

SPECTROGRAPHIC STANDARDS, SUPPLIES and ACCESSORIES PRICE LIST

SEPTEMBER 1960

INFRARED • EMISSION • X-RAY

GENERAL INFORMATION

CATALOG SPECIFICATIONS

Although catalog information is as representative of the product as possible, we must reserve the right to make changes in specifications, prices and also to delete or add items. Where applicable, reference is given to issues of THE SPEX SPEAKER containing more detailed descriptions. Current information will be provided upon request.

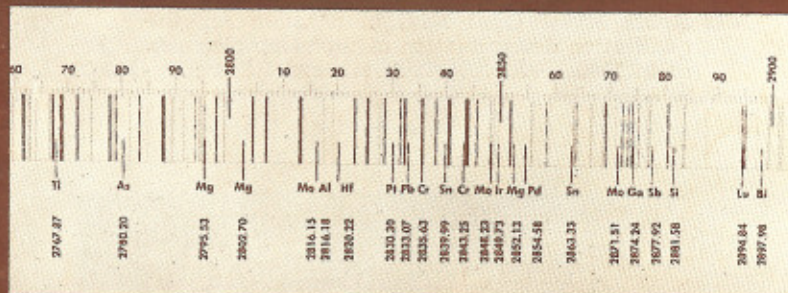
PRICES AND TERMS

Prices listed are F.O.B. Scotch Plains, N. J., net 30 days to rated firms, with the following exceptions: high purity graphite electrodes, powders and rods are shipped F.O.B. destination. This also applies to case lots of plates and film shipped within a radius of 150 miles from our plant.

Foreign orders will be accepted subject to U.S.A. regulations. We reserve the right to add an export charge where excessive handling or special packing is required.

GUARANTEE

Each item is guaranteed to conform to specifications in the catalog or to later specifications for an improved model of that item.



MASTER PLATES: Color coded and matched to your spectrograph.

1103 Master Plates, covering any wavelength interval from 1950 to 4600Å, individually matched to any linear dispersion spectrograph. Persistent lines of about 70 elements are given with color coded labeling for ease in identification. To order please send us an iron spectrum covering the region of interest and made under conditions normally used. Also specify 2" x 10" or 4" x 10" plate size for mounting.

10 inches of spectrum \$85.00

SPEX

INDUSTRIES, INC., SCOTCH PLAINS, N. J. • SPECIALISTS IN SPECTROSCOPY

POWDER STANDARDS

COMMON ELEMENT STANDARDS

(Vol. II, No. 2)

These standards are used for the rapid analysis of most materials encountered by the spectrochemist. The 43 elements contained are as follows: Ag Al As B Ba Be Bi Ca Cd Ce Co Cr Cs Cu F Fe Ge Hg K Li Mg Mn Mo Na Nb Ni P Pb Rb Sb Si Sn Sr Ta Te Th Ti Tl U V W Zn Zr.

- 1000 Spex Mix.** Base from which standards are prepared. This material is used for the analysis of "pure" chemicals. For this purpose it is mixed with the unknown to be analyzed. It may also be used to prepare sets of standards of matrices other than those supplied. Each element in Spex Mix is present at 1.34% concentration.
2 grams \$36.00
- 1001 Z Standards.** 0.1%, 0.01% and 0.001% of above elements in zinc oxide base. Particularly useful for the analysis of organic materials. 3 standards, 2 grams eachSet \$33.00
- 1002 G Standards.** 0.1%, 0.01%, 0.001% and 0.0001% of above elements in graphite base. General applicability, especially for inorganic materials. 4 standards, 2 grams eachSet \$44.00
- 4061 Graphite Powder,** ultra purity, 100 mesh. For use with G Standards1. oz. \$ 6.00
- 1003 Zinc Oxide,** spectrographic grade. For use with the Z Standards as a diluent for unknowns.
1/4 lb. \$ 8.00
- 1004 L Standards.** 0.1%, 0.01% and 0.001% of above elements in lithium carbonate base. Used for the analysis of lubricating oils, crankcase sludges and other organic materials. 3 standards, 2 grams eachSet \$36.00
- 1005 Lithium Carbonate,** spectrographic grade. For use with the L Standards as a diluent for unknowns10 grams \$ 6.00
- 1010 Spex Element Kit,** for spectrochemical quantitative, semi-quantitative and qualitative analysis. Contains 2-gram quantities of 43 high purity compounds or elementsKit \$48.00
- 1011 Replacement Chemicals for Kit,** please specify which2 grams \$2.50-4.00
- 1020 Qual Mix,** preparation to facilitate qualitative spectrochemical analysis. Contains 43 elements so blended that about three lines of each element will appear on the spectrographic plate in the region 2100 to 4700A. (Vol. III, No. 4)
2 grams \$20.00
- 1025 Qual Mix Atlas,** 20 charts containing spectra of Qual Mix with lines of 43 elements identified.
Each \$24.75

FOR YOUR INDIVIDUAL REQUIREMENTS,
SPECIAL POWDER STANDARDS IN WHICH
THE MATRICES AND ELEMENTS DEPART
FROM THOSE GIVEN CAN BE PREPARED.

RARE EARTH STANDARDS

(Vol. III, No. 3)

- 1030 Rare Earth Element Kit,** for spectrochemical quantitative, semi-quantitative and qualitative analysis. Contains quantities ranging from 100 mg to 2 g of 16 high-purity compounds of the following elements: Ce Dy Er Eu Gd Ho La Lu Nd Pr Sc Sm Tb Tm Y YbKit \$50.00
- 1031 Rare Earth Spex Mix,** contains the same elements as 1030, each element at exactly 5.28% concentration2 grams \$36.00
- 1032 Rare Earth L Standards,** semi-quantitative standards for the determination of rare earth elements in unknown materials. One standard contains 0.50% of the 16 elements listed under 1030; the others 0.050%, 0.0050% and 0.00050%. 4 standards, 2 grams eachSet \$49.00
- 1033 Rare Earth Qual Mix,** preparation for the qualitative determination of rare earth elements.
2 grams \$20.00

NOBLE METAL STANDARDS

(Vol. IV, No. 4)

- 1040 Noble Metal Element Kit.** Contains small quantities of the following elements, some in solution, others as salts or powdered metals: Au Ga Hf In Ir Pd Pt Re Rh and RuKit \$50.00
- 1041 Noble Metal Spex Mix.** Contains the same elements as 1040, all at exactly 9.32% concentration. For the analysis of "pure" unknowns.
2 grams \$38.00
- 1042 Noble Metal G Standards.** Semi-quantitative standards for determining the same elements as in 1040 in unknowns that are relatively impure. One standard contains 0.50%, the others 0.050%, 0.0050%, 0.00050% of each of the 10 elements. 4 standards, 2 grams eachSet \$48.00
- 1043 Noble Metal Qual Mix,** preparation for the qualitative determination of the same elements as in 10402 grams \$20.00

PURE MATERIALS

- 6001 Germanium Oxide,** spectrographically pure, powder, recommended for use as a buffer, free of all detectable impurities5g \$ 8.00
- 6002 Silicon Metal,** spectrographically pure, needles, useful for standard preparation5g \$ 8.00
- 6003 Copper Hydroxy Fluoride,** spectrographic grade, for determining traces of silicon and boron
10g \$ 6.00
- 6004 Potassium Bromide,** infrared grade, 200 to 400 mesh100g \$10.00

STEEL STANDARDS

BRITISH BUREAU OF ANALYSED SAMPLES

We maintain a stock of most of the British Bureau of Analysed Samples standards only the most popular of which are listed here. If you are interested, please write for the complete listing.

- 1200 **Low Alloy Steel Standards**, blocks 1" x 1" x 1-1/2" for use both in x-ray and optical spectroscopy. Elements vary in such a fashion that the iron remainder is kept constant at around 94% to minimize matrix effectsSet of 8 \$123.00
- 1202 **Low Alloy Steel Standards**, granules for photometric and solution analysis. Set of 8, 100g ea. \$102.00
- 1210 **Mild Residual Steel Standards**, rods containing accurately determined traces of a number of residual elements. Each rod 3/4" dia. x 3" long. Set of 7 \$120.00
- 1211 **Mild Residual Steel Standards**, granules. Set of 7, 100g ea. \$130.00
- BSS31-35 **Carbon Steel Standards**, discs 1/2" thick x 1-3/4" dia.Set of 5 \$ 80.00
- BXS31-35 **Carbon Steel Standards**, blocks 1/2" x 1" x 1" for use with x-ray spectrometers. Set of 5 \$ 80.00

ALLOY SWATCHES

- 2000 **Wrought Aluminum Alloy Swatches**, 4" x 1" x 1/8". Comprises all of the common wrought alloys as follows: 1100, 3003, 3004, 2014, 2017, 2024, 5050, 6951, 5052, 6061, 6063, 7075.....Set of 12 \$ 25.00
- 2001 **Cast Aluminum Alloy Swatches**, 1-1/4" x 3" x 1/4" thick. Comprises 12 of the most common sand and die casting alloys as follows: Almag 35, 40E 43, 108, A108, 195, 214, B214, 220, 319, 355 and 356.Set of 12 \$ 25.00
- 2100 **Stainless Steel Swatches**, 4" long x 1" wide and 1/8" thick. The set includes the following A.I.S.I. steels: 302, 321, 347, 316, 410Set of 5 \$ 18.00

BORON CARBIDE MORTARS

We can supply mortar and pestle combinations with cavities ranging from 1/2" to 3" in diameter. Also available are double cavity mortars—a crater on both ends of a cylinder. Please write us for price and delivery information on these special sets. (Vol. III, No. 2.)

- 3201 **Mortar and pestle, boron carbide**. Mortar cavity 1/2" d. by 5/32" deep, highly polished. Pestle 1/4" d. attached to aluminum handle.....Set \$ 45.00
- 3202 **Mortar and pestle, boron carbide**. Mortar cavity 1" d. by 1/4" deep, highly polished. Pestle 9/16" d. attached to aluminum handleSet \$ 85.00

ELECTRODE ACCESSORIES

- 3001 **Funnel** for filling 1/4" electrodes)
3002 **Funnel** for filling 3/16" electrodes) Doz. \$24.00
3003 **Funnel** for filling 1/8" electrodes)
Each \$ 2.50
- 3051 **Plastic Electrode Stand, for 1/4" electrodes**, black or red base (specify color) 22 positions. (Vol. II, No. 2.)Each \$20.00
- 3053 **Plastic Electrode Stand, for 3/16" electrodes**, black or red base (specify color) 22 positions. Each \$20.00
- 3053 **Plastic Electrode Stand, for 1/8" electrodes**, black or red base (specify color), 22 positions. Each \$20.00
- 3503 **Tweezers**, stainless steel, for handling spectroscopic graphite electrodesPair \$ 2.50

ELPAC

- 4500 **Elpac**, 3-station machine for automatically loading electrodes used in spectrochemical analysis, 115 vac; 0-90 sec. timer; 3 weights 5g, 3 weights 10g, 3 weights 20g; accessory box; without plungers, electrode holders or funnels. Gross weight 50 lbs.Each \$610.00
- 4501 **Plungers**, hardened steel, 3 required (specify electrode type and/or i.d. of electrodes). Set of 3 \$ 18.00
- 4502 **Electrode Holders**, 3 required (specify 1/8", 3/16" or 1/4" dia. or any combination thereof.) Set of 3 \$ 16.00
- 4503 **Funnels**, molded polyethylene (specify electrode type)100 \$ 10.00
- 3506 **Spacing Divider, 6" model**, an accurately constructed pantograph-like drafting tool, has eleven teeth so arranged that they always divide the extreme setting into ten equal parts. Each tooth is numbered, left to right on one side, right to left on the other. Constructed of stainless steel, the maximum spread is 23 mm, minimum distance between teeth is 3 mm. Recommended for accurate wavelength measurementsEach \$35.00
- 3512 **Spacing Divider, 12" model**, same as above, but maximum spread 47 mm and minimum distance between teeth 6 mmEach \$40.00

NYLON SIEVES

- 3530 **Sieve frame**, consisting of two telescoping Lucite rings, 70 mm dia. x 25 mm highEach \$ 8.00
Screen, nylon monofilament cloth, 85 mm square:
- 3531 **100 mesh** (each opening 149 microns)12 \$ 6.00
- 3532 **200 mesh** (each opening 74 microns)12 \$ 8.00
- 3533 **325 mesh** (each opening 44 microns)6 \$ 6.00
- 3534 **400 mesh** (each opening 37 microns)3 \$ 7.50
- 3535 **Tray**, plastic, 70 mm dia. x 25 mm high ..Each \$ 3.00
- 3536 **Sieve Set**, consisting of 4 frames and 1 tray with 1 each of the above screensSet \$35.00

MIXER/MILL

MIXER-GRINDERS FOR LARGE SAMPLES

- 5000 Mixer/Mill, 115 v, 60 cy. or 230 v, 50 cy. (specify), for quantities under 10 ml, dual timer permits mixing up to 6 or 60 min., built for heavy duty use with continuously variable jaws holding vials up to 5/8" dia. x 2-3/8" long, safety enclosure. (Vol. V, No. 3) Each **\$140.00**
- 8000 Mixer/Mill, 115 v, 60 cy. or 230 v, 50 cy. (specify) for mixing quantities of 10-100 ml, grinding 3-25 ml, 1 hour timer, continuously variable jaws holding vials up to 2-1/8" dia. x 3-1/4" long, rugged construction and housing, suspension shock mounting Each **\$296.00**
- 8000K Shock Mount Kit for 8000 Mixer/Mills purchased previous to January, 1960 Each **\$ 26.00**

THE WIG-L-BUG

MIXER-GRINDER FOR SMALL SAMPLES

- 3110B Wig-L-Bug, black housing, 115 v. 60 cy.
Each **\$55.00**
- 3110W Wig-L-Bug, ivory housing, 115 v. 60 cy.
Each **\$60.00**
- 3130B Wig-L-Bug, black housing, 220 v. 50 cy.
Each **\$60.00**

- 3130W Wig-L-Bug, ivory housing, 220 v. 50 cy.
Each **\$65.00**
- 3140 Wig-L-Bug, 115 v. 60 cy., 1-hr. timer and fan-cooled motor. This is available on special order for other supply voltages. Each **\$ 70.00**
- 3115 Adapter for 3116 and 3118 vials Each **\$ 11.00**

VIALS and BALLS

FOR WIG-L-BUGS AND 5000 MIXER/MILLS

- 3111 Vial, 1/2" dia. x 1" long, polystyrene with polyethylene slip-on cap, 2 ml capacity.
100 **\$ 3.80**
1000 **\$30.00**
1000 (in lots of 5000 or more) **\$24.00**
- 3112 Ball, clear Plexiglas, 3/8" dia.
100 **\$ 1.80**
1000 **\$12.00**
1000 (in lots of 5000 or more) **\$10.00**
- 3119 Ball, clear Plexiglas, 1/8" dia. (for small samples).
100 **\$ 1.20**
1000 **\$ 8.00**
1000 (in lots of 5000 or more) **\$ 6.00**
- 3114 Vial, stainless steel 1/2" dia. x 1" long, 1 ml grinding capacity with stainless steel ball 1/4" dia. Each **\$ 7.50**
- 3116 Vials, 1/2" dia. x 2" long, polystyrene with polyethylene slip-on cap, 5 ml capacity.
100 **\$ 5.00**
1000 **\$40.00**
1000 (in lots of 5000 or more) **\$30.00**
- 3117 Vial, tool steel (hardened) 1/2" dia. x 1" long, 1 ml capacity with hardened steel ball 1/4" dia. Each **\$ 7.50**
- 3120 Vial, high purity graphite, 1/2" dia. x 1" long, for ashing samples up to 500°C and grinding without transfer 50 **\$24.00**
- 3124 Micro-vial, stainless steel, with three 1/8" dia. ball, 1/2 ml grinding capacity Each **\$ 7.50**

FOR MIXER/MILLS

- 3118 Vial, Agate 9/16" dia. x 1-5/16" long, 1 ml grinding capacity with Agate ball 1/4" dia. ... Each **\$40.00**
- 3127 Vial, hardened alloy steel, 3/4" dia. x 2" long, 3 ml grinding capacity with stainless steel ball 1/4" dia. Each **\$14.00**
- 6133 Vial, 3/4" dia. x 2" long, polystyrene with polyethylene cap, 10 ml capacity.
100 **\$ 6.50**
1000 **\$53.00**

FOR 8000 MIXER/MILLS ONLY

- 6135 Mixing Vial, polystyrene with polyethylene cap, 1-1/4" dia. x 3" long, 60 ml capacity.
100 **\$12.00**
1000 **\$90.00**
- 8001 Grinding Vial. Case hardened steel body with screw-on ends of hardened tool steel, 2-1/8" dia. x 2-1/8" long, grinding capacity about 25 ml. With four 1/4" dia. and two 1/2" dia. hardened steel balls Each **\$40.00**
- 8002 Mixing Jar, polystyrene with screw-on plastic cap, 2-1/8" dia. x 2-1/2" long, 130 ml capacity
100 **\$20.00**
- 8003 Ceramic Vial, made of 99% alumina-ceramic, with a 1/2" diameter ball of the same material. Grinding capacity about 15 ml Each **\$32.00**
- 8003A Ceramic Ball, made of 99% alumina-ceramic, 1/2" dia., spare (one furnished with 8003) Each **\$ 2.25**
- 8004 Tungsten Carbide grinding vial with two WC balls, grinding capacity about 20 ml Each **\$125.00**
- 8004A Tungsten Carbide ball, 7/16" dia. (spare)
Each **\$.85**

X - RAY ACCESSORIES

- 3515 **X-Ray Liquid Cells**, polystyrene, 1-1/4" dia. x .945" deep.
 100 \$ 8.00
 1000 \$53.00
- 3516 **Teflon Ring**, reusable, to hold 1/4 mil Mylar window on 3515.
 6 \$ 5.00
 100 \$70.00
- 3517 **Mylar**, 0.0025 (1/4 mil) thick, 2-1/2" wide x 100' Roll \$ 3.50
- 3518 **Spacer**, aluminum; one required for each port on Philips instruments. (Specify i.d. of sample holder 1-1/4", 1-3/8" or 2") Each \$.50
- 3520 **Turntable Sample Holder for X-ray Spectroscopy**, fits General Electric XRD-3 and XRD-5 instruments; complete with 25 rpm synchronous motor (115 vac) and separate holder for powder specimens (Vol. V, No. 2) \$265.00
- 3521 **Kit for Inverting Optics on GE Spectrometers XRD-3 or XRD-5** \$245.00
- 3610 **Calculating Board**, for converting % transmittance to intensity ratio, completely assembled and with full instructions. (Vol. III, No. 4)
 Each \$ 93.00
- 3701 **Serial Marker** photographically assigns a 5-digit number approx. 3/16" x 3/4" to any light sensitive emulsion Each \$60.00
- 3702 **Serial Marker**, same as 3701 but with built-in attenuator for controlling light intensity. Each \$68.00
- 3710 **Glow-Box**, viewing box weight 7 lb., complete with 22-watt, circular fluorescent lamp. 115 vac, carrying handle; finished in baked hammertone gray enamel. (Vol.V, No. 2.) Each \$34.50
- 3820 **Plate Storage Cabinet**, with nine drawers for 4" x 10" plates. Overall dimensions 19-3/4" high x 34" wide by 12" deep. Steel, welded frame construction, finished in grey, ivory, tan or brown. (Vol. IV, No. 3.) Each \$46.00
- 3900 **Staticmaster Brush**, 1" wide. Model 1S50 (50 microcurie polonium element). Cleans surfaces of dust, lint or any substance held by static attraction Each \$ 4.95
- 3901 **Staticmaster Brush**, 3" wide. Model 3T500 (500 microcurie polonium element) Each \$14.95
- 3902 **Staticmaster Brush**, 1" wide. Model 1S200 (200 microcurie polonium element) Each \$ 7.45
- 3905 **Spatula**, of Monel with plastic handle. The tip of this spatula is but 3-mm wide and 22-mm long. It is particularly handy for transferring the small quantities of powders with which spectrographers deal.
 Each \$.50
 Doz. \$ 5.00
- 3906 **Polyethylene gloves**, may be used for either the left or right hand. A heat seal extends around the outside, making the glove watertight. Because it is so flexible, one size will accommodate almost any hand 144 \$ 7.95

30-TON HYDRAULIC PRESS

The Research & Industrial Instruments hydraulic press has been designed for pressing a wide range of pellets, tablets or discs used throughout industry. With a total capacity of 67,000 pounds, the press uses but a fraction of its strength for preparing 1/2" dia. KBr discs. Its total capacity is also sufficient to apply a pressure of 40,000 p.s.i. on a 1-1/4" diameter die. (Vol. V, No. 2.)

- RH30-1 **30-ton Hydraulic Press** as described, complete, with hydraulic oil \$550.00
- MK.3 **Potassium Bromide Evacuatable Die**, specify 13, 14 or 15 mm diameter Each \$120.00
- 3621 **1/2" diameter die**, non-evacuatable \$138.00
- 3622 **1-1/4" diameter die**, non-evacuatable \$210.00

SAUTER ULTRAMATIC PRECISION BALANCES

Models available from 1 mg to 12.5 g total capacity, prices on request. (Sample Preparation catalog.)

- 7001 **Sauter Ultramatic Precision Balance**; 500 mg model, with range extension permitting weighing up to 2500 mg capacity. Includes special weighing pan designed to hold 1/2" dia. x 1" long plastic vial (3111), a round pan; weight for checking linearity of reading scale; 2 x 500 mg and 1 x 1 g. weights for weight range extension and a pair of horn-tipped tweezers; vinyl dust cover; gross weight 15 lbs. Each \$275.00
- 7002 **Sauter Ultramatic Precision Balance**, 100 mg model with range extender to 500 mg, readability 0.1 mg, same accessories as 7001 Each \$275.00
- 7003 **Sauter Ultramatic Precision Balance**, 10 mg model, readability 0.01 mg, same accessories as 7001 Each \$260.00

DMS INFRARED SYSTEM

- Documentation of Molecular Spectroscopy (DMS)**—punched card system for infrared analysis. Cards currently available: Vol. 1, 2, 3, 4. Annual subscription, 2000 cards published quarterly in batches of approximately 500; about 80% are spectral cards, 20% literature.
 Annual Subscription (Unslotted) 2000 cards... \$182.00
 Annual Subscription (Slotted) 2000 cards.... \$217.00
- DMS Hand Sorting Apparatus**, comprises a stand and a detachable frame with a sliding carriage for the sorting needles; handles about 200 cards at one time Each \$ 43.50
- Punch**, for subscribers who prefer to slot their own cards or add cards to the system. Two punches are required; one for cutting deep and shallow slots, the other to cut "middle" slots Set \$ 5.60
- Sorting Needles**, mounted in wooden handle. Doz. \$ 3.60
- Blank Spectral Cards:**
 50—\$3.50 250—\$15.00 500—\$ 23.50
 100—\$6.50 300—\$16.20 1000—\$ 47.00
- Formula List**, Vol. 1, 2 & 3 Each \$ 5.00
 Vol. 4, 5 & 6 cumulative Each \$ 6.00

Note.—A duty of 10½ per cent. may be charged by U.S. Customs under Par. 1410, schedule A Commodity No. 7020. This will be paid by the customer directly to the postmaster upon delivery. Invoices covering 4 issues will be sent upon shipment of the first quarterly instalment, as is the usual practice for periodicals.

SPECTROSCOPIC PREFORMED ELECTRODES

We keep on hand a large stock of the above preforms so that when requested we can frequently locate a batch free of a particular element such as boron, silicon or copper. Please advise us of your requirements.

HIGH PURITY GRAPHITE

Dia."	Description	ASTM	National	UCP	Spex	Price Per 100
1/4	necked crater, 5/32" dp.	S-12	L-3912	100-L	4000	\$22.00
3/16	necked crater, 3/16" dp., 1-1/4" l.	S-13*	L-3903	101-L	4001	22.00
1/4	crater, 3/16" dp.	S-8	L-3900	103	4002	20.00
1/4	angular platform, center post		L-3948	104-L	4003	28.00
3/16	necked crater, 3/32" dp.		L-3906	105-S	4004	19.00
3/16	necked crater, 3/16" dp.	S-14	L-3909	105-D	4005	19.00
1/4	rounded upper, 1/16" r.	C-5		100-U	4006	20.00
1/4	flat necked upper	C-8	L-3960	101-U	4007	20.00
1/4	undercut, center post upper	C-7	L-3963	104-U	4008	22.00
3/16	rounded upper, 1/16" r.			105-U	4009	17.00
1/4	pointed upper, 120°	C-2	L-3966	108	4010	20.00
1/2	solution disc, 1/8" thick	D-1	L-4075	106	4011	14.00
1/2	platrode, extruded	D-3	L-4078	1907	4012*	18.00
1/4	porous cup, chamfered floor, 1-1/2"		L-3936	201	4013	29.00
1/4	porous cup, .025" floor, 1-1/2" l.		L-3927	203	4014	24.00
1/4	porous cup, chamfered floor, 7/8" l.		L-3933	204	4015	23.00
1/4	crater, 1/16" dp.	S-5	L-3982	4196	4016	21.00
1/8	pedestal, 1-1/2" l.	S-1	L-3919	1964	4017	16.00
1/4	anode cap, 9/32" dp., thin wall	S-3	L-3918	1998	4018	16.00
1/8	pointed upper	C-1	L-4036	1992	4019	16.00
1/8	crater, 1/4" dp.		L-3979	5440	4020	16.00
1/4	necked crater, 1/16" dp.	S-4	L-4012	1988	4021	22.00
1/4	boiler cap		L-3915	300	4022	26.00
3/16	boiler cap		L-3916	301	4023	26.00
1/4	flat rod	C-3	L-3921	107	4024	18.00
1/4	center post crater, 3/16" dp., 1-1/4" l.	P-1*	L-3939	102	4025	21.00
1/4	mandrel for rotating electrode, 2" l.		L-3970	2022	4026	23.00
1/2	solution disc, .200" thick	D-2	L-4072	861	4027	16.00
1/2	platrode, molded	D-3	L-4081	1909	4028*	18.00
3/16	necked crater, 3/16" dp.		L-4000		4029	19.00
3/16	necked crater, 3/32" dp.		L-4006		4030	19.00
1/4	porous cup, .040" floor		L-4048	1994	4031	24.00
1/4	mandrel for Combination Analyzer			2025	4032	22.00
1/8	necked crater, 1/8" dp.		L-3905	781	4033	19.00
1/8	crater, .059" dp.		L-3975	2509	4034	16.00
1/8	crater, 3/16" dp.		L-3977	5000	4035	16.00
1/4	crater, 1/2" dp.		L-3985	5840	4036	25.00
1/4	porous cup, .025" floor		L-3928	5680	4037	24.00
1/4	anode cap, 9/32" dp.	S-2	L-4024	1990	4038	16.00
3/16	rounded upper, 1/32" r.		L-3951		4039	17.00
3/16	rounded upper, 1/16" r., 2" l.		L-3954	5710	4040	18.00
1/4	rounded upper, 1/32" r.		L-3957		4041	20.00
1/4	necked crater, 3/16" dp.		L-4018	1989	4042	22.00
1/8	pedestal, 1" l.		L-4042		4043	12.00
1/4	anode cap, 1/32" dp.		L-4030	1991	4044	16.00
1/4	porous cup, 7/8" l.		L-3930	200	4045	18.00
1/4	center post crater, 1/4" dp.		L-4054	1995	4046	21.00
1/4	porous cup, 0.25" floor, 7/8" l.		L-3924	202	4047	18.00
1/4	crater, 1/4" dp.		L-3942	1588	4048	28.00
1/4	curved platform, center post		L-3945	1335	4049	24.00
1/4	anode cap, 1/16" dp.		L-4031		4070	16.00
1/8	flat rod	C-6	L-3922	1509	4071	14.00
3/16	flat rod		L-3923	2615	4072	14.50
1/8	rounded upper, 1/32" r.			5001	4073	17.00
1/4	vacuum cup, 2" l.			6010	4074	35.00
3/4	O.D. Teflon Cup for 4074			6010A	4074A	ea. 1.20

* 1-1/2" long.

* Spex 4028 is high-density and less porous than 4012.

GRAPHITE POWDER and RODS

Two general types of spectroscopic graphite powder are available differing principally in particle shape. These are designated by the final number 1 or 2. Number 1 is used for briquetting and Number 2 for use as a conductor and buffer.

- 4060 UCP-1—Normally supplied in -200 mesh but is also available in -100 and -300 particle sizes.
- 4061 UCP-2—Normally supplied in -100 mesh but is also available in -200 and -300 particle sizes.
- 4062 National SP-1—Consists of 65-75% -200 mesh.
- 4063 National SP-1C—Consists of 90-95% -200 mesh.
- 4064 National SP-2—Consists of 90-95% -200 mesh.

Prices for the above are as follows:

1 oz.	\$ 6.00	1/2 lb.	\$35.00
1/4 lb.	\$20.00	1 lb.	\$60.00

Spectroscopic rods are available in several types. The least expensive are the regular purity National Carbon rods having a maximum ash content of 0.06%. The next higher grade are the UCP Spectro-Tech with an ash content of less than 0.04%. The highest purity rods are the National Special and the UCP Ultra-purity with an immeasurably small ash. These high-purity rods are packed individually in cellophane and an analysis slip accompanies each box. The designation U-1 on UCP rods refers to a medium hardness; U-2 to a relatively soft rod. Most preforms are made from U-1 material.

GRAPHITE RODS 12" LONG

1/8" (.120") diameter			
4050	UCP Ultra-purity	U-1	\$23.52/24
ST-40	UCP Spectro-tech		\$25.00/100
L-4303	National Regular		\$18.00/100
L-3803	National Special		\$49.00/50
3/16" (.180") diameter			
4051	UCP Ultra-purity	U-1	\$14.40/12
4052	UCP Ultra-purity	U-2	\$14.40/12
ST-45	UCP Spectro-tech		\$27.00/100
L-4306	National Regular		\$17.00/100
L-3806	National Special		\$30.00/25
1/4" (.242") diameter			
4053	UCP Ultra-purity	U-1	\$17.04/12
4054	UCP Ultra-purity	U-2	\$17.04/12
ST-50	UCP Spectro-tech		\$30.00/100
L-4309	National Regular		\$20.00/100
L-3809	National Special		\$21.30/15
5/16" (.305") diameter			
4055	UCP Ultra-purity	U-1	\$21.60/12
4056	UCP Ultra-purity	U-2	\$21.60/12
L-4312	National Regular		\$23.00/100
L-3812	National Special		\$14.40/8

Note: Graphite rods are also available in diameters of 3/8" and 1/2". National Carbon also manufactures high-purity carbon rods in the same diameters as the special graphite rods. Send for catalog A-4010 for further details on these rods.

SPECTROSCOPIC PLATES and FILM

Kodak Emulsion	W.L. Coverage A	Speed	Contrast	Plates per Box of 3 dozen (in case lot quantities)	
				2"x10"	4"x10"
SA #1	2300-4300	Mod.	high, non-unif.	10.45*	16.18*
SA #2	2300-5000	Mod.	med., uniform	10.45*	16.18*
103-O	2300-5000	v. fast	med., uniform	14.35*	22.18*
103-F	2300-6800	v. fast	med., uniform	14.35*	22.18*
1-N	2300-8800	v. fast	med., uniform	14.35*	22.18*

*15 Boxes 2"x10", or 8 Boxes 4"x10" per case. Prices in smaller lots about 4% higher.

Film, 35 mm x 100' all emulsions: \$9.57/roll darkroom loading, \$10.13/roll daylight loading, in lots of 6 or more rolls; 13% higher in smaller quantities.

Ilford Spectroscopic Q Plates, unsensitized and containing little gelatin, these have a spectral range that extends from the X-ray region to about 5000A. Widely used for Vacuum spectroscopy, they are also valuable in the region 2000 to 2400A. Here the gelatin in other emulsions absorbs most of the radiation and spectral lines that do appear tend to be "washed out".

Q2 Ilford Photographic Plates, 4" x 10" medium speedDoz. \$11.50

Q2 Ilford Photographic Plates, 35 mm x 11" thin glass, will bend around 1 meter radius ...Doz. \$10.00

- 7100 **Handy-Melt Furnace**, 1250 w., 115 v., ac or dc; for preparing standards and samples; max. temp. 2000° F., complete with ordinary graphite crucible but without Control Panel. Volumetric capacity of the muffle is about 90 ml. . . . Each \$105.00
- 7101 **Handy-Melt Furnace**, same as above for 230 v. ac or dc Each \$110.00
- 7102 **Control Panel** for 7100; protects furnace by maintaining temperature below 1500° F. Each \$22.50
- 7103 **Control Panel** for 7101; same as above for 230 v. Each \$22.50
- 7104 **Crucible, graphite, ordinary grade** (one furnished with 7100 or 7101) Each \$3.10
- 7105 **Crucible, graphite, ultra-purity, spectrographic grade** Each \$15.00
- 7106 **Muffle, spare, 115 v.** Each \$22.50
- 7107 **Muffle, spare, 230 v.** Each \$23.50

MICRO-DRILL

(Vol. V, No. 2)

- 7300 **Micro-Drill**, complete with 115 v, 1/16 hp, 50-60 cy., ac motor; speed control box with dial settings up to 17,000 rpm; two-way table travel with dial indicators; 10x Hastings triplet magnifier; goose-neck spot light; micrometer depth control, magnetic chuck kit for holding drills down to 0.001" dia. Each \$625.00



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THE UNIMAT LATHE

- 7200 **Unimat**, dimensions of lathe bed: 14-1/2" long x 4" wide x 5" high. Complete with 3-jaw reversible chuck which will hold pieces up to 2-1/4" d., rotating headstock, tailstock, cross-slide, 3500 rpm, 1/15 hp motor, 115 vac, 1/4" drill chuck, face plate, lathe dog, grindstone arbor, tool post, 2 dead centers, upright steel post, eleven speed belt drive. In wooden chest. Shipping weight 38 pounds Each \$129.50
- 7201 **Tool Bits** Set of 6 \$9.50
- 7202 **Lathe Chuck**, 4-jaw, independent Each \$22.50
- 7203 **Collet Holder**, including 1/4" collet Each \$13.50
- 7204 **Collet**, from 1/64" to 5/16" d in 64ths (specify) Each \$3.90
- 7205 **Live Center**, for high-speed turning Each \$4.00

- 7301 **Drills** Set of 12 in assorted sizes \$3.50

- 7400 **Pin Grinder**, 115 vac, 1/2 hp capacitor start motor; including gooseneck lamp, shatter-proof glass eye shields, one coarse aluminum oxide wheel, one fine silicon carbide wheel, dust chutes. Gross weight 142 lbs. Each \$290.00

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