- 200-26003-00 350 °C, Glass, 115 VAC, with K thermocouple, for monolith sample tube

**SEAL FRIT**



Tool

- 260-25890-00 For 1/2-in sample tube
- 004-54130-00 Tool for seal frit; also used to remove and install openers in the sample ports

**GAS REGULATOR**



- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)
- 004-62230-35 CGA 350 fitting (CO, H<sub>2</sub>), 30 psig
- 004-62230-54 CGA 540 fitting (O<sub>2</sub>), 30 psig
- 004-62230-32 CGA 320 (CO<sub>2</sub>), 30 psig
- 004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.
- 004-33601-01 Expansion Kit; three outlets, includes fittings and instructions.
- 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

**GAS INLET ASSEMBLY**



Copper, 1/8-in. with 1/8-in. Swagelok nut and ferrules (6-foot length)

- 290-25846-00 For ASAP 2020
- 230-02001-00 For ASAP 2010

**CALIBRATION BALL**



135-25815-00 25.487 cm<sup>3</sup>, ASAP 2010; includes traceable certificate for ISO 9000 requirements

**FERRULE**



**Plumbing**

- 004-25103-00 Front, Teflon, for 1/4-in. (0.64-cm) OD tubing
- 004-25104-00 Rear Ferrule, Nylon, for 1/4-in. (0.64-cm) OD tubing

**Sample Tube**

- 240-25803-00 For 1/4-in. (0.64-cm) OD sample tube stem
- 240-25802-00 For 3/8-in. (0.96-cm) OD sample tube stem
- 260-25843-00 For 1/2-in. (1.27-cm) OD sample tube stem

**SATURATION PRESSURE TUBE**



200-25840-00 Includes isothermal jacket

**O-RING**



**Buna-N**

- 004-25466-00 Size 010, for sealing 1/4-in. (0.64-cm) OD sample tube stem and for degas manifold fittings
- 004-25022-00 Size 012, for sealing 3/8-in. (0.96-cm) OD sample tube stem
- 004-25469-00 Size 013, for sealing 1/2-in. (1.27-cm) OD sample tube stem
- 004-25006-00 Size 006, for Po tube
- 004-25652-00 Size 217, for oil vapor trap
- 004-25471-00 Size 018, for degas manifold; ASAP 2010
- 004-25030-00 Size 030, for calibration chamber cap; ASAP 2010

**Kalrez®**

- 004-25674-00 Size 006, for Po tube
- 004-25465-00 Size 010, for analysis manifold internal fittings
- 004-25474-00 Size 013, for sealing 1/2-in. (1.27-cm) OD sample tube stems
- 004-25675-00 Size 015, for sealing 1000-mmHg transducer; ASAP 2010

**CONNECTOR NUT, KNURLED**



- 300-25824-00 For sample tube, ASAP 2020
- 260-28804-00 For sample tube, ASAP 2010
- 202-25825-00 For cold trap, ASAP 2020
- 200-25979-00 For cold trap, ASAP 2010
- 260-25873-00 Plug, for sample port

**VALVE ACCESSORIES**



**Plunger**

- 250-25627-00 Buna-N seal
- 004-25459-00 Kalrez seal



**Wrench**

- 004-25157-00 Spanner, for servicing degas valves



**Gasket**

- 250-25608-00 Kel-F; for analysis manifold valves



**Spring**

- 201-22600-00 For Buna-N seal plunger
- 004-25936-00 For Kalrez seal plunger

**RUBBER MAT, BLACK**



- 202-25821-00 Front shelf, ASAP 2020
- 200-25882-02 Elevator area, ASAP 2010
- 200-25882-04 Degas area, CE units, ASAP 2010

**VAPOR OPTIONS**

**ASAP 2020**



- 202-33050-00 Allows water vapor adsorption studies; includes reservoir containing pre-purified water and installation instructions.

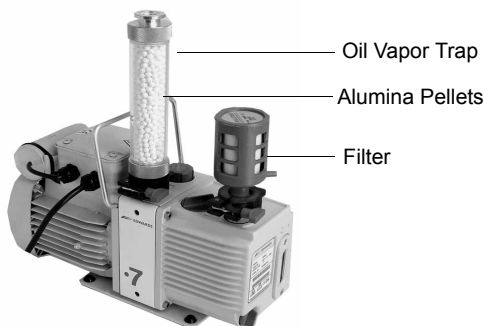


- 202-33051-00 Vapor supply option for vapor studies

**ASAP 2010**

- 201-33621-00 Vapor supply option for ASAP 2010

**VACUUM PUMP AND ACCESSORIES**



Includes vacuum hose, fittings, oil, and manual.

- 062-00001-11 115 V, pump for 2020
- 062-00001-23 230 V, pump for 2020
- 004-27040-00 Filter, for vacuum pump exhaust
- 200-33014-00 Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina (for vacuum pumps)
- 004-16830-00 Activated alumina pellets, 500 grams
- 200-25879-00 Funnel, for filling vacuum pump with oil
- 004-16003-01 Oil, 1 Liter

**VACUUM PUMP AND ACCESSORIES (continued)**

**Dry System**



Includes vacuum hose, fittings, and manual.

- 062-00100-00 Oil-less vacuum pump

**SOFTWARE AND MANUALS**



- 202-33001-00 Current version software and operator's manual, ASAP 2020
- 202-33011-00 CFR Part 11 Confirm software and operator's manual
- 202-33021-00 Rate of Adsorption (ROA) Program; includes software, and operator's manual
- 202-33024-00 DataMaster Program; includes software, and operator's manual
- 202-33025-00 Isotherm Cycling option; includes operating instructions
- 202-42801-00 Operator's manual, ASAP 2020
- 201-42821-00 Operator's manual, ASAP 2010, CE units

**KIT**

- 202-33600-00 Extended Operation Supplies, Nitrogen system, ASAP 2020
- 202-33601-11 Standard degas option, 110 V; enables automatic degassing
- 202-33601-22 Same as 202-33601-11, 220 V
- 202-33602-00 Dry HiVac degas option; recommended when using Mass spec
- 202-33603-00 HiVac option, adds 10-mmHg transducer and high vacuum pump
- 202-33607-00 Micropore option, adds 1-mmHg transducer
- 202-33618-00 Chemi option, upgrades HiVac system to chemisorption system
- 201-33022-00 Hydrocarbon Manifold Upgrade Kit, ASAP 2010
- 004-62109-01 Service Kit for dry vacuum pump; includes replacement diaphragm and seals
- 202-33006-00 Chiller Dewar option, ASAP 2020; used when a chiller is attached to the ASAP analyzer for micropore or subambient temperatures
- 200-33006-00 Chiller Dewar option, ASAP 2010

# ASAP 2020 Chemisorption and Accessories; ASAP 2010 Accessories



Measures metal dispersion and metal surface area by chemisorption. The one-port analysis manifold/vacuum system and two-port degas manifold/vacuum system are independent and operate concurrently. Powerful Windows-based operating program. Universal electrical input.

202-00108-00	Chemi System
202-00118-00	Chemi-Micropore System, 1-mmHg transducer
202-00128-00	Chemi-Micropore System, Kalrez

## REFERENCE MATERIAL



004-16825-00 Pt-alumina Pellets, dispersion 30.5%, 5 grams

## LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00 Model 021

## O-RING



### **Kalrez**

004-25465-00 Size 010, sample port filter disk  
004-25678-00 Size 009, sample exhaust  
004-25474-00 Size 013, sample inlet

## HEATING MANTLE WITH THERMOCOUPLE



### **ASAP 2020C**

003-26043-00 450 °C, 24 VDC  
230-25808-00 Heating Mantle Clip

### **ASAP 2010C**

003-26042-00 450 °C, 24 VDC (CE units)  
200-26001-00 350 °C, Glass, 115 VAC, with K thermocouple  
200-26002-00 450 °C, Quartz, 115 VAC, with K thermocouple  
200-26003-00 350 °C, Glass, 115 VAC, with K thermocouple, for monolith sample tube

## MAT



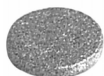
202-25821-00 Front shelf, ASAP 2020  
200-25882-02 Elevator area, ASAP 2010  
200-25882-04 Degas area, CE units, ASAP 2010

### SAMPLE TUBE AND ACCESSORIES



004-61701-00 Quartz, for use with temperatures up to 1100 °C

004-61701-02 Filler rod for quartz tube



**Filter**  
004-27056-00 For sample tube exhaust, 20-micron, 3/16-in. diameter  
004-27041-00 For port fittings, 20-micron



Stopper Cap

**Stopper**  
240-32000-00 Stopper, rubber for sample tube inlet  
004-32604-00 Cap, plastic; for sample tube exhaust



**Weighing Support**  
280-32800-00 For supporting sample tubes while weighing



**Funnel**  
240-25853-00 For filling sample tubes



**Brush**  
004-54609-00 For cleaning sample tubes



**Quartz Wool**  
004-32164-01 4- x 6-in. bag, for containing samples in sample tubes

### CALIBRATION BALL



135-25815-00 25.487 cm<sup>3</sup>, ASAP 2010; includes traceable certificate for ISO 9000 requirements

### CONNECTOR NUT, KNURLED



300-25824-00 For sample tube to manifold  
200-25979-00 For cold trap  
201-25822-00 For sample tube exhaust

### FERRULE



Front

Rear

**Plumbing**  
004-25103-00 Front, Teflon, for 1/4-in. (0.64-cm) OD tubing  
004-25104-00 Rear Ferrule, Nylon, for 1/4-in. (0.64-cm) OD tubing

**Sample Tube**  
275-25803-00 For sample tube exhaust, 1/4 in. stainless steel  
260-25843-00 For 1/2-in. (1.27-cm) OD sample tube stem

### VALVE ACCESSORIES



**Plunger**  
250-25627-00 Buna-N seal  
004-25459-00 Kalrez seal



**Wrench**  
004-25157-00 Spanner, for servicing degas valves in ASAP 2010



**Gasket**  
250-25608-00 Kel-F; for analysis manifold valves




**Spring**  
201-22600-00 For Buna-N seal plunger  
004-25936-00 For Kalrez seal plunger

### GAS REGULATOR



004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)  
004-62230-35 CGA 350 fitting (CO, H<sub>2</sub>), 30 psig  
004-62230-54 CGA 540 fitting (O<sub>2</sub>), 30 psig  
004-62230-32 CGA 320 (CO<sub>2</sub>), 30 psig  
004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.  
004-33601-01 Expansion Kit; three outlets, includes fittings and instructions.  
004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

### GAS INLET ASSEMBLY

	290-25846-00	Copper, 1/8 in., for Chemi controller, ASAP 2020/2010
	201-25818-00	Stainless Steel, 1/8 in., for Chemi controller inlets, ASAP 2020/2010
	230-02001-00	Copper, 1/8 in., with 1/8-in. Swagelok nut and ferrules installed, ASAP 2010

### VACUUM PUMP AND ACCESSORIES



Includes vacuum hose, fittings, oil, and manual.

062-00001-11	115 V, pump for 2020
062-00001-23	230 V, pump for 2020
004-27040-00	Filter; for vacuum pump exhaust
200-33014-00	Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina (for vacuum pumps)
004-16830-00	Activated alumina pellets, 500 grams
200-25879-00	Funnel, for filling vacuum pump with oil
004-16003-01	Oil, 1 Liter


#### Dry System



Includes vacuum hose, fittings, and manual.

062-00100-00	Oil-less vacuum pump
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### SOFTWARE AND MANUALS

	202-33013-00	Current version software and operator's manual, ASAP 2020 Chemi
	202-42808-00	Operator's manual, ASAP 2020 Chemi
	201-42828-00	Operator's manual, ASAP 2010 Chemi, CE units

### KIT

Operating Supplies Kit; includes sample tube, O-rings, stoppers, ferrule, frit, quartz wool, and thermocouple clip

202-33608-00	ASAP 2020 Chemi
201-33608-00	ASAP 2010 Chemi

## FlowSorb III and Accessories; FlowSorb II Accessories



FlowSorb III, a dynamic-flow physical adsorption instrument for single- and multipoint specific surface area analysis.

231-00000-00      FlowSorb III 2310, with automated elevator  
230-50000-00      FlowSorb III 2305, manually operated

231-00002-00      DeSorb III; a three-station outgassing device which is useful where increased sample-throughput is needed for the FlowSorb. Universal electrical input. *Unavailable in countries requiring CE certification.*

### LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00      Model 021

### FERRULE



004-25103-00      Front, Teflon, for 1/4-in. (0.64-cm) OD tubing  
004-25104-00      Rear Ferrule, Nylon, for 1/4-in. (0.64-cm) OD tubing

### HEATING MANTLE WITH THERMOCOUPLE



**FlowSorb III**  
231-26001-00      Glass Fiber, 24 V (400 °C)  
230-25808-00      Heating Mantle Clip

**FlowSorb II**  
230-26001-00      Glass Fiber, 115 V, for standard sample tubes (350 °C)  
230-26002-00      Glass Fiber, 115 V, for monolith sample tubes (350 °C)  
270-26600-00      Quartz Fiber, 115 V, for standard sample tubes (400 °C)

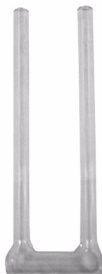
### DEWAR AND ACCESSORIES



004-61004-00      350 mL, with safety sleeve and insulating cover



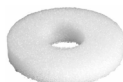
**Dewar Cover**  
230-31801-00      Insulating, for standard Dewar  
230-31801-01      Insulating, split, for cold trap Dewar

**SAMPLE TUBE AND ACCESSORIES**

- 230-61002-00 Cylindrical bottom, 1-cm<sup>3</sup> capacity  
 230-61006-00 Cylindrical bottom, 1-cm<sup>3</sup> capacity, package of 6  
 230-61007-00 Cylindrical bottom, 1-cm<sup>3</sup> capacity, package of 12  
 230-61003-00 Capillary stem, 1-cm<sup>3</sup> capacity  
 230-61004-00 4.7-cm<sup>3</sup> capacity  
 230-61005-00 Monolith, up to 2-cm diameter x 3-cm long solid sample capacity  
 230-61001-00 Micro U-tube, 0.1-cm<sup>3</sup> capacity

**Rubber Stopper**

- 004-32004-00 For sample tube

**Weighing Support**

For supporting sample tubes

- 230-32802-00 For standard sample tube  
 230-32803-00 For monolithic sample tube

**Funnel**

- 240-25853-00 Nylon, for filling sample tubes

**O-RING****Buna-N**

- 004-25034-00 Size 008, for sealing sample tube holder stems  
 004-25466-00 Size 010, for sealing sample tube holder stems and cold trap stems

**CALIBRATION SYRINGE**

- 004-61602-00 Precision, 1 mL  
 004-61606-00 Precision, 0.1 mL (Kr)  
 004-61604-00 Precision, 10 mL

**Septum**

- 004-32602-00 For injection port

**Replacement Injection Needle**

- 004-61604-01 For 10-mL syringe, package of 3  
 004-61602-01 For 0.1- and 1-mL syringes, package of 3

**GAS REGULATOR**

- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)

**GAS SAMPLING ASSEMBLY**

- 290-25842-00 For calibration injections

**SOFTWARE AND MANUALS**

- 231-42801-01 Operator's, FlowSorb III  
 230-42804-00 Operator's, FlowSorb II  
 230-42803-00 Operator's, DeSorb 2300A  
 230-42802-00 Service, FlowSorb II

**KIT**

- 231-33603-00 Extended Operation Supplies for the FlowSorb. Includes septum, O-rings, ferrules, syringes with needles, sample tubes, fuses, stoppers, funnel, sample holder, Dewar, and cold trap cover.



## Gemini V and Accessories



Keypad not used with Windows version

Determines single- and multipoint BET and Langmuir surface areas, total pore volume, and micropore analysis by the t-method. Universal electrical input.

- 236-50001-00 Gemini V 2365; with keypad
- 236-50000-00 Gemini V 2365; with Windows software
- 236-50000-00CFR Gemini V 2365; with CFR Part 11 Confirm software
- 238-00001-00 Gemini V 2380, also provides BJH pore volume distributions; with keypad
- 238-00000-00 Gemini V 2380, also provides BJH pore volume distribution; with Windows software
- 238-00000-00CFR Gemini V 2380, also provides BJH pore volume distribution; with CFR Part 11 Confirm software

### LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00 Model 021

### DEWAR AND ACCESSORIES



004-61064-00 600 mL



#### Dewar Cover

236-31802-01 Right side  
236-31802-02 Left side

### REFERENCE MATERIAL



004-16818-00 Glass, ~ 5.8 m<sup>2</sup>/g, 10 g  
004-16833-00 Carbon Black, ~ 24.1 m<sup>2</sup>/g, 10 g

### GAS REGULATOR



- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)
- 004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.
- 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

### GLASS BEADS



For displacing volume in the balance tube equivalent to the volume of sample in the sample tube when analyzing high volume, low surface area samples.

004-61065-00 3 mm, 90 grams

**RS-232 CABLE**

003-60155-00 25- to 9-pin adaptor cable  
003-20616-01 Shielded, 10 ft., Female/  
Female

**PORT FRIT**

004-27046-00 40 micron, for sample tube  
port  
004-27024-00 2 micron, for balance tube  
port

**O-RING**

**Buna-N**  
004-25022-00 Size 012, for sealing 3/8-in.  
(9.6-mm) OD sample tube  
stem  
004-25466-00 Size 010, for filter disk

**SAMPLE TUBE AND ACCESSORIES**

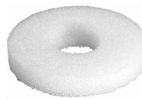
236-61702-00 3/4-in. (19.1-mm) OD bulb x  
6.1-in. (155-mm) long, 9  
cm<sup>3</sup> sample capacity  
236-61703-00 3/8-in. (9.6-mm) OD x 6.1  
in. (155-mm) long, 2 cm<sup>3</sup>  
sample capacity  
236-61707-01 5/8-in. (16-mm) OD x 0.53-  
in. (13.5-mm) ID x 6-in. (152  
mm) long

**Filler Rod**

236-61704-00 For balance and sample  
tubes, 7 mm x 146.1 mm  
236-61705-00 For sample tube, 7 mm x  
101.6 mm  
236-61706-00 Hanging filler rod, 7 mm OD  
236-61708-00 Hanging filler rod, 13 mm  
OD  
236-61709-00 Hanging filler rod, 25.4 mm  
OD  
236-33004-00 Filler Rod Accessory Kit;  
includes two connectors  
with hooks attached and two  
7-mm filler rods.

**Rubber Stopper**

004-32004-00 For 1/4-in. (0.64-cm) &  
3/8-in. (0.96-cm) sample  
tube stems

**SAMPLE TUBE AND ACCESSORIES (continued)****Weighing Support**

280-32800-00 For supporting sample  
tubes while weighing

**Funnel**

For filling sample tubes

240-25853-00 Nylon  
004-25846-00 Aluminum

**Sample Tube Rack**

240-14855-00 For holding sample tubes

**Brush**

004-54611-00 For cleaning standard  
sample tube  
004-54612-00 For cleaning bulb sample  
tube

**FUSE**

003-51113-00 Slow-Blow, 3 AG, 1.5 A, for all  
power settings

**KEYPAD TEMPLATE**

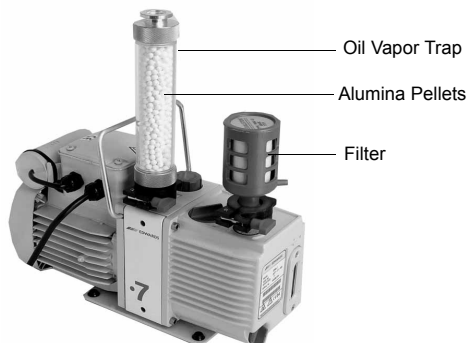
236-42701-01 French  
236-42701-02 German  
236-42701-03 Spanish  
236-42701-04 Italian

**ISOTHERMAL INSERTS FOR SAMPLE PREP UNITS**

Provides an isothermal shield around the  
sample tube for maintaining a uniform  
temperature

065-25811-00 For bulb sample tube  
065-25812-00 For straight-wall sample tube

**VACCUUM PUMP AND ACCESSORIES**



- 062-00001-11 115 V; includes vacuum hose fittings, exhaust filter, oil, and manual
- 062-00001-23 230 V; includes vacuum hose fittings, exhaust filter, oil, and manual
- 004-27040-00 Filter; for vacuum pump exhaust
- 200-33014-00 Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina
- 004-16830-00 Activated alumina pellets, 500 grams
- 200-25879-00 Funnel, for filling vacuum pump with oil
- 004-16003-01 Oil, 1 Liter

**SOFTWARE AND MANUALS**



- 238-33011-00 CFR Part 11 Confirm software and operator's manual
- 238-33002-00 Gemini V software and operator's manual
- 237-33021-00 C-Tab option; converts Geminis 2370 and 2375 to Gemini 2370C. Uses the t-layer thickness program to determine the surface area of carbon black.
- 237-33000-00 Room Temperature Option, allows you to measure gas and vapor adsorption on samples at temperatures in the range of -70 °C to +100 °C.
- 238-42801-00 Operator's manual, Keypad version, Geminis 2365/2380
- 238-42805-00 Operator's manual, Windows version, Geminis 2365/2380
- 237-42850-00 Operator's manual, Gemini 2375, for S/N 1200 and lower
- 236-42820-00 Operator's manual, Gemini 2360, for S/N 1201 and higher
- 237-42820-00 Operator's manual, Gemini 2370, for S/N 1201 and higher
- 237-42825-00 Operator's manual, Gemini 2375, for S/N 1201 and higher

**KIT**

- 236-33601-00 Extended Operating Supplies, includes sample tubes, balance tubes, sample tube brush, reference material, O-rings, frits, ferrules, and stoppers
- 236-33005-00 PrepSeal Kit, used to degas and transfer air-sensitive samples to an analysis port without contamination.
- 236-33004-00 Hanging Filler Rod Accessory Kit, contains two connectors with hooks attached, two filler rods, and installation instructions.
- 236-33010-00 16-mm Sample Tube Kit; includes two sample tubes with fitting assemblies, filler rods, Dewar covers, O-rings, ferrules, and installation instructions.
- 236-33013-00 1-in. Sample Tube Kit; includes two sample tubes with fitting assemblies, filler rods, Dewar covers, O-rings, ferrules, and installation instructions

## Gemini VI and Accessories



Determines single- and multipoint BET and Langmuir surface areas, total pore volume, and micropore analysis by the t-method. Universal electrical input.

238/50000/00 Gemini VI 2385; with keypad  
 238/50001/00 Gemini VI 2385; with Windows software  
 238/50000/00CFR Gemini VI 2385; with CFR Part 11 Confirm software

### LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00 Model 021

### DEWAR



300-25861-20 2.75 Liters



238/31805/00 Dewar Cover

### REFERENCE MATERIAL



004-16818-00 Glass, SA, ~ 5.8 m<sup>2</sup>/g, 10 g  
 004-16833-00 Carbon Black, 24.1 m<sup>2</sup>/g, 10 g

### GAS REGULATOR



004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)  
 004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.  
 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

### GLASS BEADS



For displacing volume in the balance tube equivalent to the volume of sample in the sample tube when analyzing high volume, low surface area samples.

004-61065-00 3 mm, 90 grams

**GAS INLET ASSEMBLY**



230-02001-00 Copper, 1/8-in. with 1/8-in. Swagelok nut and ferrules (6-foot length)

**RS-232 CABLE**



003-60155-00 25- to 9-pin adaptor cable  
003-20616-01 Shielded, 10 ft., Female/ Female

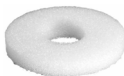
**SAMPLE TUBE AND ACCESSORIES**



236-61703-00 0.95 cm (3/8-in.) OD



**Rubber Stopper**  
004-32004-00 For sample tube stem



**Weighing Support**  
280-32800-00 For supporting sample tubes while weighing



**Funnel**  
For filling sample tubes

240-25853-00 Nylon  
004-25846-00 Aluminum



**Sample Tube Rack**  
240-14855-00 For holding sample tubes



**Brush**  
004-54611-00 For cleaning standard sample tube  
004-54612-00 For cleaning bulb sample tube

**PORT FRIT**



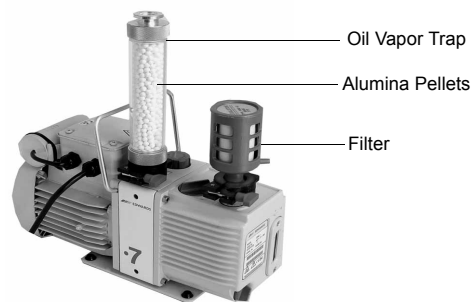
004-27046-00 40 micron, for sample tube port  
004-27024-00 2 micron, for balance tube port

**O-RING**



**Buna-N**  
004-25022-00 Size 012, for sealing 0.95 cm (3/8 in.) OD sample tube stem

**VACUUM PUMP AND ACCESSORIES**



062-00001-11 115 V; includes vacuum hose fittings, exhaust filter, oil, and manual  
062-00001-23 230 V; includes vacuum hose fittings, exhaust filter, oil, and manual  
004-27040-00 Filter; for vacuum pump exhaust  
200-33014-00 Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina  
004-16830-00 Activated alumina pellets, 500 grams  
200-25879-00 Funnel, for filling vacuum pump with oil  
004-16003-01 Oil, 1 Liter

**SOFTWARE AND MANUALS**



238-33012-00 CFR Part 11 Confirm software and operator's manual  
238-33021-00 Gemini VI software and operator's manual  
238-42825-00 Operator's manual, Standard  
238-42831-00 Operator's manual, Confirm

**KIT**

238-33605-00 Operating Supplies Kit; includes sample tube, O-ring, reference material, frit, sample tube stopper, brushes, glass beads, and Dewar cover

## ASAP 2420 and Accessories; 2405 Accessories



Measures surface area and pore size by physisorption. Six analysis ports operate independently allowing a new analysis to begin as soon as another is finished. The ASAP 2420 also has a programmable and fully automated sample preparation module with twelve independently operated ports. Samples may be added or removed from degas ports without disturbing the treatment of other samples undergoing preparation or analysis.

242-00000-11	ASAP 2420, Nitrogen, 110V
242-00000-22	ASAP 2420, Nitrogen, 220V
242-00100-00	ASAP 2420, Nitrogen, Oil-less
242-00102-00	ASAP 2420, Micropore
242-00103-00	ASAP 2420, Krypton

### REFERENCE MATERIAL



004-16821-00	Silica-alumina pellets, surface area 198 m <sup>2</sup> /g, 10 grams
004-16816-00	Alumina, 0.49 m <sup>2</sup> /g, 10 grams (Krypton analyses)
004-16843-00	Micropore, 13X, 10 g
004-16844-00	Micropore, Y-zeolite, 2.5 g

### LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00	Model 021
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### DEWAR AND ACCESSORIES



201-25830-00	2.5 Liter, ASAP 2420
004-25871-00	1.9 Liter, ASAP 2400-2405
240-25829-00	1.0 Liter, for monolith sample tube



#### Dewar Cover

Used during analysis

202-31707-00	For 2.5 Liter Dewar
240-25814-00	For 1.9-Liter Dewar
200-25929-00	For 1-Liter Dewar



#### Dewar Depth Gauge

240-25901-00 For checking liquid nitrogen level in Dewar



#### Dewar Insulator

240-25895-00 Used when Dewar is in lowered position; remove before analysis

**SAMPLE TUBE AND ACCESSORIES**



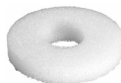
- 240-61003-00 10-cm<sup>3</sup> bulb, 1/2-in. (1.27-cm) OD stem
- 240-61001-00 10-cm<sup>3</sup> bulb, 1/4-in. (0.64-cm) OD stem
- 240-61002-00 10-cm<sup>3</sup> bulb, 3/8-in. (0.96-cm) OD stem
- 240-61020-00 Monolith, 1/2-in. (1.27-cm) OD stem, with springs, 1-in. (2.5-cm) ID x 1-in. (2.5-cm) capacity



- Filler Rod**
- 240-61016-00 For 1/2-in. (1.27-cm) OD sample tube stem
  - 240-61014-00 For 1/4-in. (0.64-cm) OD sample tube stem
  - 240-61015-00 For 3/8-in. (0.96-cm) OD sample tube stem



- Rubber Stopper**
- 240-32000-00 For 1/2-in. (1.27-cm) sample tube stem
  - 004-32004-00 For 1/4-in. (0.64-cm) & 3/8-in. (0.96-cm) sample tube stems



- Weighing Support**
- 240-32805-00 For supporting sample tubes while weighing



- Funnel**
- 240-25853-00 For filling sample tubes



- Sample Tube Rack**
- 240-14855-00 For holding sample tubes



- Brush**
- 004-54609-00 For cleaning sample tubes

**ISOTHERMAL JACKET**



- ASAP 2420**
- 202-25901-00 For 1/4-in. (0.64-cm) OD sample tube stem
  - 202-25902-00 For 3/8-in. (0.96-cm) OD sample tube stem
  - 202-25903-00 For 1/2-in. (1.27-cm) OD sample tube stem

- ASAP 2400/2405**
- 240-32803-03 For 1/4-in. (0.64-cm) OD sample tube stem
  - 240-32803-02 For 3/8-in. (0.96-cm) OD sample tube stem
  - 240-25867-00 For 1/2-in. (1.27-cm) OD sample tube stem

**SATURATION PRESSURE TUBE**



- 240-25810-00 Includes isothermal jacket

**HEATING MANTLE WITH THERMOCOUPLE**



Clip

- ASAP 2420**
- 003-26044-00 450 °C, 24 VDC
  - 003-26045-00 450 °C, 24 VDC for Micropore Option
  - 230-25808-00 Heating Mantle Clip

- ASAP 2400/2405**
- 003-26042-00 450 °C, 24 VDC (CE units)
  - 200-26001-00 350 °C, Glass, 115 VAC, with K thermocouple

**SEAL FRIT**



Tool

- 260-25890-00 For 1/2-in sample tube
- 004-54130-00 Tool for seal frit; also used to remove and install openers in the sample ports

**GAS REGULATOR**



- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)
- 004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.
- 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

**GAS INLET ASSEMBLY**



Copper, 1/8-in. with 1/8-in. Swagelok nut and ferrules (6-foot length)

- 290-25846-00 For ASAP 2420
- 230-02001-00 For ASAP 2405

**PORT FRIT**



004-27041-00 For port fittings, 20-micron, 1/4-in. diameter x 1/16-in. thick

**O-RING**



- Buna-N**
- 004-25466-00 Size 010, for sealing 1/4-in. (0.64-cm) OD sample tube stem and for degas manifold fittings
  - 004-25044-00 Size 013, for sealing 1/2-in. (1.27-cm) OD sample tube stem. Also used for analysis tray and degas manifold fittings
  - 004-25022-00 Size 012, for sealing 3/8-in. (0.97-cm) OD sample tube
  - 004-25066-00 Size 006, for plumbing connection

**CONNECTOR NUT, KNURLED**



300-25824-00 For sample tube to manifold connector

**TRANSEAL**



Allows transfer of the sample while still under vacuum from the preparation station to the analysis station. Fits only 1/2-in (1.27-cm) sample tubes.

- 201-33026-00 Starter kit; includes three Transeals, hardware, and instructions
- 300-25862-00 Transeal assembly

**FERRULE**



Front Rear

**ASAP 2420**

- 004-25103-00 Front, Teflon; for 1/4-in. (0.64-cm) OD tubing
- 004-25104-00 Rear, Nylon; for 1/4-in. (0.64-cm) OD tubing
- 004-25131-00 Front, Teflon; for 1/8-in. maintenance kit
- 004-25132-00 Rear, Nylon; for 1/8-in. maintenance kit
- 004-25913-00 Set, PEEK, for 1/8-in. maintenance kit

**ASAP 2400/05**

- 240-25803-00 For 1/4-in. (0.64-cm) OD sample tube stem
- 240-25802-00 For 3/8-in. (0.96-cm) OD sample tube stem
- 260-25843-00 For 1/2-in. (1.27-cm) OD sample tube stem

**REDUCER**



004-25549-00 1/8-in. (0.32-cm) compression fitting to 1/4-in. (0.64-cm) tube O-ring

**FUSE**



- 003-51130-00 Slow-Blow, 3 AG, 1 A
- 003-51123-00 Slow-Blow, 3 AG, 6.25 A
- 003-51137-00 3 AG, 2 A

**GASKET**



250-25608-00 Gasket, Kel-F, for manifold valve



**VALVES AND ACCESSORIES**



003-22617-00 Solenoid with 0.025 orifice  
 003-22626-00 Solenoid with 0.060 orifice



**Plunger**  
 250-25627-00 Buna-N seal

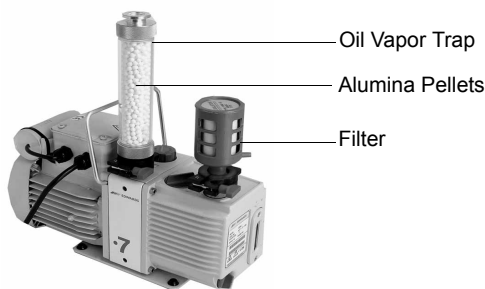


**Spring**  
 201-22600-00 For Buna-N seal plunger  
 004-25936-00 For Kalrez seal plunger



**Wrench**  
 004-25157-00 For servicing degas and P<sub>0</sub> valves on the 2405

**VACUUM PUMP AND ACCESSORIES**



Includes vacuum hose, fittings, oil, and manual.

- 062-00001-11 115 V
- 062-00001-23 230 V
- 200-33014-00 Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina (for vacuum pumps)
- 004-27040-00 Filter; for vacuum pump exhaust
- 004-16830-00 Activated alumina pellets, 500 grams
- 200-25879-00 Funnel, for filling vacuum pump with oil
- 004-16003-01 Oil, 1 Liter

**Dry System**



Includes vacuum hose, fittings, and manual.

- 062-00100-00 Oil-less vacuum pump

**RUBBER MAT**



240-25834-00 Black, for degas shelf

**SOFTWARE AND MANUALS**

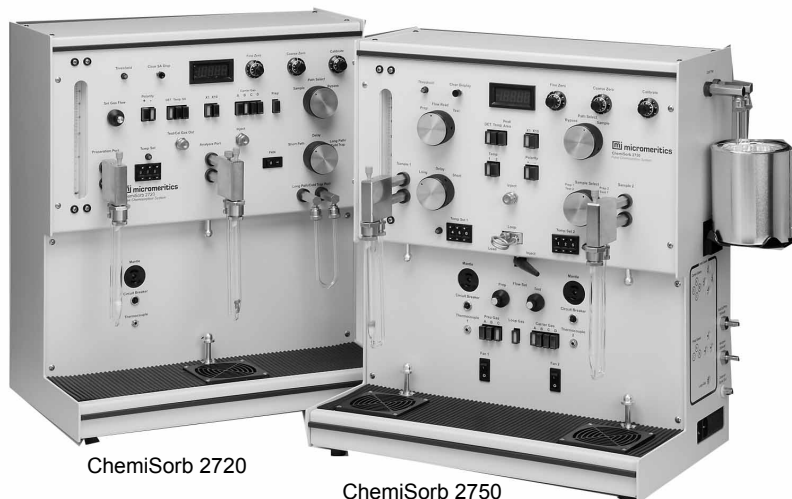


- 242-20800-00 Software package; includes current version of ASAP 2420 software and operator's manual
- 242-42801-00 Operator's manual, ASAP 2420
- 202-33024-00 DataMaster Program; includes software and operator's manual
- 240-42817-00 Operator's manual, ASAP 2405 nitrogen; S/N 500 and higher
- 240-42816-00 Operator's manual, ASAP 2405 nitrogen; S/N 499 and lower
- 240-42816-02 Operator's manual, krypton, ASAP 2405

**KIT**

- 242-33601-00 Operating Supplies Kit; includes solenoid valves, O-rings, ferrules, frit, brush, valve spring, funnel, sample tube, filler rod, stopper, gasket, plunger, and valve assembly.
- 242-33002-00 Micropore Kit; includes software, heating mantles, reference material, and instructions.
- 240-33600-00 Spare Parts Kit, ASAP 2405; recommended for customers in remote locations or those wishing to stock spare parts on site. Includes relays, fuses, O-rings, ferrules, and various assemblies.
- 240-33601-00 Extended Operation Supplies, ASAP 2405. Includes ferrules, O-rings, sample tubes, isothermal jackets, vacuum pump oil, data sheets, etc.
- 240-33602-00 Seal Frit Kit. Includes one insertion/extraction tool for the rings, 18 seal frits and 18 rings.

# ChemiSorb 2720/2750 and Accessories



ChemiSorb 2720

ChemiSorb 2750

Allows chemisorption analysis by pulsed-dynamic method. Also for physical adsorption by dynamic-flow method.

275-00000-00 ChemiSorb 2750  
Dual-function sample ports can be used as a sample port or degas port.

272-00000-00 ChemiSorb 2720  
Dual ports, one for analysis and one for sample preparation.

028-00000-00 ChemiSoft TPx Option  
Enables temperature-programmed studies. Includes a furnace, accessories, software, and operator's manual.

## REFERENCE MATERIAL



- 004-16825-00 Pt-alumina Pellets, dispersion 30.5%, 5 grams
- 004-16833-00 Carbon black, approx. 10 grams
- 004-16836-00 Silver oxide, for TPx applications, approx. 1 gram

## LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

- 021-00000-00 Model 021

## FERRULE



- 004-25103-00 Front, Teflon; for 1/4-in. (0.64-cm) OD tubing
- 004-25104-00 Rear, Nylon; for 1/4-in. (0.64-cm) OD tubing

## DEWAR AND ACCESSORIES



- 004-61617-00 350 mL



- Dewar Cover**  
272-31801-01 Cover, cold trap

## CALIBRATION SYRINGE



- 004-61602-00 1-cm<sup>3</sup>
- 004-61606-00 0.1-cm<sup>3</sup> (Kr)
- 004-61604-00 10-cm<sup>3</sup>

### Septum

- 004-32602-00 For injection port

### Replacement injection needle

- 004-61604-01 For 10-cm<sup>3</sup> syringe, pkg/3
- 004-61602-01 For 0.1- and 1-cm<sup>3</sup> syringes, pkg/3

### SAMPLE TUBE AND ACCESSORIES



- 230-61001-00 Micro U-tube, 0.1-cm<sup>3</sup> capacity
- 230-61002-00 Standard, cylindrical bottom, 1-cm<sup>3</sup> capacity
- 230-61006-00 Standard, cylindrical bottom, 1-cm<sup>3</sup> capacity, package of
- 230-61007-00 Standard, cylindrical bottom, 1-cm<sup>3</sup> capacity, package of 12
- 230-61002-01 Quartz, cylindrical bottom, 1-cm<sup>3</sup> capacity
- 230-61003-00 Cylindrical bottom with capillary stem, 1-cm<sup>3</sup> capacity
- 230-61004-00 Large cylindrical bottom, 4.7-cm<sup>3</sup> capacity
- 270-61005-00 Up to 2-cm diameter x 3-cm long solid sample capacity
- 270-61701-00 Quartz, for TPR analyses
- 272-61702-00 **For 2720/2750**



#### Rubber Stopper

- 004-32004-00 For sample tube stems
- 004-32604-08 Plastic cap, for sample tube exhaust



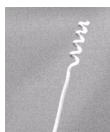
#### Funnel

- 230-25813-00 For easy sample tube filling



#### Brush

- 004-54609-00 wide bristled
- 930-54601-00 Narrow bristled



#### Extraction Tool

- 004-54805-00 For extracting quartz wool from sample tubes

### INJECTION LOOP



Includes fittings

- 270-62800-00 50 µL
- 270-62800-01 100 µL
- 270-62800-02 200 µL
- 270-62800-05 500 µL
- 270-62800-10 1000 µL

### HEATING MANTLE WITH THERMOCOUPLE



Clip

- 231-26001-00 Glass fiber, 24 V (400 °C)
- 270-26600-00 Quartz fiber, 115 V (500 °C); Pulse ChemiSorbs 2700/05
- 230-26001-00 Glass fiber, 115 V, for monolith sample tube (350 °C); Pulse ChemiSorbs 2700/05
- 230-25808-00 Heating Mantle Clip

### GAS REGULATOR



- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)
- 004-62230-59 CGA 590 fitting, 30 psig (ultrapure air)
- 004-62230-35 CGA 350 fitting (CO, H<sub>2</sub>), 30 psig
- 004-62230-54 CGA 540 fitting (O<sub>2</sub>), 30 psig
- 004-62230-32 CGA 320 (CO<sub>2</sub>), 30 psig

### GAS INLET ASSEMBLY



- 290-25846-00 Copper
- 201-25818-00 Stainless steel

### GAS SAMPLING ASSEMBLY



- 290-25842-00 For calibration injections

### O-RING



**Buna-N**

004-25466-00 Size 010  
 004-25034-00 Size 008  
 004-25044-00 Size 013

### RUBBER MAT



272-25830-00 For ChemiSorb 2720  
 275-25810-00 For ChemiSorb 2750

### DATA SHEET



230-42707-00 Multipoint surface area,  
 pad/100

### SOFTWARE AND MANUALS



275-42805-00 Operator's manual,  
 ChemiSorb 2750  
 272-42801-00 Operator's manual,  
 ChemiSorb 2720  
 028-42801-00 Operator's manual,  
 ChemiSoft option

### KIT

275-33601-00 Operating Supplies; includes reference material, fuses, frit, quartz wool, O-rings, ferrules, septum, precision syringes with needles, sample tubes, fittings, 350-mL Dewar and covers, brushes, and heating mantles.

## AutoChem 2920 and Accessories; AutoChem 2910 Accessories



For temperature-programmed desorption/reduction studies on catalysts and similar materials. Universal electrical input.

292-00000-00      AutoChem 2920  
292-00002-00      AutoChem 2920 with Vapor Generator

### MASS SPECTROMETER



Allows quantitative gas analysis

291-33008-01      Pfeiffer Vacuum Model 200  
AMU

### VAPOR GENERATOR



291-33003-00      For mixing an inert carrier  
gas with vapor from a  
precisely heated liquid such  
as pyridine

### LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L  
Dewar, mobile stand, and pump with 100-cm  
discharge line. Universal voltage input.

021-00000-00      Model 021

### FLOWMETER



290-29800-00      10-cm<sup>3</sup> Bubble Burette

### REFERENCE MATERIAL



004-16836-00      Silver oxide

### FLASK



291-61704-00      50 mL, for vapor generator  
004-25129-00      O-ring, Kalrez, for flask

**CALIBRATION SYRINGE**

004-61602-00 1-cm<sup>3</sup>  
 004-61606-00 0.1-cm<sup>3</sup>  
 004-61604-00 10-cm<sup>3</sup>

**Septum**

004-32602-00 For injection port

**Replacement injection needle**

004-61604-01 For 10-cm<sup>3</sup> syringe, pkg/3  
 004-61602-01 For 0.1- and 1-cm<sup>3</sup> syringes, pkg/3

**INJECTION LOOP**

290-62600-00 0.5-cm<sup>3</sup> nominal  
 290-62601-00 1.0-cm<sup>3</sup> nominal  
 290-62602-00 5.0-cm<sup>3</sup> nominal

**THERMOCOUPLE**

291-53904-00 Shaped to enter sample tubes  
 291-61703-00 Sheath, ceramic, for sample thermocouple

**GLOVES**

004-32187-00 Cotton flannel, for handling hot components

**DEWAR AND ACCESSORIES**

004-61064-00 600 mL

**Dewar Cover**

230-31801-00 For cold trap

**O-RING**

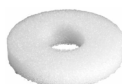
Kalrez, for sealing sample tubes  
 004-25678-00 Size -009  
 004-25465-00 Size -010  
 004-25474-00 Size -013  
 004-25129-00 Size -208

**SAMPLE TUBE AND ACCESSORIES**

291-61702-00 Quartz; for TPD, TPR, and BET analyses

**Stopper/Cap**

004-32004-00 Rubber stopper, for sample tube inlet  
 004-32604-08 Plastic cap, for sample tube exhaust

**Weighing Support**

230-32803-00 Foam, for supporting sample tubes while weighing

**Funnel**

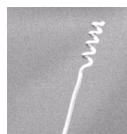
240-25853-00 For filling sample tubes

**Brush**

004-54609-00 Wide bristled  
 930-54601-00 Narrow bristled

**Quartz Wool**

004-32164-01 4- x 6-in. bag, for constraining samples in sample tubes

**Extraction Tool**

004-54805-00 For extracting quartz wool from sample tubes

**FURNACE ASSEMBLY**

291-53801-00 Replacement furnace

**GAS INLET ASSEMBLY**

6-foot length

290-25846-00 Copper  
 201-25818-00 Stainless steel

### GAS REGULATOR



- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)
- 004-62230-59 CGA 590 fitting, 30 psig (ultrapure air)
- 004-62230-35 CGA 350 fitting, 30 psig (CO, H<sub>2</sub>)
- 004-62230-54 CGA 540 fitting, 30 psig (O<sub>2</sub>)
- 004-62230-32 CGA 320 fitting, 30 psig (CO<sub>2</sub>)
- 004-33601-00 Expansion Kit; three outlets, includes fittings and instructions.
- 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Do not use with noxious gases.

### GAS SAMPLING ASSEMBLY



- 290-25842-00 For calibration injections

### REDUCER



- 004-25549-00 1/8-in. (0.32-cm) compression fitting to 1/4-in (0.64-cm) stem

### FERRULE



- 004-25913-00 PEEK; 1/8 in. (0.32 cm<sup>3</sup>), front and rear set
- 004-25912-00 PEEK, 1/16 in. (0.16 cm<sup>3</sup>), front and rear set

### PORT FRIT



- Protects analyzer valves from sample dust and quartz fibers
- 004-27041-00 20 micron, stainless steel, 1/4 in. diameter x 1/16 in. thick

### THERMAL CONDUCTIVITY BLOCK



- 291-29711-00 Nickel-iron, gold-plated filaments
- 291-29712-00 Tungsten, gold-plated filaments

### DELAY LINE ASSEMBLY



- 290-25845-00 For BET analysis

### FLUID



- 004-16247-00 For gas flowmeter and leak checking

### HEATING MANTLE



- 003-26018-00 For vapor generator

### SOFTWARE AND MANUALS



- 292-42803-00 Operator's manual, AutoChem 2920
- 292-33001-00 Operating software and operator's manual, AutoChem 2920
- 291-42801-00 Operator's manual, AutoChem 2910

### KIT

- 291-33600-00 Operating Supplies; includes reference material, O-rings, ferrules, dust mask, gloves, Dewar flask, thermocouple, sample tubes, frits, septum, and cold trap cover
- Detector Update Kit; includes TCD, software, detector, and hardware
- 291-33601-00 Standard
- 291-33602-00 Tungsten

## TriStar 3000 and Accessories



SmartPrep 065

TriStar 3000

Contains three analysis stations allowing you to analyze up to three samples simultaneously.

Shown here with the SmartPrep 065 Degasser (refer to Degassers for ordering information on the SmartPrep)

300-00000-00 Universal electrical input

### LN<sub>2</sub> TRANSFER SYSTEM



For easy filling of sample Dewars. Includes 47-L Dewar, mobile stand, and pump with 100-cm discharge line. Universal voltage input.

021-00000-00 Model 021

### REFERENCE MATERIAL



004-16821-00 Silica-alumina pellets, surface area 198 m<sup>2</sup>/g, 10 g  
004-16833-00 Carbon Black, 24.1 m<sup>2</sup>/g, 10 g

### TRANSEAL



Allows transferal of the sample while still under vacuum from the preparation station to the analysis station. Fits only 1/2-in (1.27-cm) sample tubes.

201-33026-00 Starter kit; includes three Transeals, hardware, and instructions  
300-25862-00 Transeal assembly

### DEWAR AND ACCESSORIES



300-25861-20 2.75 Liters



#### Dewar Cover

300-31802-02 For 1/4-in. & 3/8-in. OD sample tubes

300-31802-03 For 1/2-in. OD sample tube



#### Dewar Depth Gauge

240-25901-00 For checking liquid nitrogen level

### O-RING



#### Buna-N

004-25466-00 Size 010, for sealing 1/4-in. (0.64-cm) OD sample tube stem and for degas manifold fittings

004-25022-00 Size 012, for sealing 3/8-in. (0.96-cm) OD sample tube stem

004-25469-00 Size 014, for sealing 1/2-in. (1.27-cm) OD sample tube stem



### MANIFOLD VALVES



- 003-22617-00 Solenoid with 0.025 orifice, for valves 1 through 10
- 003-22626-00 Solenoid with 0.060 orifice, for valves 11 through 13

### GAS REGULATOR



- 004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)
- 004-62230-32 CGA 320 (CO<sub>2</sub>), 30 psig
- 004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.
- 004-33602-00 Pressure Relief Kit; prevents excessive gas pressure in the event of regulator failure. Not to be used with noxious gases.

### GAS INLET ASSEMBLY



- 230-02001-00 Copper, 1/8-in. with 1/8-in. Swagelok nut and ferrules (6-foot length)

### REDUCER



- 004-25549-00 1/8 in. (0.32 cm) x 1/4 (0.64 cm) in. tube, for gas lines.

### ISOTHERMAL JACKET



- 300-25901-00 For 1/4-in. (0.64-cm) OD sample tube stem
- 300-25902-00 For 3/8-in. (0.96-cm) OD sample tube stem
- 300-25903-00 For 1/2-in. (1.27-cm) OD sample tube stem

### SAMPLE TUBE AND ACCESORIES



- 300-61001-00 1/4-in. (0.64-cm) OD stem
- 300-61002-00 3/8-in. (0.96-cm) OD stem
- 300-61003-00 1/2-in. (1.27-cm) OD stem

#### Filler Rods

- Includes filler rod and retaining ring
- 300-25904-00 For 1/4-in. sample tube
- 300-25905-00 For 3/8-in. sample tube
- 300-25906-00 For 1/2-in. sample tube

#### Replacement Retaining Ring

- 300-25904-02 For 1/4-in. filler rod
- 300-25905-02 For 3/8-in. filler rod
- 300-25905-02 For 1/2-in. filler rod

#### Assemblies

- Includes sample tubes, isothermal jackets, filler rods, ferrules, O-rings, caps, and Dewar cover
- 300-33601-00 1/4-in. sample tube
- 300-33602-00 3/8-in. sample tube
- 300-33603-00 1/2-in. sample tube

#### Rubber Stopper

- 004-32004-00 For sample tubes



#### Weighing Support

- 300-32800-00 For supporting sample tubes while weighing



#### Funnel

- 240-25853-00 For filling sample tubes



#### Brush

- 004-54609-00 For cleaning 1/2-in sample tubes
- 004-54104-00 For cleaning 3/8-in. sample tubes



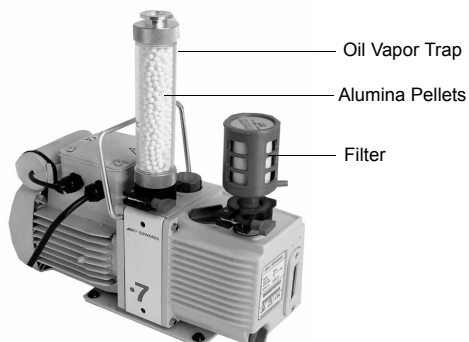
#### Sample Tube Rack

- 240-14855-00 For holding sample tubes



**PORT FRIT**

004-25549-00 40 micron, for sample tube port

**VACUUM PUMP AND ACCESSORIES**

Includes vacuum hose, fittings, oil, and manual.

062-00001-11	115 V
062-00001-23	230 V
200-33014-00	Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina (for vacuum pumps)
004-27040-00	Filter; for vacuum pump exhaust
004-16830-00	Activated alumina pellets, 500 grams
200-25879-00	Funnel, for filling vacuum pump with oil
004-16003-01	Oil, 1 Liter

**CABLE**

003-20665-00 9-pin, male-to-female, 6 ft.

**FERRULE**

300-25825-00	For 1/4-in. (0.64-cm) OD sample tube
300-25826-00	For 3/8-in. (0.96-cm) OD sample tube
260-25843-00	For 1/2-in. (1.27-cm) OD sample tube

**SOFTWARE AND MANUALS**

300-33032-00	Current version software and operator's manual (for S/N 1000 and above)
300-33001-00	Current version software and operator's manual (for S/N below 1000)
300-33011-00	CFR Part 11 Confirm software and operator's manual
300-42832-00	Operator's manual (V6.00 and higher), TriStar 3000

**KIT**

300-33600-00	Operating Supplies Kit; includes reference material, valves, O-rings, vacuum pump oil, activated alumina, exhaust filter, frit, sample tube and filler rod, sample tube stopper, retainer, and Dewar cover.
003-20690-00	USB Expander Kit; for connecting multiple instruments to a single computer

## SediGraph 5120 and Accessories; SediGraph 5100 Accessories



Automatically determines particle size distribution from 300 to 0.1  $\mu\text{m}$  diameter by sedimentation. Universal electrical input.

512-00000-00      Universal electrical input

### MASTERTECH 052



052-00051-00

Automatic sample preparation/feeding device with built-in mechanical stirrer and ultrasonic probe. Redisperses samples to their original level of dispersion and transfers the samples to the analyzer for analysis.

### ULTRASONIC PROBE



Provides high intensity ultrasonic energy to aid in dispersion of powders in liquids (250 W).

500-58902-00      115 V, 50/60 Hz  
500-58903-00      230 V, 50 Hz

### Sound Abating Enclosure

500-58904-00      With positioning jack; for ultrasonic probe



### REFERENCE MATERIAL



- 004-16814-00      Glass, Mass Median Diameter  $\approx 1.5 \mu\text{m}$ , 15 grams
- 004-16837-00      Garnet Powder, Mass Median Diameter  $\approx 3.77 \mu\text{m}$ , 20 grams (traceable to N.I.S.T.)
- 004-16811-00      Garnet Powder, Mass Median Diameter  $\approx 11 \mu\text{m}$ , 15 grams
- 004-16835-00      Calcium Carbonate, Mass Median Diameter  $\approx 0.77 \mu\text{m}$ , 28 grams (traceable to N.I.S.T.)

### LAMP



003-39046-00      For analyzer front panel indicators

**ULTRASONIC BATH**

Provides low-intensity ultrasound to aid in dispersing samples. *Unavailable in countries requiring CE certification.*

003-58601-00 115 V, 60 Hz  
003-58602-00 230 V, 50 Hz

**PERISTALTIC PUMP**

Provides mixing and circulation for sample being passed through the cell

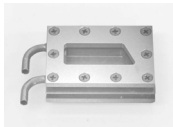
512-62600-00 For SediGraph 5120 (pictured)  
510-62600-00 For SediGraph 5100 and MasterTech

**MIXING CHAMBER ASSEMBLY**

511-25870-00 Standard, 1/4-in. OD; for SediGraph 5120 and SediGraph 5100 S/N 1100 and higher, or high settling velocity cell (large bore)  
511-25870-02 Stainless steel, for high pH resistance 1/4-in. OD, for S/N 1100 and higher or high settling velocity cell (large bore)  
510-25846-00 Cover, for mixing chamber



**Stirrer Bar**  
500-25610-00 Magnetic, Teflon coated

**SAMPLE CELL**

510-25800-00 Small bore  
511-25892-00 Large bore  
511-25866-00 High settling velocity cell

**Cell Window**  
510-32801-01 Polystyrene, set of two (standard)  
510-32804-01 Homalite, set of two

**DISPERSING AID**

004-16838-00 Daxad 23, 30 g

**PLASTIC BOTTLE**

For dispersion or rinse liquids

004-61050-00 10 Liters  
004-61050-01 Modified cap with hole  
510-25869-00 Tube weight, anchors tubing in reservoir bottle

**FILTER****SediGraph 5120**

512-27600-01 Air, 10 ppi (pores per inch)  
512-27600-02 Air, 25 ppi  
512-27600-03 Air, 45 ppi

**SediGraph 5100**

510-27700-00 Air, cabinet  
004-27015-00 Power supply, rear panel; package of 10

**LIGHT EMITTING DIODE**

003-48119-00 (LED) Red, for front panel; for SediGraph 5100

**FUSE**

For SediGraph 5100 non-CE units

003-51113-00 Slow-Blow, 3 AG, 1.5 A; for pumps  
003-51123-00 Slow-Blow, 3 AG, 6.25 A (100-120 VAC); for power supply and X-ray filament voltage  
003-51132-00 Slow-Blow, 3 AG, 3 A (220-240 VAC); for power supply

**TUBING****SediGraph 5120****Tubing Sets for System (small bore)**

512-32812-00	Tygon®
512-32812-01	PharMed™
512-32812-02	Viton®
512-32812-03	Silicone

**Tubing Sets for Pumps (small bore)**

512-32813-00	Tygon®
512-32813-01	PharMed™
512-32813-02	Viton®
512-32813-03	Silicone

**Tubing Sets for System, 1/4-in. (large bore)**

512-32820-01	Tygon®
512-32820-02	PharMed™
512-32820-03	Viton®
512-32820-04	Silicone

**Tubing Sets for Pumps, 1/4-in. (large bore)**

512-32821-01	Tygon®
512-32821-02	PharMed™
512-32821-03	Viton®
512-32821-04	Silicone

**SediGraph 5100****Tubing Sets, pre-cut (universal)**

511-32902-00	Silicone, for aqueous solutions
511-32901-00	Tygon®
511-32909-00	Viton®
511-32913-00	PharMed™

**Tube D, for mixing chamber pump**

510-32905-04	Silicone
510-32903-04	Tygon®
510-32907-03	Viton®

**Tube G, for cell pump (small bore)**

510-32906-03	Silicone
510-32904-03	Tygon®
510-32908-03	Viton®

**Tube J, for cell pump (small bore)**

510-32906-05	Silicone, 3/16-in.
510-32904-05	Tygon®, 3/16-in.
510-32908-05	Viton®, 3/16-in.

**Tube J, for cell pump (large bore)**

510-32903-13	Tygon®, 1/4-in.
510-32905-13	Silicone, 1/4-in.
510-32907-13	Viton®, 1/4-in.

**SEDIPERSE**

004-16827-04 Rinsing Solution, 4 L

**A-11, Viscosity of 1 to 1.5 centipoise (cp)**

004-16801-02	1 L
004-16801-04	4 L

**A-12, Viscosity of 3.4 to 4.9 cp**

004-16802-02	1 L
004-16802-04	4 L

**A-13, Viscosity of 7 to 10.4 cp**

004-16803-02	1 L
004-16803-04	4 L

**A-14, Viscosity of 12.8 to 20.9 cp**

004-16804-02	1 L
004-16804-04	4 L

**P-11, Viscosity of 1.2 to 1.7 cp**

004-16805-02	1 L
004-16805-04	4 L

**P-12, Viscosity of 3.6 to 5.4 cp**

004-16806-02	1 L
004-16806-04	4 L

**S-12, Viscosity of 1.5 to 2.8 cp**

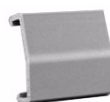
004-16809-02	1 L
004-16809-04	4 L

**W-11, Viscosity of 0.8 to 1.1 cp**

004-16807-02	1 L
004-16807-04	4 L

**W-12, Viscosity of 3 to 4.5 cp**

004-16808-02	1 L
004-16808-04	4 L

**VALVE COVER**

510-25857-00 Grey, for SediGraph 5100

**MASTERTECH ACCESSORIES**

051-14811-00	Tray cover, to prevent beaker contents from evaporating
051-61702-00	Beaker, tall form, polyethylene
051-14814-00	Tray assembly, for beakers

**Ultrasonic Probe Tip**

051-58605-02	1/8-in. for use with MasterTech 051 (S/N 151 and higher) and MasterTech 052
052-58605-02	1/4-in., for use with MasterTech 052 only

**Tubing**

051-32901-00	Tygon
051-32903-00	PharMed

**SOFTWARE AND MANUALS**



- 512-33001-00 Operating software and operator's manual, SediGraph 5120
- 512-42801-00 Operator's manual, SediGraph 5120
- 511-42801-00 Operator's manual, SediGraph 5100 (S/N 2001 and higher)

**KIT**

- 512-33602-00 Operating Supplies Kit; includes reference material, lamp, magnetic stirrer bar, cell windows, air filter, and replacement tubing

## Saturn DigiSizer 5200 and Accessories



Determines particle size distribution from 1000 to 0.1  $\mu\text{m}$  by laser diffraction. Universal electrical input.

- 520-00000-00 With standard liquid sample handler
- 520-00002-00 With low-volume liquid sample handler
- 520-00012-00 Low-volume liquid sample handler

### MASTERTECH 052



052-00052-00  
Automatic sample preparation/feeding device with built-in mechanical stirrer and ultrasonic probe. Redisperses samples to their original level of dispersion and transfers the samples to the analyzer for analysis.

### REFERENCE MATERIAL



004-16841-00 W-13320, Volume Median Spherical  $\cong 4.85 \mu\text{m}$  (traceable to N.I.S.T.)

### ULTRASONIC PROBE



Provides high intensity ultrasonic energy to aid in dispersion of powders in liquids (250 W).

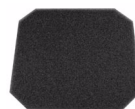
- 500-58902-00 115 V, 50/60 Hz
- 500-58903-00 230 V, 50 Hz

#### Sound Abating Enclosure

500-58904-00 With positioning jack; for ultrasonic probe

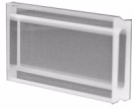


### AIR FILTER



004-27047-01 For rear panel

**SAMPLE CELL**



520-34900-00 Sample cell

**Cleaning supplies**

004-32152-00 Swabs, foam; package/50  
 004-32065-01 Lens paper, package/50  
 004-38600-00 Lens cleaning solution



**O-Ring**

004-25575-00 For sealing sample cell

**GASKET**



520-32802-00 Gasket (spacer), light blocking; for tubing orifices on liquid sample handler

**FUSE (SLOW BLOW)**



**Analysis Unit**

003-51134-00 3 AG, 5 A (100-120)  
 003-51198-00 5x20 mm, 3.15 A (220-240)

**Sample Handler and Ultrasonic Probe**

003-51132-00 3 AG, 3 A (100-120)  
 003-51207-00 5x20 mm, 1.6 A (220-240)

**TUBING**



052-32805-03 For analysis and rinse inlets  
 520-32804-02 For drain outlet  
 520-32803-06 For overflow outlet  
 520-32803-05 For upper sample cell port  
 520-32803-04 For lower sample cell port  
 520-25887-00 Weight, for analysis and rinse tubing  
 051-32901-00 Tygon, for MasterTech  
 051-32903-00 PharMed, for MasterTech

**MASTERTECH ACCESSORIES**

051-14811-00 Tray cover, to prevent beaker contents from evaporating  
 051-61702-00 Beaker, tall form, polyethylene  
 051-14814-00 Tray assembly, for beakers

**Ultrasonic Probe Tip**

051-58605-02 1/8 in., for use with MasterTech 052 and MasterTech 051 (S/N 151 and higher)  
 052- 58605-02 1/4 in., for use with MasterTech 052 only

**Fuses**

003-51130-01 5x20 mm, 1.0 A (220-240)  
 003-51131-00 3 AG, 2 A (100-120)

**Tubing**

051-32901-00 Tygon  
 051-32903-00 PharMed

**SOFTWARE AND MANUALS**



520-33002-00 Current version of software and operator's manual  
 520-33011-00 CFR Part 11 Confirm software and operator's manual  
 520-42801-00 Operator's manual

**KIT**

520-33600-00 Operating Supplies Kit; includes fuses, O-ring, lens paper and cleaner, and tubing



## Elzone II 5390 and Accessories; 5380/5382 Accessories



Automatically counts and determines particle size distribution from 240 to 0.4  $\mu\text{m}$  using the electrical sensing zone method. Universal electrical input.

539-00000-00	Elzone II 5390
539-00001-00	Elzone II with Volumetric Pump
539-00002-00	Elzone II 5390 with Digital Camera
539-00003-00	Elzone II with Camera and Pump

### REFERENCE MATERIAL

Latex Standards used for calibration



004-16840-00	1 $\mu\text{m}$
004-16840-01	2 $\mu\text{m}$
004-16840-02	3 $\mu\text{m}$
004-16840-03	5 $\mu\text{m}$
004-16840-04	10 $\mu\text{m}$
004-16840-05	20 $\mu\text{m}$
004-16840-10	30 $\mu\text{m}$
004-16840-06	40 $\mu\text{m}$
004-16840-07	60 $\mu\text{m}$
004-16840-08	100 $\mu\text{m}$
004-16840-09	160 $\mu\text{m}$

### BEAKER



538-61703-00	Small, 150 mL
538-61703-01	Medium, 240 mL
538-61703-02	Large, 380 mL

### SAMPLE VIAL



538-61706-00	Polystyrene, 25-mL; includes snap-on cap
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### STIRRING DEVICES



Maintain sample dispersion during analysis

#### Stirrer

538-61704-01	Medium
538-61704-02	Large

#### Hydropulser

539-34020-00	Gentle agitation by pulse
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### PLASTIC BOTTLE



004-61039-01	2 Liters, for supply liquid
004-32117-00	2 Liters, for waste liquid
539-60804-01	Cable sensor for waste liquid

### SQUEEZE BOTTLE



004-32209-00	500 mL, for cleaning glassware
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**CAMERA**



**Elzone II 5390**  
539-33602-00 Camera w/ software and light

**Elzone 5380/5382**  
538-38700-00 Microscope assembly  
538-34890-00 Side light assembly  
003-60171-00 Replacement bulb

**FUSE, SLOW-BLOW**



003-51130-00 1.0 A, 3 AG  
003-51193-00 0.5 A 5x20 mm (T1 delay)

**TUBING**



539-32804-00 Flexible, for waste bottle  
539-32805-00 Flexible, for supply bottle  
539-32803-04 Flexible, for hydropulser  
539-32802-08 Rigid, for hydropulser  
539-32804-00 Flexible, for waste bottle

**ELECTRODE**



**Elzone II 5390**  
539-60810-00 External electrode

**Elzone 5380/5382**  
538-34806-00 External electrode, Pt-Rh

**O-RING**



**Elzone II 5390**  
004-25474-00 -013, for sample port  
004-32614-00 -009, for stirrer

**Elzone 5380/5382**  
004-25006-00 -006, for exit tube  
004-25948-00 For stopper/float

**ORIFICE TUBE**



**Elzone II 5390**  
539-61702-01 19  $\mu\text{m}$   
539-61702-02 30  $\mu\text{m}$   
539-61703-03 48  $\mu\text{m}$   
539-61702-04 76  $\mu\text{m}$   
539-61702-05 95  $\mu\text{m}$   
539-61702-06 150  $\mu\text{m}$   
539-61702-07 190  $\mu\text{m}$   
539-61702-08 300  $\mu\text{m}$   
539-61702-09 380  $\mu\text{m}$

**Elzone 5380/5382**  
538-61700-00 12  $\mu\text{m}$   
538-61700-01 19  $\mu\text{m}$   
538-61700-03 30  $\mu\text{m}$   
538-61700-05 48  $\mu\text{m}$   
538-61700-07 76  $\mu\text{m}$   
538-61700-08 95  $\mu\text{m}$   
538-61700-10 150  $\mu\text{m}$   
538-61700-11 190  $\mu\text{m}$   
538-61700-13 300  $\mu\text{m}$   
538-61700-14 380  $\mu\text{m}$   
538-61700-15 480  $\mu\text{m}$   
538-61700-18 950  $\mu\text{m}$   
538-61700-21 1900  $\mu\text{m}$   
539-33605-00 Elzone II 5390 adapter clip; allows 5380/5382 tubes up to 380  $\mu\text{m}$  to be used on 5390

**ORIFICE TUBE KIT**

Includes reference material



539-33610-00 19  $\mu\text{m}$   
539-33611-00 30  $\mu\text{m}$   
539-33612-00 48  $\mu\text{m}$   
539-33613-00 76  $\mu\text{m}$   
539-33614-00 95  $\mu\text{m}$   
539-33615-00 150  $\mu\text{m}$   
539-33616-00 190  $\mu\text{m}$   
539-33617-00 300  $\mu\text{m}$   
539-33618-00 380  $\mu\text{m}$

**BRUSH**



004-54615-00 For cleaning orifice tube



004-54616-00 Bent, for cleaning orifice jewel

**CLIP**



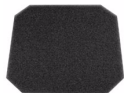
539-25856-00 For hydropulser tube

**GLASS SINKER**



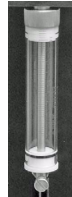
**Elzone 5380/5382**  
537-61701-00 Keeps electrolyte feed tube secure

**AIR FILTER**



004-27015-00 Rear panel, package of 10

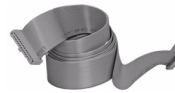
**VOLUMETRIC PUMP**



539-33604-00 Enables you to measure particle concentration

**ELZONE 5380/5382 ACCESSORIES**

**Ribbon cable**



538-60806-00 Upper  
538-60807-00 Lower  
003-63704-00 SCSI-2

**H-Piece Assembly**

538-25802-00 Complete assembly  
538-61708-00 Exit tube, plain

**SOFTWARE AND MANUALS**



**Elzone II 5390**

539-33001-00 Current version of operating software and operator's manual  
539-33011-00 Current version of CFR Part 11 Confirm software and operator's manual  
539-42801-00 Operator's manual, Standard  
539-42811-00 Operator's manual, Confirm

**Elzone 5380/5382**

538-33005-00 Current version of operating software and operator's manual, Model 5382  
538-33006-00 Current version of operating software and operator's manual, Model 5380  
538-42802-00 Operator's manual, Model 5382  
538-42806-00 Operator's manual, Model 5380

## AutoPore IV and Accessories; AutoPore III Accessories



Performs automatic pore structure studies from 360 to 0.03  $\mu\text{m}$  pore opening diameter. Powerful Windows-based software. Requires a gas regulator. Universal electrical input.

### AutoPore IV 9520 (60,000 psia)

952-00000-00 Has four low-pressure ports and two high-pressure chambers

952-00001-00 Adds additional unit, no software included

### AutoPore IV 9510 (60,000 psia)

951-00000-00 Has two low-pressure ports and one high-pressure chamber

951-00001-00 Adds additional unit, no software included

### AutoPore IV 9505 (33,000 psia)

950-50000-00 Has four low-pressure ports and two high-pressure chambers

950-50001-00 Adds additional unit, no software included

### AutoPore IV 9505 (33,000 psia)

950-00000-00 Has two low-pressure ports and one high-pressure chamber

950-00001-00 Adds additional unit, no software included

### REFERENCE MATERIAL



004-16822-00 Average pore diameter  $\cong$  0.0075  $\mu\text{m}$ , Pore Volume  $\cong$  0.5  $\text{cm}^3/\text{g}$ ; 15 grams

### REFERENCE VOLUME



940-34801-00 Mercury Volume Reference kit; includes capsules and membranes for 3- and 5- $\text{cm}^3$  penetrometers and instructions

940-34800-00 Capsule assembly, for 3- $\text{cm}^3$  penetrometers

940-34800-01 Capsule assembly, for 5- $\text{cm}^3$  penetrometers

940-25600-00 Membrane, 8 microns

940-25600-01 Membrane, 3 microns

940-14800-00 Retaining clip

### FUNNEL



950-25842-00 For filling mercury reservoir

### MERCURY



004-16004-01 5 lbs

### GAS REGULATOR



004-62200-58 CGA 580 fitting, 100 psig (Ar, He, Kr,  $\text{N}_2$ )

004-33601-00 Expansion Kit; two outlets, includes fittings and instructions.

**PENETROMETER ASSEMBLY**



Includes closure and seal

**Solid Samples**

950-61701-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 0.37 cm <sup>3</sup>
950-61703-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 1.06 cm <sup>3</sup>
950-61705-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 1.72 cm <sup>3</sup>
950-61707-00	Sample Volume = 5 cm <sup>3</sup> , Intrusion Volume = 0.366 cm <sup>3</sup>
950-61709-00	Sample Volume = 5 cm <sup>3</sup> , Intrusion Volume = 1.05 cm <sup>3</sup>
950-61711-00	Sample Volume = 5 cm <sup>3</sup> , Intrusion Volume = 1.72 cm <sup>3</sup>
950-61713-00	Sample Volume = 3 cm <sup>3</sup> , Intrusion Volume = 0.387 cm <sup>3</sup>
950-61715-00	Sample Volume = 3 cm <sup>3</sup> , Intrusion Volume = 1.12 cm <sup>3</sup>
950-61724-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 3.01 cm <sup>3</sup>
950-61725-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 3.86 cm <sup>3</sup>

**Powder Samples**

950-61702-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 0.37 cm <sup>3</sup>
950-61704-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 1.06 cm <sup>3</sup>
950-61706-00	Sample Volume = 15 cm <sup>3</sup> , Intrusion Volume = 1.72 cm <sup>3</sup>
950-61708-00	Sample Volume = 5 cm <sup>3</sup> , Intrusion Volume = 0.366 cm <sup>3</sup>
950-61710-00	Sample Volume = 5 cm <sup>3</sup> , Intrusion Volume = 1.06 cm <sup>3</sup>
950-61712-00	Sample Volume = 5 cm <sup>3</sup> , Intrusion Volume = 1.72 cm <sup>3</sup>
950-61714-00	Sample Volume = 3 cm <sup>3</sup> , Intrusion Volume = 0.387 cm <sup>3</sup>
950-61716-00	Sample Volume = 3 cm <sup>3</sup> , Intrusion Volume = 1.12 cm <sup>3</sup>

**Glassware**

When ordering glassware only, change the prefix of the assembly to **920** and the suffix to **01**. Example: If you wish to order glassware for 950-61701-00, you would order **920-61701-01**.

**PENETROMETER ASSEMBLY (continued)**

**Penetrometer Closure**

Reduces amount of blank correction required



950-33605-00	Closure Kit, for 3- and 5-cm <sup>3</sup> penetrometers; includes six closure sets, tools, and instructions
950-33606-00	Closure Kit, for 15-cm <sup>3</sup> penetrometers; includes six closure sets, tools, and instructions
950-25831-00	Closure Set, for 3- and 5-cm <sup>3</sup> penetrometers; includes nut and seal
950-25831-00	Closure Set, for 15-cm <sup>3</sup> penetrometers; includes nut and seal
950-09803-00	Wrench, penetrometer closure
950-09802-00	Holder, penetrometer

**SYRINGE**



942-25823-00	50 cm <sup>3</sup> , used to withdraw high pressure fluid when cleaning chambers
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**BRUSH**

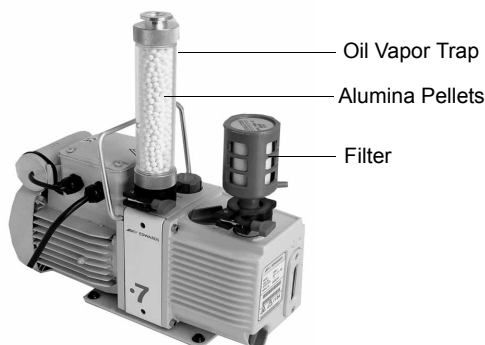


For cleaning penetrometers	
930-54601-00	0.4-cm <sup>3</sup> stems
930-54602-00	1.1-cm <sup>3</sup> stems
930-54603-00	1.8-cm <sup>3</sup> stems

**FERRULE**



004-25105-00	Front, Teflon, for 3/8-in. (0.96-cm) OD tubing
004-25103-00	Front, Teflon, for 1/4-in. (0.64-cm) OD tubing
004-25131-00	Front, Teflon, for 1/8-in. (0.32-cm) OD tubing
004-25104-00	Rear Ferrule, nylon, for 1/4-in. (0.64-cm) OD tubing
004-25106-00	Rear, nylon, for 3/8-in. (0.96-cm) OD tubing
004-25132-00	Rear, nylon, for 1/8-in. (0.32-cm) OD tubing

**VACUUM PUMP AND ACCESSORIES**

Includes vacuum hose, fittings, oil, and manual.

062-00000-11	115 V
062-00000-23	230 V
004-27040-00	Filter; for vacuum pump exhaust
200-33014-00	Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina (for vacuum pumps)
004-16830-00	Activated alumina pellets, 500 grams
200-25879-00	Funnel, for filling vacuum pump with oil
004-16003-01	Oil, 1 Liter
920-16001-00	High Pressure Fluid, 1 Liter

**VACUUM GREASE**

For sealing and lubricating vacuum and pressure systems

004-16007-00	Apiezon-H vacuum grease, 25 grams
008-16045-00	Silicone grease, high vacuum, 150 grams

**VACUUM GAUGE TUBE**

920-62606-00	Teledyne Hastings - TYPE DV-3CR
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**SOFTWARE AND MANUALS**

950-42801-00	Operator's manual, AutoPore IV
942-42805-00	Operator's manual, for AutoPore III

**KIT**

Extended Operation Supplies; includes O-rings, greases, high-pressure fluid, vacuum pump oil, seals, and valve parts.

950-33600-00	For AutoPore IV
942-33600-00	For AutoPore III
942-33602-00	Spare Parts Kit for AutoPore III; for customers in remote location or where stocks need to be stocked on site.
922-33607-00	Cup Seal Kit; includes back-up rings and seals.
920-33616-00	High Pressure Maintenance Kit; includes rings, seals, contacts, and banana plugs.
090-33600-00	Banana Plug Servicing Kit; includes banana plugs, installation tool, and instructions.
942-33021-00	Exhaust Fan Kit; includes fan and installation instructions.

## Degassing Units

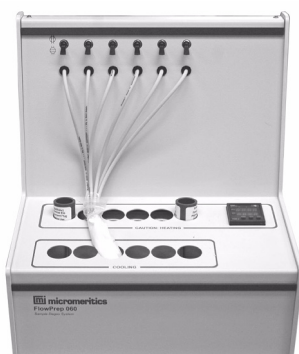
### VACPREP 061



Degasses up to six samples at up to 400 °C with either flowing gas or evacuation (requires a vacuum pump and gas regulator).

061-00023-00 VacPrep for Gemini  
061-00030-00 VacPrep for TriStar

### FLOWPREP 060



Degasses up to six samples at up to 400 °C with flowing gas (requires a gas regulator).

060-00023-00 FlowPrep for Gemini  
060-00030-00 FlowPrep for TriStar

### SMARTPREP 065



Automated degasser with Windows-software interface. Degasses up to six samples at up to 400 °C with flowing gas (requires a gas regulator).

065-00023-00 SmartPrep for Gemini

### ISOTHERMAL SHIELD



**TriStar**  
065-25815-00 Placed around the sample tube for maintaining a uniform temperature.



**Gemini**  
Acts as an isothermal shield for Gemini sample tubes in degassing devices

065-25811-00 For 3/4-in. (1.91-cm) OD bulb tubes

065-25812-00 For 3/8-in. (0.96-cm) OD straight-wall tubes

### ISOTHERMAL SHIELD REMOVAL TOOL



065-54800-00 For removing hot Gemini spacers from degassing devices

### GLOVES



004-32187-00 Cotton flannel, for handling hot components

### FILTER



004-27015-00 SmartPrep air filter; package of 10

### VACUUM PUMP AND ACCESSORIES



Required when using the VacPrep 061. Includes vacuum hose, fittings, oil, and manual.

- 062-00000-11 115 V
- 062-00000-23 230 V
- 004-27040-00 Filter; for vacuum pump exhaust
- 200-33014-00 Oil Vapor Trap Kit; Includes two oil vapor traps, manual, and alumina (for vacuum pumps)
- 004-16830-00 Activated alumina pellets, 500 grams
- 200-25879-00 Funnel, for filling vacuum pump with oil
- 004-16003-01 Oil, 1 Liter

### GAS REGULATOR



004-62230-58 CGA 580 fitting, 30 psig (Ar, He, Kr, N<sub>2</sub>)

### SOFTWARE AND MANUALS



- 061-42802-00 Operator's manual, VacPrep 061
- 060-42803-00 Operator's manual, FlowPrep 060
- 065-42801-00 Operator's manual, SmartPrep 065
- 065-33001-00 SmartPrep software package; includes current version software and operator's manual.



## Micromeritics Analytical Services

Micromeritics Analytical Services, the Particle Testing Authority specializes in the characterization of fine powders and solid materials. Particle characterization analyses include:

### Particle Size Analysis

- Laser light scattering - wet and dry techniques
- Electrical sensing zone (Elzone)
- Sedimentation (SediGraph)
- Sieves, Microscopy
- Dynamic image analysis

### B.E.T. Surface Area Analysis

- Static volumetric
- Flowing gas

### Pore Size Analysis

- Gas adsorption techniques
- Mercury porosimetry

### Chemisorption Methods

- Pulse chemisorption
- Percent dispersion of metal catalyst
- Temperature program studies
- Mass spectrometry

### Density

- Skeletal density
- Envelope density
- Bulk density
- Tap density

### Special services

- Method development
- Method validation

Contact us or request a brochure and price list by:

Telephone: (770) 662-3630

E-mail: [mas@particletesting.com](mailto:mas@particletesting.com)

Internet: [www.particletesting.com](http://www.particletesting.com)

## General Notes

Shipment of some instruments and accessory items outside the U.S.A. without a valid export license is a violation of U.S. Federal Law. Contact Micromeritics' headquarters in Norcross, GA, U.S.A. or one of its direct offices in the U.K., Belgium, France, Germany, Italy, or China for information on export requirements for specific instruments and accessories.

Place your order by:

Telephone: (770) 662-3636

E-mail: [customerservice@micromeritics.com](mailto:customerservice@micromeritics.com)

Internet: [www.micromeritics.com](http://www.micromeritics.com)