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TITLE 15—COMMERCE

Chapter II—National Bureau of Standards, Department of Commerce

REVISION OF CHAPTER

Subchapter A, pertaining to Test Fee Schedules, and Subchapter B, pertaining to Standard Samples, reflect a revision in many cases of previously published material, both as to description of the tests and samples, and the prices established therefor.

The description of the tests and standard samples should be noted carefully before orders are placed, so as to determine what changes, if any, may have been made therein.

Codification of Parts 250, 251, 252, 253, and 254 has been discontinued as this material was merely descriptive of organization and functions of the National Bureau of Standards. Future amendments to that material will appear in the Notices section of the FEDERAL REGISTER as they occur.

The Test Fees and Standard Sample prices listed herein will become effective on January 1, 1949.

Subchapter A—Test Fee Schedules

- Part
- 200 General.
 - 201 Electricity.
 - 202 Metrology.
 - 203 Heat and power.
 - 204 Atomic and molecular physics.
 - 205 Chemistry.
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 - 214 Central radio propagation laboratory.
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Subchapter B—Standard Samples

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Subchapter E—Fellowships

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Subchapter A—Test Fee Schedules

PART 200—GENERAL

- § 200.1 General. (a) Additional copies of certificates and/or reports re-

This issue is divided into two parts, Part II of which consists of a complete issuance of Title 34, Chapter VI, regulations of the Department of the Navy.

quested subsequent to date of test will be supplied at cost of preparation, minimum fee \$1.00.

(b) For special tests not covered by a published schedule in Parts 201 to 215 inclusive, fees will be charged dependent upon the nature of the test.

(c) The minimum billing charge for any test requested to be performed by the Bureau will be \$3.00.

(d) Letter Circular LC 544, approved February 28, 1939, regarding permissible tests for nongovernmental agencies will be furnished free by the Bureau on request.

(Sec. 312, 47 Stat. 410; 15 U. S. C. 276)

PART 201—ELECTRICITY

- Sec. RESISTANCE MEASUREMENTS
- 201.101 Precision standard resistors.
 - 201.102 Precision resistance apparatus.
 - 201.103 Standards and check samples for conductivity bridges.

INDUCTANCE AND CAPACITANCE

- 201.201 Inductors: Tests at low frequencies.
- 201.202 Two-terminal resistors: Determination of effective inductance or time constant.
- 201.203 Capacitors: Tests with direct voltage.
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- 201.205 Insulation resistance.
- 201.206 Dielectric constant and power factor of dielectric materials.
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- 201.302 Direct-current ammeters.
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- 201.306 Wattmeters.
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ELECTROCHEMISTRY

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AUTHORITY: §§ 201.101 to 201.801 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

RESISTANCE MEASUREMENTS

§ 201.101 *Precision standard resistors.* Standards of precision type, closely adjusted to nominal values bearing simple ratios to the unit, with amalgamated terminals, and designed for oil immersion. Standards of 0.1 ohm and less must be of 4-terminal type, that is, have both current and potential terminals.

Item	Description	Fee
201.101a	Determination of resistance in oil bath at 25.0° C. (Results certified to 0.001 percent when apparatus justifies this.) For standards of 0.1 ohm and below	\$7.50
201.101b	Same, for standards of 1.0 ohm and above	6.00
201.101c	Same, for standards not a decimal multiple or sub-multiple of 1.0 ohm	10.00
201.101d	Determination of resistance at 3 temperatures: 20, 25 and 30° C. (This test is made only when it is shown that the small changes in resistance resulting from necessary variations of the temperature from 25° are of importance.)	30.00
201.101e	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

¹ For general conditions under which tests of resistance apparatus are accepted, see National Bureau of Standards Letter Circular 924, available free of charge from the National Bureau of Standards, Washington 25, D. C.

§ 201.102 *Precision resistance apparatus.* For all the items in this schedule, if the apparatus is of suitable quality, corrections will ordinarily be determined to such an accuracy that results obtained with it may be relied upon to 0.01 percent.

Item	Description	Fee
201.102a	Precision rheostats and variable low resistances—calibration and certification of corrections 3 decades or less	\$50.00
	for each additional decade	10.00
201.102b	Megohm box, 10 sections each 100,000 ohms—calibration and certification of corrections	25.00
201.102c	Megohm box, unequal sections—calibration and certification of corrections	40.00
201.102d	Precision Wheatstone and Calorimetric bridges of all kinds—calibration and certification of corrections	80.00
201.102e	Potentiometers, minimum steps 10 microvolts or more—calibration and certification of corrections	60.00
201.102f	Potentiometers minimum steps less than 10 microvolts—calibration and certification of corrections	90.00
201.102g	Ratio arms for Thomson bridges and similar apparatus	35.00
201.102h	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.103 *Standards and check samples for conductivity bridges.* (a) Standards and wires submitted for test should be kept straight and be packed in substantial containers for shipment. When the properties covered by items 201.103b, 201.103c, or 201.103d are determined, the report will include a statement of the resistivity, and for copper, the percentage conductivity as compared with the standard value for annealed copper will also be stated.

(b) In general the accuracy of the measurements is as high as can readily be obtained with the samples submitted, but in no case are the results given in the reports to be considered as having an accuracy higher than 0.05 percent.

Item	Description	Fee
201.103a	Determination of resistance per unit length, or between potential terminals, each sample	\$25.00
201.103b	Determination of resistance per unit length, total length, and mass	27.50
201.103c	Determination of resistance per unit length, and cross section	30.00
201.103d	Determination of resistance per unit length, total length, mass and density	30.00
201.103e	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

INDUCTANCE AND CAPACITANCE

§ 201.201 *Inductors: Tests at low frequencies.* An inductor should be tested under conditions as nearly as possible the same as those under which it is to be used. These conditions should therefore be stated in the request for the test.

Item	Description	Fee
201.201a	Determination of the inductance of a fixed self or mutual inductor or the first point on a variable inductor at either 60 or 1,000 cycles per second	\$7.00
201.201b	Determination at additional points on the same inductor, per point	2.00

RULES AND REGULATIONS

Item	Description	Fee
201.201z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.202 Two-terminal resistors: Determination of effective inductance or time constant. (a) The effective inductance is defined as the quotient of the reactance of the coil at any frequency divided by 2π times the frequency. The reactance is due to the inductance of the coil which is in series with the resistance, and to the capacitance between its windings, which is in parallel with the resistance. The effective inductance may be either positive or negative, according as the effect of the inductance or of the capacitance predominates.

(b) For a determination of the d-c resistance, see Test Fee Schedule 201.101.

Item	Description	Fee
201.202a	Determination of effective inductance or time constant of the resistor of 1 ohm, 10 ohms, 100 ohms, 1,000 ohms or 10,000 ohms at frequencies up to 10,000 cycles per second.	\$10.00
201.202z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.203 Capacitors: Tests with direct voltage.

Item	Description	Fee
201.203a	Determination of capacitance of a fixed air capacitor, or one point of a variable air capacitor, with 100 and with 1,000 charges and discharges per second.	\$6.00
201.203b	Determination of capacitance at additional points of the same variable air capacitor, as in 201.203a, each.	1.50
201.203z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.204 Capacitors: Tests with low-frequency alternating current. A capacitor should be calibrated under conditions as nearly as possible like those under which it is to be used. Consequently the conditions of use should be stated in the request for test.

Item	Description	Fee
201.204a	Determination of capacitance and power factor of a 2-terminal capacitor, or one section of a sub-divided capacitor, at room temperature and at any frequency between 25 and 5,000 cycles per second.	\$6.00
201.204b	Determination of capacitance and power factor of additional capacitors (or additional sections of a capacitor) having the same nominal value and tested at the same time and same frequency as in 201.204a, each.	2.00
201.204c	Determination of direct capacitance of a 3-terminal capacitor.	8.00
201.204d	Determination of direct capacitance of each additional unit of the same 3-terminal capacitor.	4.00
201.204z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.205 Insulation resistance.

Item	Description	Fee
201.205a	Determination of the insulation resistance of a single-valued capacitor, one section of a subdivided capacitor or a specimen having fixed electrodes at room temperature (about 25° C.) and humidity (50% RH or less).	\$6.00
201.205b	Determination of the insulation resistance of a single-valued capacitor, one section of a subdivided capacitor or a specimen having fixed electrodes at a specified temperature (15° C. to 50° C.) and humidity (30% to 95% RH) after preconditioning in accordance with A. S. T. M. Procedure D618, first item.	10.00
201.205c	Measurement of additional items under same conditions and at the same time as 201.205a and b each item.	3.00
201.205d	Determination of insulation resistance, volume resistivity or surface resistivity of one sample of material according to A. S. T. M. Procedure D257 at a specified temperature (15° C. to 50° C.) and humidity (30% to 95% RH).	13.00
201.205e	Measurement of additional items under the same conditions and at the same time as 201.205d each item.	5.00
201.205f	Additional measurements on items prepared and measured under 201.205b - 201.205e - 201.205d and 201.205e to determine effect of time under those conditions, each measurement.	5.00
201.205z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.206 Dielectric constant and power factor of dielectric materials.

Item	Description	Fee
201.206a	Determination of the dielectric constant and power factor of one sample of sheet material (about 6 inches in diameter or square and $\frac{1}{2}$ to $\frac{3}{4}$ inch thick) at one frequency (100 cps. to 100 cps.) at room temperature (about 25° C.) and humidity (50% RH or below).	\$10.00
201.206b	Same as 201.206a but at an additional frequency on the same sample and at the same time.	8.00
201.206c	Determination of capacitance and power factor of one cable soaked in water at room temperature at one frequency (60 cps. to 3,000 cps.) not over 75 volts, first measurement.	7.50
201.206d	Same as 201.206c but for additional measurements at later times on the same cable under same conditions.	3.00
201.206z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.207 Resistors (above 1 megohm). The resistance is usually dependent upon the voltage used so the voltage to be applied to the resistor should be specified.

Item	Description	Fee
201.207a	Calibration of a resistor at room temperature (about 25° C.) and humidity (50% RH or less) when the voltage divided by the resistance is greater than 5×10^{-4} , accuracy 0.5% each.	\$6.00
201.207b	Calibration of a resistor at a fixed temperature (15° C. to 50° C.) and humidity (30% to 95% RH) when the voltage divided by the resistance is greater than 5×10^{-4} , accuracy 0.5% each.	10.00
201.207c	Calibration of additional resistors under the same conditions as 201.207a or b and at the same time, each.	3.00
201.207z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

ELECTRICAL INSTRUMENTS

§ 201.301 Standard resistors for current measurements.* Results of tests in this schedule are ordinarily certified to an accuracy of 0.01 percent if the apparatus is of suitable quality.

Items	Description	Fee
201.301a	Determination of resistance at room temperature with 10% or 20% of rated current.	\$8.00
201.301b	Additional determination of resistance with another test current not exceeding 300 amperes.	5.00
201.301c	Additional determination of resistance with another test current exceeding 300 amperes, but not exceeding 3,000 amperes.	15.00
201.301d	Additional determination of resistance at temperatures above room temperature, for first elevated temperature.	20.00
201.301e	Additional determination of resistance at each additional elevated temperature.	5.00
201.301z	For determinations of resistance of multi-range standards and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent upon the nature of the test.	

§ 201.302 Direct-current ammeters.*

Item	Description	Fee
201.302a	Test at not more than 5 scale points on one range not to exceed 100 amperes.	\$8.00
201.302b	Test at not more than 5 scale points on one range greater than 100 amperes but not to exceed 3,000 amperes.	15.00
201.302c	Test at one scale point on an additional range not to exceed 100 amperes.	3.00
201.302d	Test at one scale point on an additional range greater than 100 amperes but not to exceed 3,000 amperes.	5.00
201.302e	Test according to 201.302a, b, c, or d having been made, for each additional scale point on the same range.	.50
201.302z	For special tests not covered by the above schedule advance arrangements must be made. Fees will be charged dependent upon the nature of the test.	

§ 201.303 Direct-current voltmeters and millivoltmeters.*

Item	Description	Fee
201.303a	Test at not more than 5 points on one range, not to exceed 500 volts.	\$8.00
201.303b	Test at one scale point on an additional range, not to exceed 500 volts.	3.00
201.303c	Test according to 201.303a or 201.303b having been made, for each additional scale point on the same range, not to exceed 500 volts.	.50
201.303d	Determination of the instrument resistance (with low test voltage), for each range measured.	2.00
201.303z	For tests at higher voltages, and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent upon the nature of the test.	

*For general conditions under which tests of resistance apparatus are made, see Letter Circular 924, available free of charge from the National Bureau of Standards, Washington 25, D. C.

*For explanation of this schedule and conditions under which tests are made see National Bureau of Standards Letter Circular 925, available free of charge from the National Bureau of Standards, Washington 25, D. C.

§ 201.304 Alternating-current ammeters.* Unless otherwise specified, ammeters equally suitable for use on direct and alternating currents and with ranges of 1 to 10 amperes will be tested by the procedures of items 201.304a-c and 201.304g-i, as the accuracy and information thus obtained materially exceed those given by the procedures of items 201.304d-f.

Item	Description	Fee
201.304a	Test at not more than 5 scale points on one range, using reversed direct current not exceeding 100 amperes.	\$10.00
201.304b	Test with reversed direct current at one scale point on an additional range, not to exceed 100 amperes.	3.00
201.304c	Test according to item 201.304a or 201.304b having been made, for each additional scale point on the same range.	1.00
201.304d	Test at not more than 5 scale points on one range and frequency, using alternating current.	17.00
201.304e	Test at one scale point on an additional range or frequency, using alternating current.	4.00
201.304f	Test according to item 201.304d or 201.304e having been made, for each additional scale point on the same range and frequency.	1.00
201.304g	Determination of the difference between the reading on reversed direct current and the reading on alternating current at the first scale point at which this difference is determined, current not to exceed 10 amperes.	4.00
201.304h	Determination of this difference at the first scale point on an additional range or frequency, current not to exceed 10 amperes.	2.00
201.304i	Determination according to 201.304g, or 201.304h having been made, determination at an additional scale point with the same combination of range and frequency, current not to exceed 10 amperes.	1.00
201.304j	For frequencies greater than 100 cycles per second, and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.305 Alternating-current voltmeters.* Unless otherwise specified, voltmeters equally suitable for use on direct and alternating voltages, and with ranges between 15 and 500 volts, will be tested by the procedures of items 201.305a-e and 201.305m-o, as the accuracy and information thus obtained materially exceed those given by the procedures of items 201.305 g-k.

Item	Description	Fee
201.305a	Test at not more than 5 scale points on one range, using reversed direct voltage, not to exceed 500 volts.	\$10.00
201.305b	Test at not more than 5 scale points on one range, using direct voltage of either polarity to ground, more than 500 volts but not to exceed 50,000 volts.	30.00
201.305c	Test at one scale point on an additional range, using reversed direct voltage, not to exceed 500 volts.	3.00
201.305d	Test at one scale point on an additional range, using direct voltage of either polarity to ground, more than 500 volts but not to exceed 50,000 volts.	5.00
201.305e	Test according to item 201.305a or 201.305c having been made, for each additional scale point on the same range, not to exceed 500 volts.	1.00

*For explanation of this schedule and conditions under which tests are made see National Bureau of Standards Letter Circular 925, available free of charge from the National Bureau of Standards, Washington 25, D. C.

Item	Description	Fee
201.305f	Test according to item 201.305b or 201.305d having been made, for each additional scale point on the same range, more than 500 volts but not to exceed 50,000 volts.	\$2.00
201.305g	Test at not more than 5 scale points on one range and frequency, using alternating voltage not to exceed 500 volts.	17.00
201.305h	Test at not more than 5 scale points on one range and frequency, using alternating voltage more than 500 volts but not to exceed 50,000 volts.	20.00
201.305i	Test at one scale point on an additional range or frequency, using alternating voltage not to exceed 500 volts.	4.00
201.305j	Test at one scale point on an additional range or frequency, using alternating voltage more than 500 volts but not to exceed 50,000 volts.	8.00
201.305k	Test according to item 201.305g or 201.305i having been made, for each additional scale point on the same combination of range and frequency, not to exceed 500 volts.	1.00
201.305L	Test according to item 201.305h or 201.305j having been made, for each additional scale point on the same combination of range and frequency, more than 500 volts but not to exceed 50,000 volts.	1.00
201.305m	Determination of the difference between the reading on reversed direct voltage and the reading on alternating voltage at the first scale point at which this difference is determined, not to exceed 500 volts.	4.00
201.305n	Determination of this difference at the first scale point on an additional range or frequency, not to exceed 500 volts.	2.00
201.305o	Determination according to item 201.305m or 201.305n having been made, determination at an additional scale point with the same combination of range and frequency, not to exceed 500 volts.	1.00
201.305z	For tests at voltages greater than 50,000 volts, or for frequencies greater than 60 cycles at voltages greater than 400 volts, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.306 Wattmeters.* Electrodynamic wattmeters on current ranges of 10 amperes or less will be tested only by the procedures of items 201.306a-c and 201.306g-i as the accuracy and information thus obtained materially exceed those given by the procedure of items 201.306d-f.

Item	Description	Fee
201.306a	Test at not more than 5 scale points on one range using reversed direct current, not to exceed 100 amperes and 500 volts.	\$15.00
201.306b	Test at one scale point on each additional range using reversed direct current, not to exceed 100 amperes and 500 volts.	3.00
201.306c	Test according to item 201.306a or 201.306b having been made, for each additional scale point on the same range, not to exceed 100 amperes and 500 volts.	1.00
201.306d	Test at not more than 5 scale points on one range, frequency and power factor, using alternating current at frequencies not to exceed 70 cycles per second, current not to exceed 100 amperes and voltages not to exceed 500 volts.	35.00
201.306e	Test at one scale point on an additional range, frequency or power factor, using alternating current at frequency not to exceed 70 cycles per second, current not to exceed 100 amperes and voltage not to exceed 500 volts.	10.00

*For explanation of this schedule and conditions under which tests are made, see National Bureau of Standards Letter Circular 925, available free of charge from the National Bureau of Standards, Washington 25, D. C.

Item	Description	Fee
201.306f	Test according to item 201.306d or 201.306e having been made, for each additional scale point on the same combination of range, frequency and power factor, not to exceed 100 amperes and 500 volts.	\$5.00
201.306g	Determination of the difference between the reading on reversed direct current and the reading on alternating current at the first scale point at which this difference is determined, at currents not to exceed 10 amperes.	4.00
201.306h	Determination of this difference at one scale point on an additional range, frequency or power factor, at currents not to exceed 10 amperes.	2.00
201.306i	Determination according to item 201.306g or 201.306h having been made, determination at each additional scale point with the same combination of range frequency and power factor, at currents not to exceed 10 amperes.	1.00
201.306j	Determination of the resistance, with low test voltage, of the voltage circuit, for each range measured.	2.00
201.306k	Determination of interaction between elements of a polyphase wattmeter at zero, and equality of the elements at zero and at 2 other scale points, current not to exceed 100 amperes and voltages not to exceed 500 volts.	8.00
201.306z	For frequencies greater than 70 cycles per second and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent upon the nature of the test.	

§ 201.307 Direct-current watt-hour meters.*

Item	Description	Fee
201.307a	Test at one voltage on one range at not more than 5 loads, namely 10 percent, 25 percent, 50 percent, full load and 50 percent overload, unless otherwise ordered, not to exceed 100 amperes and 500 volts.	\$15.00
201.307b	Test at one load on an additional range or at another voltage, not to exceed 100 amperes and 500 volts.	4.00
201.307c	Test according to item 201.307a or 201.307b having been made, for an additional load on the same combination of range and voltage, not to exceed 100 amperes and 500 volts.	1.00
201.307z	For tests at higher currents or voltages, and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.308 Alternating-current watt-hour meters.*

Item	Description	Fee
201.308a	Test at one frequency, one power factor, one voltage and one range, on not more than 5 loads namely 10 percent, 25 percent, 50 percent, full load and 50 percent overload, unless otherwise ordered, current not to exceed 100 amperes and voltage not to exceed 500 volts.	\$15.00
201.308b	Test at one load on an additional frequency, power factor, voltage or range.	.00
201.308c	Test according to item 201.308a or 201.308b having been made, for an additional load on the same combination of frequency, power factor, voltage and range.	1.00
201.308z	For special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.309 Frequency meters for power frequencies.*

Item	Description	Fee
201.309a	Test at one voltage of not more than 5 reeds or not more than 5 scale points	\$20.00
201.309b	Test of one reed or scale point at another voltage	2.00
201.309c	Test according to item 201.309a or 201.309b having been made, for an additional reed or scale point at the same voltage	2.00
201.309d	For tests at frequencies outside the range 15 to 75 cycles per second, and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.310 Current transformers.*

Item	Description	Fee
201.310a	Test for ratio of transformation and phase angle of a current transformer at one frequency and one burden (not less than 0.2 ohm resistance) at not more than 6 values of secondary current, namely, 0.5, 1, 2, 3, 4, and 5 amperes unless otherwise ordered; primary current not to exceed 500 amperes	\$20.00
201.310b	Test for ratio of transformation and phase angle of a current transformer at one frequency and one burden (not less than 0.2 ohm resistance) at not more than 6 values of secondary current, namely, 0.5, 1, 2, 3, 4, and 5 amperes unless otherwise ordered; primary current greater than 500 amperes but not to exceed 8000 amperes	30.00
201.310c	Test for ratio and phase angle at one value of secondary current on an additional frequency range or burden (not less than 0.2 ohm resistance); primary current not to exceed 500 amperes	4.00
201.310d	Test for ratio and phase angle at one value of secondary current on an additional frequency, range or burden (not less than 0.2 ohm resistance); primary current greater than 500 amperes but not to exceed 8000 amperes	6.00
201.310e	Test according to item 201.310a, b, c or d having been made, determinations of ratio and phase angle at an additional value of secondary current with the same combination of frequency, range and burden, primary current not to exceed 8000 amperes	1.00
201.310f	For tests of current transformers at frequencies other than 25, 50 or 60 cycles per second, or with burdens less than 0.2 ohm resistance, or with primary current greater than 8000 amperes, and for other special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.311 Voltage (potential) transformers.* Since, for a given range, frequency and voltage, the ratio and phase angle of a transformer for any burden within the transformer rating can be accurately computed from the corresponding values of ratio and phase angle at zero burden and rated non-inductive burden, tests according to item 201.311h will not ordinarily be performed. Therefore, if tests are requested at burdens other than those stated in item 201.311 a, b or c, the need for such tests should

*For explanation of this schedule and conditions under which tests are made, see National Bureau of Standards Letter Circular 925, available free of charge from the National Bureau of Standards, Washington 25, D. C.

be fully explained at the time the test is requested.

Item	Description	Fee
201.311a	Test for ratio of transformation and phase angle of a voltage transformer at one frequency, one range and one secondary voltage with not more than 4 values of secondary burden; namely those giving zero, half and full rated non-inductive load at rated voltage, and with one instrument burden to be specified by the customer; primary voltage not to exceed 25,000 volts	\$20.00
201.311b	Test for ratio of transformation and phase angle of a voltage transformer at one frequency, one range and one secondary voltage with not more than 4 values of secondary burden, namely those giving zero, half and full rated non-inductive load at rated voltage, and with one instrument burden to be specified by the customer; primary voltage greater than 25,000 volts but not to exceed 100,000 volts	30.00
201.311c	Test for ratio of transformation and phase angle of a voltage transformer at one frequency, one range and one secondary voltage with not more than 4 values of secondary burden, namely those giving zero, half and full rated non-inductive load at rated voltage, and with one instrument burden to be specified by the customer; primary voltage greater than 100,000 volts but not to exceed 250,000 volts	60.00
201.311d	Determination of ratio and phase angle at one value of secondary voltage on an additional range or frequency, and with one of the burdens used in tests performed according to item 201.311a, b, or c; primary voltage not to exceed 25,000 volts	5.00
201.311e	Determination of ratio and phase angle at one value of secondary voltage on an additional range or frequency, and with one of the burdens used in tests performed according to item 201.311a, b, or c; primary voltage greater than 25,000 volts, but not to exceed 100,000 volts	6.00
201.311f	Determination of ratio and phase angle at one value of secondary voltage on an additional range or frequency, and with one of the burdens used in tests performed according to item 201.311a, b, or c; primary voltage greater than 100,000 volts but not to exceed 250,000 volts	10.00
201.311g	Tests according to item 201.311a, b, c, d, e, or f having been made, determination of ratio and phase angle with a second burden used in item 201.311a, b or c, and with the same combination of range, frequency and voltage used in item 201.311d, e or f	2.00
201.311h	Tests according to item 201.311a, b, c, d, e or f having been made, determination of ratio and phase angle at an additional burden other than those used in tests made in accordance with item 201.311a, b or c; primary voltage not to exceed 250,000 volts	10.00
201.311i	Test according to item 201.311a, b, c, d, e, f, g, or h having been made, for determination of ratio and phase angle at an additional value of secondary voltage on the same combination of range, frequency and burden; primary voltage not to exceed 250,000 volts	1.00
201.311j	For tests of voltage transformers at frequencies other than 25, 50 or 60 cycles per second, or with primary voltages greater than 250,000 volts, and for other special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.312 Volt boxes.*

Item	Description	Fee
201.312a	Test for ratio on one range at rated voltage, not to exceed 750 volts	\$15.00
201.312b	Test at one value of voltage on an additional range, not exceeding 750 volts	4.00

Item	Description	Fee
201.312c	Test according to item 201.312a or 201.312b having been made, for test at an additional voltage on the same range, not exceeding 750 volts	\$1.00
201.312d	For tests on volt boxes at voltages exceeding 750 volts, and for special tests not covered by the above schedule, advance arrangements must be made. Fees will be charged dependent on the nature of the test.	

§ 201.313 Instrument transformer testing sets (portable).*

Item	Description	Fee
201.313a	Determination of the values of current ratio and phase angle for settings of the dials of a portable current transformer testing set at 60 cycles per second	\$70.00
201.313b	Determinations according to item 201.313a having been made, for corresponding determinations at 25 cycles per second	10.00
201.313c	Determination of values of the voltage ratio and phase angle for settings of the dials of a portable voltage transformer testing set at 60 cycles per second	70.00
201.313d	Determinations according to item 201.313c having been made, for corresponding determinations at 25 cycles per second	8.00

MAGNETIC MEASUREMENTS

§ 201.401 Magnetic materials: Normal induction and hysteresis. Specimens submitted for test should be of rectangular cross section, width not to exceed 3.8 cm (1½ in.); thickness not to exceed 1.9 cm (¾ in.); for magnetizing forces in the ranges 0-300 or 0-5000 oersteds, length to be not less than 25.4 cm (10 in.); for magnetizing forces in the range 100-5000 oersteds, length to be not less than 7 cm (2¾ in.).

Item	Description	Fee
201.401a	Determination of data for normal induction curve in the range 0-300 oersteds	\$10.00
201.401b	Determination of data for normal induction curve in the range 100-5000 oersteds	10.00
201.401c	Determination of data for normal induction curve in the range 0-5000 oersteds	17.50
201.401d	Determination of data for demagnetization curve, one value of maximum magnetizing force	15.00
201.401e	Same as 201.401d, each additional value of maximum magnetizing force	10.00
201.401f	For special tests not covered by above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.402 Magnetic materials: A-C permeability and core loss. Test specimens should consist of the proper number of strips 3 cm (1¼ in.) wide and either 50 cm (19 1/16 in.) or 28 cm (11 1/16 in.) prepared in accordance with the specifications of the American Society for Testing Materials, A-34.

Item	Description	Fee
201.402a	Determination of total core loss at 60 cycles per second at one value of maximum induction not exceeding 15 kilogausses	\$7.00
201.402b	Same as 201.402a, each additional value of maximum induction	2.00
201.402c	For special tests not covered by above schedule, fees will be charged dependent upon the nature of the test.	

§ 201.403 Magnetic testing apparatus: Mutual inductors and search coils.

Item	Description	Fee
201.403a	Determination of mutual inductance by direct-current.....	\$10.00
201.403b	Same as 201.403a, each additional value for variable or tapped inductors.....	3.50
201.403c	Determination of the area-turns of a search coil.....	10.00
201.403d	For special tests not covered by above schedule, fees will be charged dependent upon the nature of the test.	

ELECTROCHEMISTRY

§ 201.801 Standard cells.

Item	Description	Fee
201.801a	Cadmium standard cell (unsaturated type)—determination of electromotive force with accuracy of 0.01 per cent first cell.....	\$7.50
201.801b	Each additional unsaturated cell submitted at the same time.....	5.00
201.801c	Cadmium standard cell (saturated type) Measurement at a fixed temperature in thermostatically controlled oil bath.....	10.00
201.801d	Each additional saturated cell submitted at same time.....	7.50
201.801e	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

PART 202—METROLOGY

LENGTH

Sec.	Description
202.101	Reference line standards of length.
202.102	Working line standards of length.
202.103	Commercial line standards of length.
202.104	Steel tapes.
202.105	Invar base-line tapes.
202.106	Surveyors measuring instruments (other than tapes).
202.107	Sieves and sieve cloth.
202.108	Haemocytometers.
202.109	Areas and area-measuring instruments.
202.110	Interferometry.
202.111	Precision circles and precision line standards of length.

MASS

202.201	"Class A" standard weights (new).
202.202	"Class A" standard weights (not new).
202.203	"Class B" standard weights.
202.204	"Class C" standard weights (except cast iron 50 lb. weights).
202.205	"Class M" laboratory standard of mass.
202.206	"Class S" laboratory weights.
202.207	"Class S2" laboratory weights.
202.208	Balances.

TIME

202.301	Timepieces.
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CAPACITY, DENSITY AND FLUID METERS

202.401	Volumetric apparatus.
202.402	Metal capacity standards.
202.403	Hydrometers and thermo-hydrometers.
202.404	Density of solids and liquids.
202.405	Fluid meters including gas measuring instruments.

THERMAL EXPANSION

202.601	Thermal expansion of solids.
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SCALES

202.801	Large capacity scales and weights.
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GAGES

Sec.	Description
202.901	Gage blocks and end standards of length.
202.902	Plain and taper plug and ring gages.
202.903	Thread plug and ring gages.
202.904	Instruments and components.
202.905	Gill net gages.

AUTHORITY: §§ 202.101 to 202.905 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

LENGTH

§ 202.101 Reference line standards of length.

Item	Description	Fee
202.101a	Yard or meter reference line standard—determination of the total length by comparison with the primary working standards of the Bureau at room temperature, with a probable error of about 0.3 μ.....	\$40.00
202.101b	Yard or meter reference line standard—determination of the total length at an additional temperature to obtain the coefficient of expansion.....	30.00
202.101c	Yard or meter reference line standard—determination of equal submultiples of a length, each.....	6.00
202.101d	Yard or meter reference line standard—determination of any other single interval.....	9.00
202.101e	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.102 Working line standards of length.

Item	Description	Fee
202.102a	Yard or meter working line standard—determination of the total length at room temperature to an accuracy of 0.001 mm if the character of the graduation justifies.....	\$17.50
202.102b	Yard or meter working line standard—determination of the total length at an additional lower temperature to obtain the coefficient of expansion.....	14.50
202.102c	Yard or meter working line standard—determination of equal submultiples of a length, each.....	3.00
202.102d	Yard or meter working line standard—determination of any other single interval.....	8.00
202.102e	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.103 Commercial line standards of length.

Item	Description	Fee
202.103a	Yard or meter commercial line standard—determination of the total length at room temperature to an accuracy of 0.01 mm if the character of the graduation justifies.....	\$8.00
202.103b	Yard or meter commercial line standard—determination of the total length at an additional lower temperature to obtain the coefficient of expansion.....	6.00
202.103c	Yard or meter commercial line standard—determination of the corrections of equal submultiples of a length, each.....	2.00
202.103d	Yard or meter commercial line standard—determination of any other single length.....	4.00
202.103e	Yard or meter commercial line standard—examination of intervening graduations of a bar, done in connection with item (a) only, and certification of their degree of accuracy to not more than 0.001 inch or 0.1 mm without giving the individual corrections of the points examined, for each 10 points examined.....	2.50
202.103f	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.104 Steel tapes.*

Item	Description	Fee
202.104a	Steel tapes—determination of correction to the total length of the tape when supported throughout at standard tension and at standard temperature, for each 150 feet or 50 meters or fraction thereof..... This is the regular standard test which will be made and charged for in each case to determine whether or not the tape is entitled to certification. To this amount must be added the fees for any additional tests made, and for item (m), if applicable, in accordance with the following schedule.	\$3.75
202.104b	Steel tapes—determination of the correction to the total length when supported throughout at any tension other than standard tension, for each 150 feet or 50 meters or fraction thereof..... Tension desired must be specified.	.50
202.104c	Steel tapes—determination of the correction to the total length when supported at the ends only..... The Bureau is not prepared to make this test on tapes having a greater length than 150 feet or 50 meters.	.75
202.104d	Steel tapes—determination of the correction to the total length when supported at the ends and one or more intermediate points, for each 150 feet or 50 meters or fraction thereof..... Standard tension will be used in this test unless another tension is specified.	.75
202.104e	Steel tapes—determination of the correction to the length of a subinterval under the same conditions as to tension and points of support as for the total length..... The points at which these measurements are made must be points at which the tape is supported. The Bureau is not prepared to test tapes supported at points more than 150 feet or 50 meters apart.	.50
202.104f	Steel tapes—determination of the correction to the length of a subinterval under different specified conditions as to tension and points of support from those used for the total length. See item (e) above.	.75
202.104g	Steel tapes—determination of the tension to the nearest integral half pound or quarter kilogram at which the correction to the length of an interval is most nearly zero, under a specified condition of support, for each 150 feet or 50 meters or fractions thereof.....	.75
202.104h	Steel tapes—determination of the correction to a subinterval at the tension at which the correction to the total length is most nearly zero and under the conditions of support used in the test under item (g).....	.50
202.104i	Steel tapes—determination of the coefficient of expansion of a tape, for each 150 feet or 50 meters or fraction thereof for the first tape..... The above fee of \$48.00 includes a charge of \$42.00 to cover the cost of cooling the tape testing laboratory and \$6.00 for the test of the tape. Additional tapes up to a total of four may be submitted at a cost of \$6.00 for each additional tape. All four tapes need not be from the same source.	48.00
202.104j	Steel tapes—determination of Young's modulus of elasticity, for each 150 feet or 50 meters or fraction thereof.....	2.50
202.104k	Steel tapes—determination of the weight per foot or per meter of a tape.....	1.75
202.104L	Spring balance—testing in horizontal position.....	3.00
202.104m	Steel tapes—additional charge for each tape sent without a reel.....	1.25
202.104n	Steel tapes—determination of A.E.....	2.00
202.104o	Steel tapes—computed values (this does not include charge for necessary measurements).....	2.00

* See paragraph 10 of National Bureau of Standards Letter Circular LO 310, available from the National Bureau of Standards, Washington 25, D. C.

Item	Description	Fee
202.104z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

NOTE: For testing of Invar tapes and wires, see § 202.105.

§ 202.105 *Invar base-line tapes.* For testing of steel tapes, see Test Fee § 202.104.

The test of an invar base-line tape of any length less than 50 meters on our geodetic-tape comparator will, in general, be made for the same fee as a 50-meter invar base-line tape. Attention is called to the fact that only invar base-line tapes of certain lengths can be tested on this comparator.

Invar tapes not tested on the geodetic-tape comparator will be tested on our bench standard. Fees will be arranged for each test but may be approximately estimated by multiplying the corresponding fees of § 202.104 for steel tapes by the factor four.

Item	Description	Fee
202.105a	Invar 50-meter base-line tape—determination of total length on the geodetic comparator with a probable error not greater than ± 0.050 mm.	\$27.50
202.105b	Invar 50-meter base-line tape—determination of total length on the geodetic comparator at an additional tension and/or method of support, with a probable error not greater than ± 0.50 mm.	5.00
202.105c	Invar 50-meter base-line tape—determination of length supported throughout, by computation from the observed length when supported at the ends and one or more intermediate points.	2.00
202.105d	Invar 50-meter base-line tape—determination of length of a sub-interval to the nearest 0.1 mm, using the steel bench standard, for each tension and/or method of support.	2.00
202.105e	Invar 50-meter base-line tape—determination of the coefficient of expansion on the geodetic comparator with an accuracy of at least 0.00001 per degree centigrade, and certification of its total length at one temperature, tension, and method of support with a probable error not greater than ± 0.50 mm.	75.00
202.105f	Invar 50-meter base-line tape—determination of Young's modulus of elasticity.	4.00
202.105g	Invar base-line tape—determination of the weight per meter (or per foot).	2.50
202.105h	Spring balance—testing in horizontal position.	3.00
202.105i	Invar base-line tape—additional charge for each tape sent without a reel.	1.25
202.105j	Invar base-line tape—determination of A.E.	3.00
202.105k	Invar base-line tape—computed values.	2.00
202.105z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.106 *Surveyors measuring instruments (other than tapes).*

Item	Description	Fee
202.106a	Level rods—testing principal intervals.	\$4.50
202.106z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.107 *Sieves and sieve cloth.*

Item	Description	Fee
202.107a	Sieve—test of any one sieve to determine conformity to specification, but not including the sieving test, each.	\$5.00
202.107b	Sieve—same as in item 202.107a above, additional sieves submitted at the same time, each.	3.00
202.107c	Sieve cloth—test of a piece of sieve cloth, each square foot or fraction thereof (cloth larger than 1 foot by 3 feet accepted by agreement only and at increased fees).	3.50
202.107z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

NOTE: The precision seal of the National Bureau of Standards on any sieve indicates that the sieve has been tested at the National Bureau of Standards and found to conform to the specification.

§ 202.108 *Haemacytometers.*

Item	Description	Fee
202.108a	Single haemacytometer chamber—testing single chamber and two cover glasses for conformity with specification.	\$5.00
202.108b	Same, for each additional chamber submitted at the same time.	.75
202.108c	Double haemacytometer chamber—testing double chamber and two cover glasses for conformity with specification.	5.50
202.108d	Same, for each additional chamber submitted at the same time.	1.25
202.108e	Quadruple haemacytometer chamber—testing quadruple chamber and two cover glasses for conformity with specification.	6.00
202.108f	Same, for each additional chamber submitted at the same time.	1.75
202.108g	Cover glasses—testing cover glasses when not accompanying chamber, each.	.10
202.108z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

Precision seal. Each haemacytometer chamber and each cover glass which passes the specification is marked with a National Bureau of Standards precision seal.

The above fees have been computed for testing instruments having the Neubauer rulings (original or improved.) An extra charge will be made for the testing of instruments having Fuchs-Rosenthal or other rulings which require more time in testing.

§ 202.109 *Areas and area-measuring instruments.*

Item	Description	Fee
202.109z	Special tests only are conducted in this category and fees will be charged dependent upon the nature of the test.	

§ 202.110 *Interferometry.*

Item	Description	Fee
	Precision gages—calibration of master precision gages using light waves and interference methods, accuracy 0.000001 inch.	
202.110a	Light wave calibration 0.1 to 0.4 inch.	\$7.50
202.110b	Light wave calibration 0.5 to 2.0 inches.	12.00
202.110c	Light wave calibration 3.0 to 4.0 inches.	27.50
	Optical true planes—tested by interference methods using standard optical true planes of fused quartz, 11 inch diameter, accuracy 0.000001 inch.	
202.110d	Test for 1 to 4 inches in diameter.	7.00
202.110e	Test for 4 to 6 inches in diameter.	9.00
202.110f	Test for 6 to 8 inches in diameter.	12.00
202.110g	Test for 8 to 10 inches in diameter.	20.00
	Microhardness of metals and minerals.	
202.110h	Test with diamond indenter apparatus.	5.00
202.110z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.111 *Precision circles and precision line standards of length.*

Item	Description	Fee
202.111a	Graduation and verification of precision circles, minimum fee.	\$150.00
202.111b	Graduation and testing of precision line standards of length, minimum fee.	50.00
202.111c	Shaping, polishing, and testing of ruling-diamond tools, minimum fee.	75.00
202.111z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

MASS

§ 202.201 *"Class A" standard weights (new).*

Item	Description	Fee
	New class A standards, or sets or groups containing such standards. Inspecting, cleaning, handling, etc. (but not including test for accuracy):	
202.201a	For a single weight not greater than 50 lb. or 25 kg.	\$5.00
202.201b	For each set or group of weights submitted as a unit, when the largest weight is not greater than 2 lb. or 1 kg.	5.00
202.201c	For each set or group of weights submitted as a unit, when the largest weight is not greater than 20 lb. or 10 kg but is greater than 2 lb. or 1 kg.	7.00
202.201d	For each set or group of weights submitted as a unit, when the largest weight is not greater than 50 lb. or 25 kg but is greater than 20 lb. or 10 kg.	10.00
	NOTE: To the appropriate item above there will be added, in the case of a full regular test, an amount computed from one or more of the following items—this item or items used depending on the size of the weights.	
	For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only the appropriate one of the items above.	
	Testing for accuracy and constancy, sealing, certifying or reporting the value of each weight:	
202.201e	For each weight not greater than 2 lb. or 1 kg.	5.00
202.201f	For each weight not greater than 20 lb. or 10 kg. but greater than 2 lb. or 1 kg.	5.50
202.201g	For each weight not greater than 50 lb. or 25 kg. but greater than 20 lb. or 10 kg.	6.00
202.201z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.202 *"Class A" standard weights (not new).**

Item	Description	Fee
	<i>Class A standards (not new)</i>	
	Inspecting, cleaning, handling, etc. (but not including test for accuracy)	
202.202a	For a single weight up to 50 lb. or 25 kg.	\$3.00
202.202b	For each set or group of weights submitted as a unit, when the largest weight is not greater than 2 lb. or 1 kg.	3.00
202.202c	For each set or group of weights submitted as a unit, when the largest weight is not greater than 20 lb. or 10 kg. but is greater than 2 lb. or 1 kg.	3.50

*This schedule applies to standards that have been in use several years, or that have been given the 3 months "age" test for constancy.

Item	Description	Fee
Class A standards (not new)—Con.		
202.202d	For each set or group of weights submitted as a unit, when the largest weight is not greater than 50 lb. or 25 kg. but is greater than 20 lb. or 10 kg. Note: To the appropriate item above there will be added, in the case of a full regular test, an amount computed from one or more of the following items—the item or items used depending on the size of the weights. For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only the appropriate one of the items above. Testing for accuracy, certifying or reporting correction for each weight:	\$5.00
202.202e	For a single weight not greater than 2 lb. or 1 kg.	2.00
202.202f	For each weight not greater than 20 lb. or 10 kg. but greater than 2 lb. or 1 kg.	3.50
202.202g	For each weight not greater than 50 lb. or 25 kg. but greater than 20 lb. or 10 kg.	4.00
202.202h	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.203 "Class B" standard weights.

Item	Description	Fee
Class B standards		
	Inspecting, cleaning, handling, etc. (but not including test for accuracy):	
202.203a	For a single weight not greater than 50 lb. or 25 kg.	\$4.00
202.203b	For each set or group of weights submitted as a unit, when the largest weight is not greater than 2 lb. or 1 kg.	3.50
202.203c	For each set or group of weights submitted as a unit when the largest weight is not greater than 20 lb. or 10 kg. but is greater than 2 lb. or 1 kg.	4.00
202.203d	For each set or group of weights submitted as a unit when the largest weight is not greater than 50 lb. or 25 kg. but is heavier than 20 lb. or 10 kg. Note: To the appropriate item above there will be added, in the case of a full regular test, an amount computed from one or more of the following items—the item or items used depending on the size of the weights. For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only the appropriate one of the items above. Testing for accuracy, sealing, certifying or reporting the value of each weight within the specified tolerance:	5.50
202.203e	For each weight not greater than 2 lb. or 1 kg.	.50
202.203f	For each weight not greater than 20 lb. or 10 kg. but greater than 2 lb. or 1 kg.	.75
202.203g	For each weight not greater than 50 lb. or 25 kg. but greater than 20 lb. or 10 kg.	1.00
202.203h	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.204 "Class C" standard weights (except cast iron 50 lb. weights).

Item	Description	Fee
Class C standards—except cast iron 50 lb. weights		
	Inspecting, cleaning, handling, etc. (but not including test for accuracy):	
202.204a	For a single weight not greater than 50 lb. or 25 kg.	\$4.00

Item	Description	Fee
Class C standards—except cast iron 50 lb. weights—Continued		
	Inspecting, cleaning, handling, etc. (but not including test for accuracy)—Continued:	
202.204b	For each set or group of weights submitted as a unit when the largest weight is not greater than 2 lb. or 1 kg.	\$3.50
202.204c	For each set or group of weights submitted as a unit when the largest weight is not greater than 20 lb. or 10 kg. but is greater than 2 lb. or 1 kg.	4.00
202.204d	For each set or group of weights submitted as a unit when the largest weight is not greater than 50 lb. or 25 kg. but is greater than 20 lb. or 10 kg. Note: To the appropriate item above there will be added, in the case of a full regular test, an amount computed from one or more of the following items—the item or items used depending on the size of the weights. For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only the appropriate one of the items above. Testing for accuracy, sealing, certifying or reporting the value of each weight within the specified tolerance:	5.50
202.204e	For each weight not greater than 2 lb. or 1 kg.	.50
202.204f	For each weight not greater than 20 lb. or 10 kg. but greater than 2 lb. or 1 kg.	.75
202.204g	For each weight not greater than 50 lb. or 25 kg. but greater than 20 lb. or 10 kg.	1.00
202.204h	Readjusting a weight within Class C tolerances, including the final test for accuracy (optional with NBS).	1.50
202.204i	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.205 "Class M" laboratory standards of mass.

Item	Description	Fee
202.205a	Class M standards that are not new or not plated: for each set, or single weight, or group that is submitted as a unit—for regular inspection, cleaning, handling, etc. (but not including test for accuracy).	\$3.00
202.205b	New plated Class M standards and sets or groups containing such standards: for each set, or single weight, or group of weights that is submitted as a unit—for regular inspection, cleaning, handling, etc. (but not including test for accuracy).	4.00
	Note: To the appropriate item above there will be added, in the case of a full regular test, an amount computed from one or more of the following items—the item or items used depending on the nature of the test. For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only the appropriate one of the items above.	
202.205c	Moderate precision test of each weight—testing accuracy and certifying or reporting the value of each weight.	1.00
202.205d	High precision test of each weight—testing accuracy and certifying or reporting the value of each weight (as a rule this test requires also the determination of the volume of each weight above 1 g.) (see item e).	2.50
202.205e	For each weight for which the actual volume must be determined—determination of actual volume by hydrostatic weighings.	2.25

¹ Item b applies to weights which are boiled in distilled water to remove traces of plating salts as completely as possible, and also as a test of the adequacy of the plating. Item a applies to weights which are not given this treatment, particularly to those that are not electroplated or that have been in use for some years.

Item	Description	Fee
202.205f	Reference standards and weights whose constancy over a long period of time must be assured—determination of change that occurs during 3 months under good atmospheric conditions. The fee for this test of constancy with "age" will be equal to (and in addition to) that computed from item c or d.	
202.205g	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.206 "Class S" laboratory weights.

Item	Description	Fee
202.206a	Class S laboratory weights that are "one-piece" weights, or screw knob weights that are not plated or lacquered, or in general, weights that do not need to be given a test for the effect of changes in atmospheric humidity; for each set or single weight, or group that is submitted, tested and certified or reported as a unit—for regular inspection, cleaning, handling, etc. (but not including test for accuracy).	\$3.00
202.206b	Plated or lacquered screw knob weights or sets or groups that include such weights; or in general, weights that are tested for the effect of variations in atmospheric humidity; for each set, or single weight, or group that is submitted, tested, and certified or reported as a unit—for regular inspection, cleaning, handling, etc. (but not including test for accuracy).	4.00
	Note: To the appropriate item above there will be added, in the case of a full regular test, an amount computed from either item d or item g depending on the nature of the test. For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only the appropriate one of the items above.	
202.206c	Determination of actual value for each weight—testing and certifying or reporting of actual correction for each weight.	1.00
202.206d	Tolerance test of each weight—testing and certifying or reporting whether each weight is correct within the specified tolerance.	.50
202.206e	Readjustment of screw-knob weights—Readjusting within Class S tolerance for one weight. This operation requires an additional test under "g" or "d" above. Readjusting is to be done at the option of the NBS.	1.25
202.206f	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.207 "Class S2" laboratory weights.

Item	Description	Fee
202.207a	Class S2 laboratory weights, for each set or single weight, or group that is submitted, as a unit: for regular inspection, cleaning, handling, test report, etc. (but not including test for accuracy).	\$3.00
	Note: To the item above there will be added, in the case of a full regular test, an amount computed from item b.	
	For weights given the complete inspection, cleaning, etc., but not tested for accuracy, on account of defects discovered or for some other cause, the fee is only item a.	
202.207b	Tolerance test of each weight—testing each weight for accuracy within the specified tolerance.	.70
202.207c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.208 Balances.

Item	Description	Fee
	Tests of balances frequently involve work specially suited to the individual balance or of unusual importance in the work for which the balance is used. Fees for such special tests, as well as for tests not provided for in the items below, are computed according to the time and expense involved. In general the test involves determining: (1) Ratio of the arms of the beam and constancy of this ratio with change in load. (2) Change in sensitiveness with load. (The sensitiveness will not be changed unless instructions to this effect are received and agreed to.) (3) Reliability of the balance (i. e., its ability to repeat results) in so far as this is indicated by a few repetitions under (1) and (2) with skillful handling under good conditions. (4) Accuracy of graduation of rider scale. (5) Accuracy of quick weighing attachments. For scales having overhead platforms, and for all types in which this is of primary importance. (6) Effect of shifting load from center toward edge of platform. (7) Such other features as are of primary importance, such as accuracy of indications of sliding poise, or equality of water buckets of gas calorimeter balances. The preliminary inspection covers, in general, such points as (1) obvious looseness or imperfections in knife edges and bearings, (2) improper looseness or "wobbling" of arrestment arms, (3) stability of central pillar, (4) operation and adjustment of arrestments and rider carrier, (5) any other features essential to the proper operation of the balance.	
202.208a	Analytical balance, 50 g. to 200 g. capacity, precision of test about 0.1 mg.	\$22.50
202.208b	Same as 202.208a except for balances equipped with quick weighing devices such as direct reading scales, chain, or beam notched for special rider, and damping attachments.	27.50
202.208c	Same as (a) or (b) above but precision of test about 0.01 mg.	35.00
202.208d	Assay balance, 1 g. capacity, precision of test about 0.001 mg.	32.50
202.208e	Microchemical balance of 20 g. capacity, precision of test about 0.01 mg.	32.50
202.208f	Same as in item (e) above but precision of test 0.001 mg.	55.00
202.208g	"Bates sugar balance" and "pulp" balances of similar capacity and sensitiveness.	17.50
202.208h	Portable inspector's balance, capacity 10 lb., precision of test about 0.1 g. or 1 grain.	16.50
202.208i	Gas calorimeter balance, precision of test about 0.001 lb. or 0.5 grain.	12.50

TIME

§ 202.301 Timepieces.

Item	Description	Fee
202.301a	Watches (5 positions, temperature and isochronism) test under Class A program (54 days), whether granted a Class A certificate, or a report of performance, each.	\$15.00
202.301b	Same as (a) above, but submitted in groups of 5 or more at the same time, each.	12.50
202.301c	Watches (5 positions and temperature) test under the "Railroad Precision" test program (19 days), whether granted a certificate or a report, each.	6.00
202.301d	Same as (c) above, but submitted in groups of 5 or more at the same time, each.	5.00
202.301e	Watches (3 positions and temperature) test under "Business Precision" program (15 days), whether granted a certificate or a report, each.	5.00
202.301f	Same as (e) above, but submitted in groups of 5 or more at the same time, each.	4.00

Item	Description	Fee
202.301g	Chronometers (Marine) test under the "Chronometer Test" program (30 days), whether granted a certificate or a report, each.	\$12.00
202.301h	Same as (g) above, but submitted in groups of 5 or more at the same time, each.	11.00
202.301i	Stop watches—test under the "Stop Watch Test" program (1 to 5 days), whether granted a certificate or a report, each.	7.50
202.301j	Same as (i) above, but submitted in groups of 5 or more at the same time, each.	7.00
202.301k	Watches—test of pocket or wrist watch in 5 positions at room temperature only (11 days), no certificate to be issued, a report of performance only issued, each.	5.00
202.301L	Same as (k) above, but submitted in groups of 5 or more at the same time, each.	4.00
202.301m	Watches—test of pocket or wrist watch in 3 positions at room temperature only (7 days), no certificate to be issued, a report of performance only issued, each.	4.50
202.301n	Same as (m) above, but submitted in groups of 5 or more at the same time, each.	4.00
202.301z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

CAPACITY, DENSITY AND FLUID METERS

§ 202.401 Volumetric apparatus.

Item	Description	Fee
202.401a	Flasks, capacities up to and including 250 ml.—testing and stamping, each flask.	\$1.25
202.401b	Flasks, capacities exceeding 250 ml.—testing and stamping, each flask.	1.75
202.401c	Flasks, capacities exceeding 500 ml.—When bearing more than one capacity mark, testing for each capacity and stamping each flask.	1.25
202.401d	Transfer pipettes and Babcock test bottles—testing and stamping, each capacity tested.	1.00
202.401e	Cylindrical graduates—testing and stamping, each capacity tested.	1.00
202.401f	Flasks—specific gravity—testing at four capacities and stamping.	3.50
202.401g	Certificates of capacity for any test, items (a) and (e) above when requested, minimum fee.	1.00
202.401h	Burettes—testing and certifying five intervals.	5.00
202.401i	Measuring pipettes—testing five intervals, and stamping.	3.50
202.401j	Burettes—testing capacity of intervals in excess of the five covered by item (h) above.	.75
202.401k	Dilution pipettes (haemocytometers)—testing two ratios, and marking each pipette.	.75
202.401L	Automatic (Trenner) pipettes (haemocytometers)—testing and stamping, each pipette.	.70
202.401m	Apparatus intended for use at a temperature other than 20° C., between 15° C. and 30° C.—testing, additional charge for each piece.	.60
202.401n	Apparatus if indicated capacity other than in milliliters—testing, additional charge for each piece.	.60
202.401o	Apparatus disqualified for test—preliminary examination, charge for each piece.	.50
202.401p	Missing identification numbers—for supplying charge each number.	.65
202.401z	For special tests not covered by the above schedule fees will be charged dependent upon the nature of the test.	

§ 202.402 Metal capacity standards.

Item	Description	Fee
202.402a	Half-bushel and 5-gallon measures—testing, marking, and certifying capacity, each.	\$10.00
202.402b	Measures of capacity less than ½ bushel and 5 gallons—testing, marking, and certifying capacity, each.	8.00
202.402c	Cubic-foot bottles for use in testing gas meter provers—testing, marking and certifying capacity, each.	14.00

Item	Description	Fee
202.402d	½ cubic-foot bottles for use in testing gas meters—testing, marking, and certifying capacity, each.	\$10.00
202.402e	5-gallon field standards (Seraphin neck type)—testing, sealing and certifying or reporting, each.	10.00
202.402f	Field standards of capacity less than 5 gallons (Seraphin neck type)—testing, sealing, and certifying or reporting, each.	8.00
202.402g	Field standards in excess of 5-gallon capacity, calibrated to deliver; testing, sealing and reporting; for the first 10-gallons.	10.00
202.402h	Field standards exceeding 10-gallons capacity, calibrated to deliver; testing, sealing and reporting; for each 5-gallon increment in excess of the first 10 gallons covered in item (a) above, but not exceeding 18 5-gallon increments.	3.00
202.402z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.403 Hydrometers and thermohydrometers.

Item	Description	Fee
202.403a	Hydrometers—general inspection, testing at three points, and marking where there is compliance with Bureau requirements for precision stamp.	\$3.00
202.403b	Thermohydrometers—same as in item (a) above.	3.00
	NOTE: Thermometer testing—charges for testing between 32 and 210° F. or between 0 and 100° C. will be made in accordance with test fee schedule 203.101 titled "Laboratory Thermometers" at \$1.50 for each point tested.	
202.403c	Hydrometers—certificate or report of corrections at three points, additional fee.	1.00
202.403d	Hydrometers—testing, certifying or reporting corrections at more than three points, each such point.	1.00
202.403e	Hydrometers—determination of weight in air, additional fee.	.75
202.403f	Supplying missing identification numbers on hydrometers, charges per number.	.50
202.403z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.404 Density of solids and liquids.

Item	Description	Fee
202.404a	Density of solids and liquids—determination at room temperature, each.	\$5.00
202.404b	Density of solids and liquids—determination at a specified temperature between 0° and 30° C., each.	7.50
202.404c	Coefficient of thermal expansion of liquids—determination between any two temperatures between 0° and 50° C.	19.00
202.404d	Coefficient of thermal expansion of liquids—determination between any two temperatures additional to item 202.404c, each.	7.00
202.404z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.405 Fluid meters including gas measuring instruments.

Item	Description	Fee
202.405a	Portable cubic foot standards (Stillman type)—testing, adjusting, sealing, and certifying.	\$50.00
202.405b	Gas meter provers not exceeding 5 cubic feet capacity—testing and certifying or reporting.	44.00
202.405c	Gas meter provers more than 5 cubic feet capacity—testing and certifying or reporting each 5 cubic feet capacity additional to item 202.405b above.	11.00

See footnote at end of table.

Item	Description	Fee
202.405d	Laboratory wet gas meters—testing and reporting as received.....	\$28.00
202.405e	Laboratory wet gas meters—testing at one rate, adjusting index for zero correction and reporting.....	32.50
202.405f	Laboratory wet gas meters—testing at several rates within operating range, adjusting index and reporting.....	50.00
202.405g	Dry gas meters—rated capacity 600 cubic feet per hour, or less—testing with prover in laboratory at two rates of flow and reporting.....	12.50
202.405h	Orifices, flow nozzles and other rate-of-flow meters, self-contained—or for use in pipes up to and including 3-inch pipe: Calibration with water or air at 5 rates of flow.....	40.00
202.405i	Additional fee for meter in 4-inch pipe.....	12.50
202.405j	Additional fee for meter in 6-inch pipe.....	37.50
202.405k	Additional fee for meter in 8-inch pipe.....	90.00
202.405L	Orifices, flow nozzles and other rate-of-flow meters, self-contained or for use in pipes up to and including 8-inch pipe: for each rate in excess of the 5 covered by item 202.405h above.....	4.50
202.405m	Orifices, flow nozzles and other rate-of-flow meters for use in pipes up to and including 8-inch pipe, when 2 or more are used interchangeably in the same mounting: calibration with water or air at 5 rates of flow, in addition to the first covered by item 202.405h above.....	22.50
202.405n	Fabric permeability apparatus—determining the rate of flow—pressure drop relation on one orifice or nozzle thereof and reporting.....	17.00
202.405o	Fabric permeability apparatus—for each orifice or nozzle thereof in excess of the initial one covered by item 202.405n.....	5.00
202.405a	For special tests not covered by the above schedule, fees will be based upon the nature of test and time required.	

¹ Gas meter provers must be tested in the place of use; hence all travel expenses and haulage of equipment will be in addition to the test fee and arranged for separately. This applies also to tests of large meters and other special meters where the test work must be done in the field.

THERMAL EXPANSION

§ 202.601 Thermal expansion of solids.¹

Item	Description	Fee
202.601a to 202.601i	comprise the shaping of the ends of specimens and the determinations of the thermal expansion for the temperature ranges specified:	
202.601a	From 20° C. (or higher) to 100° C. (or lower).....	\$60.00
202.601b	From 20° C. (or higher) to 300° C. (or lower).....	62.50
202.601c	From 20° C. (or higher) to 500° C. (or lower).....	68.00
202.601d	From 20° C. (or higher) to 700° C. (or lower).....	72.50
202.601e	From 20° C. (or higher) to 900° C. (or lower).....	82.50
202.601f	From 20° C. (or higher) to 1,000° C. (or lower).....	100.00
202.601g	From -20° C. (or higher) to 20° C. (or lower).....	60.00
202.601h	From -20° C. (or higher) to 300° C. (or lower).....	105.00
202.601i	From -140° C. (or higher) to 20° C. (or lower).....	135.00
202.601j	Determination of thermal expansion at each additional temperature within the range tested.....	6.50
202.601k	For the derivation of an expansion equation, an extra fee will be charged dependent upon the amount of work required (minimum charge).....	10.00

¹ Reference should be made to Letter Circular No. 215, dated November 17, 1926 available from the National Bureau of Standards, Washington, D. C.

Item	Description	Fee
202.601L	Determinations of thermal expansion by reference to fused quartz or other material as a standard (accurate to about 5% in value of coefficient) for all items above except e, f, and i at 1/2 the above fees.	
202.601x	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

SCALES

§ 202.801 Large capacity scales and weights.¹

Item	Description	Fee
	Class C, cast iron, 50 lb. test weights: NOTE: A minimum handling charge of \$2.50 will be made for each group of 50 lb. cast iron. Class C test weights submitted in groups not exceeding ten in number; an additional handling charge of 25¢ will be made for each weight in the group in excess of ten.	
202.801a	For tolerance test when no readjustments are required, per weight.....	\$0.75
202.801b	For tolerance test, adjustment and retest, per weight.....	1.50
	Test weights, 50 lbs. to 2,500 lbs.: NOTE: A minimum handling charge of \$2.50 will be made for each group of test weights submitted in groups not exceeding ten in number; an additional charge of 50¢ will be made for each weight in excess of ten.	
202.801c	Standardization of test weights larger than 50 lbs. and not exceeding 2,500 lbs. per weight.....	5.50
202.801d	Test weights, 2,501 lbs. to 10,000 lbs.: Standardization and handling, test weights larger than 2,500 lbs. and not exceeding 10,000 lbs. fee per weight.....	10.50
202.801e	Scale test cars: Standardization at Clearing master scale depot.....	7.50
202.801x	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

GAGES

§ 202.901 Gage blocks and end standards of length.

Item	Description	Fee
	Gage blocks of standard commercial sizes, English or metric, with plane parallel contact surfaces, area of contact surface 1/2 square inch or greater; lengths up to and including 1 inch:	
202.901a	Determination length to $\pm 0.00003''$, parallelism to $\pm 0.00003''$, and planeness of both gaging surfaces to $0.00003''$, each.....	\$0.85
	Application: "B" or "C" quality sets or used "A" quality sets (not including master sets) in good condition. See items (e), (ae), and (r) below.	
202.901b	Determination length to $\pm 0.00004''$, parallelism to $\pm 0.00002''$, planeness across width of both gaging surfaces of rectangular blocks to $0.00002''$, planeness across width of square blocks to $0.00003''$, and planeness along length of gaging surfaces to $0.00003''$	1.00
	Application: "A" quality sets. See items (c), (bf), and (r) below.	

¹ See "Information relative to submission of 50-pound, cast-iron test weights to the National Bureau of Standards Master Scale Depot at Clearing, Illinois for test and certification," available from the National Bureau of Standards, Washington 25, D. C.

Item	Description	Fee
	Gage blocks of standard commercial sizes, English or metric, with plane parallel contact surfaces, area of contact surface 1/2 square inch or greater; lengths up to and including 1 inch—Continued.	
202.901c	Determination of length to $\pm 0.00003''$, parallelism to $\pm 0.00002''$, and planeness of both gaging surfaces to $0.00002''$, each.....	\$1.25
	Application: "AA", "A" or "B" quality, or master sets, when requested. Also, all blocks tested under item (a) or (b) found to be outside of length tolerance. This is the highest accuracy to which blocks shorter than 0.100", or longer than 0.200", are tested.	
202.901d	Determination of length to $\pm 0.00002''$, parallelism to $0.00002''$, and planeness of both gaging surfaces to $0.00002''$, each.....	2.50
	Application: "AA" quality, or master blocks used as reference standards for precision gage blocks, from 0.100" to 0.200", inclusive, when requested.	
	Gage blocks of standard commercial sizes, English or metric—lengths greater than 1 inch, but not exceeding four inches:	
202.901e	Determination of length to $\pm 0.00003''$ per inch of length, parallelism to $\pm 0.00003''$, and planeness of both gaging surfaces to $0.00003''$, each.....	\$2.50
	Application: Same as item (a). See items (g), (ae), and (r).	
202.901f	Determination of length to $\pm 0.00004''$ per inch of length, parallelism to $\pm 0.00002''$, and planeness across width of both gaging surfaces of rectangular blocks to $0.00002''$, planeness across width of square blocks to $0.00003''$, and planeness along length of gaging surfaces to $0.00003''$, each.....	3.00
	Application: Same as item (b). See items (g), (bf), and (r).	
202.901g	Determination of length to $\pm 0.00003''$ per inch of length, parallelism to $\pm 0.00002''$, and planeness of both gaging surfaces to $0.00002''$, each.....	4.00
	Application: "AA", or "B" quality, or master sets, when requested. Also, all blocks tested under item (e) or (f) found to be outside of length tolerance.	
202.901h	Determination of length to $\pm 0.00002''$ per inch of length, parallelism to $\pm 0.00002''$, and planeness of both gaging surfaces to $0.00002''$, each.....	7.50
	Application: "AA" quality, or master blocks used as reference standards for precision gage blocks, when requested.	
	Gage blocks, usual 81 block set including 2, 3, and 4-inch blocks:	
202.901ae	Measurements as described under items (a) and (e).....	70.00
202.901bf	Measurements as described under items (b) and (f).....	88.00
202.901cg	Measurements as described under items (c) and (g).....	115.00
202.901dch	Measurements as described under items (d), (e), and (h).....	195.00
	Gage blocks of standard commercial sizes, English or metric—lengths greater than 4 inches but not exceeding 8 inches:	
202.901i	Determination of length to $\pm 0.00003''$ per inch of length, parallelism to ± 0.00001 inch, and planeness of both gaging surfaces to $0.00003''$, each.....	4.00
202.901j	Determination of length of $\pm 0.00001''$ per inch of length, parallelism to ± 0.00003 inch, and planeness of both gaging surfaces to ± 0.00002 inch, each.....	6.50
	Gage blocks of standard commercial sizes, English or metric—lengths greater than 8 inches but not exceeding 12 inches:	
202.901k	Determination of length to $\pm 0.00003''$ per inch of length, parallelism to ± 0.00001 inch and planeness of both gaging surfaces to 0.00003 inch, each.....	8.25

Item	Description	Fee
	Gage blocks of standard commercial sizes, English or metric—lengths greater than 8 inches but not exceeding 12 inches—Continued.	
202.901L	Determination of length to ± 0.00001 " per inch of length, parallelism to ± 0.00005 inch and planeness of both gaging surfaces to 0.00002 inch, each.	\$9.00
	Gage blocks of standard commercial sizes, English or metric—lengths greater than 12 inches but not exceeding 20 inches:	
202.901m	Determination of length to ± 0.00003 " per inch of length, parallelism to ± 0.0001 inch, and planeness of both gaging surfaces to 0.00005 inch, each.	9.00
202.901n	Determination of length to ± 0.00001 " per inch of length, parallelism to ± 0.00005 inch, and planeness of both gaging surfaces to 0.00002 inch, each.	15.00
	Gage blocks, eight-block set composed of 5, 6, 7, 8, 10, 12, 16, and 20-inch blocks:	
202.901km	Measurement as described under items (l), (k), and (m).	42.00
202.901jn	Measurements as described under items (j), (i), and (n).	75.00
	Gage blocks, odd sizes not regularly stocked by manufacturers and for which standards of equal nominal length are not available, lengths up to 4 inches:	
	Determination of length to ± 0.00002 inch or 0.00002 inch per inch for blocks longer than 1 inch, parallelism to ± 0.00002 ", and planeness of both gaging surfaces to 0.00002":	
202.901p	First block, less than 1 inch in length, each.	7.00
	For additional blocks in same lot of same nominal size, test fees in items (a) to (d), inclusive, apply depending on the accuracy requested.	
202.901q	First block, more than 1 inch and not over four inches in length, each.	12.00
	For additional blocks in same lot of same nominal size, test fees in items (e) to (h), inclusive, apply depending on the accuracy requested.	
	Gage blocks and gage block accessories, measurements of microflatness (surface finish), one gaging surface:	
202.901r	Determination of errors of one surface in microflatness in micrometers (root mean square), by Profilometer or equivalent test, each.	1.50
	Application: All gage blocks, or gage block accessories, when requested. Also, all blocks tested under items (a), (b), (c), or (f), selected by visual examination, which when measured are found to be outside of established tolerances for microflatness errors.	
202.901s	Determination of errors of one surface in microflatness by a Brush Surface Analyzer, including chart, and root mean square value derived from chart, each.	7.00
	Gage block accessories:	
202.901t	Set of 9 gage block attachments, Hoke List No. 1000 or equivalent, determinations of lengths, flatness, angles, per set.	21.50
202.901u	Set of 19 gage block accessories, Johansson Set No. 47 or equivalent, determinations of lengths, flatness, angles, per set.	87.50
	End standards with spherical or pointed ends, or flat ends with area of contact less than $\frac{1}{4}$ inch:	
202.901aa	End standards—determination of length to ± 0.00004 " for lengths up to and including 8 inches.	5.00
202.901bb	End standards—determination of length to ± 0.00005 " per inch of length for lengths over 8 inches up to and including 20 inches.	7.50
202.901cc	End standards—determination of length to ± 0.00005 " per inch of length for lengths over 20 inches up to and including 40 inches.	9.50

Item	Description	Fee
202.901dd	End standards with spherical or pointed ends, or flat ends with area of contact less than $\frac{1}{4}$ inch—Continued.	
	End standards—determination of length to ± 0.00005 " per inch of length for lengths over 40 inches up to and including 72 inches.	\$16.00
202.901z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

NOTE: The test fee schedules contained in § 202.901 a-z include a statement of the relative accuracy to which measurements are ordinarily made. However, if the character of the defining surface of a gage or other article is not such as to warrant the certification to this accuracy, the report will show the accuracy actually obtained. If a greater accuracy is requested and the defining surfaces are such as to permit measurements to the accuracy requested, the necessary measurements will be made and a special fee will be charged.

In the shipment of gages, extreme precautions should be taken both against corrosion and damage by contact with other gages during transit. All defining steel surfaces should be greased and protected with waxed paper or a suitable strippable plastic coating. A greased steel surface coming in contact with newspaper, wrapping paper (unwaxed) or excelsior is very likely to corrode. Small gages suitably wrapped may be separated by newspapers, excelsior, etc. Heavy gages should be rigidly fastened in place in a strong rigid container so that no movement is possible. Plug and ring gages should ordinarily not be shipped mated. In the case of large size threaded plugs and rings, however, mating is permissible as a means of protecting the plug threads. In such case a grease must be used that will prevent electrolytic corrosion between the mating gages.

§ 202.902 Plain and taper plug and ring gages.*

Item	Description	Fee
202.902a	Plain plug gages—determination of diameter, taper, and roundness to ± 0.00003 " for sizes up to and including two inches.	\$5.00
202.902b	Plain plug gages—determination of diameter, taper, and roundness to ± 0.00001 " for sizes up to and including two inches.	8.50
202.902c	Plain plug gages—determination of diameter, taper, and roundness to ± 0.00005 " for sizes over two inches up to and including ten inches.	6.00
202.902d	Plain ring gages—determination of diameter, taper, and roundness to ± 0.00003 " for sizes $1\frac{1}{2}$ " up to and including two inches.	5.50
202.902e	Plain ring gages—determination of diameter, taper, and roundness to ± 0.00001 " for sizes $1\frac{1}{2}$ " up to and including two inches.	14.50
202.902f	Plain ring gages—determination of diameter, taper, and roundness to ± 0.00005 " for sizes over two inches up to and including ten inches.	8.50
202.902g	Taper plug gages—determination of taper over total length to ± 0.00003 " and diameter at any specified point to 0.00003" for sizes up to and including 3 inches.	13.00
202.902h	Taper plug gages—determination of taper over total length to ± 0.00005 " and diameter at any specified point to ± 0.00005 " for sizes over 3 inches up to and including six inches.	17.50
202.902i	Taper ring gages—determination of fit and standoff from mating plug gage.	4.00
202.902z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

* See note at end of § 202.901.

§ 202.903 Thread plug and ring gages.*

Item	Description	Fee
202.903a	Straight thread plug gages—determination of angle to 2' to 8' depending on pitch; lead error and pitch diameter to 0.0001"; major diameter to 0.0002"; thread form as to clearance, for sizes up to and including 4 inches.	\$6.00
202.903b	Straight thread plug gages—determination of pitch diameter to 0.0001" for sizes up to 4 inches.	3.50
202.903c	Straight thread ring gages—determination of angle to 5' to 10' depending on pitch; lead error to 0.0001", minor diameter to 0.0002", thread form as to clearance, and fit on mating plug, for sizes $\frac{3}{16}$ " to 12 inches.	4.50
202.903d	Taper thread plug gages—determination of half angles to 3' to 10' depending on pitch; lead error, pitch diameter and taper to 0.0001"; major diameter to 0.0003"; and thread form as to clearance, for sizes up to and including 10 inches.	14.00
202.903e	Taper thread plug gages—determination of half angles to 3' to 10' depending on pitch; lead error and taper to 0.0001"; pitch diameter to 0.0002"; major diameter to 0.0004"; and thread form as to clearance, for sizes from 10 inches to 24 inches, incl.	16.50
202.903f	Taper thread ring gages—determination of angle to 5' to 10' depending on pitch; lead error to 0.0001"; taper to 0.0002"; minor diameter to 0.0003" or truncation of thread crest; thread form as to clearance; and standoff from mating plug to 0.001", for sizes up to 24 inches.	10.00
202.903g	API cable and rotary tool joint gages—determination of mating standoff and standoff from Grand Master gages, per set.	6.00
202.903h	API sucker rod plug gages designated as P1 and B2—determination of dimensions specified in API Std. No. 11-B.	7.00
202.903i	API sucker rod plug gages designated as P3 and B4—determination of dimensions specified in API Std. No. 11-B.	13.50
202.903j	API sucker rod plug gages designated as P5 and B6—determination of dimensions specified in API Std. No. 11-B.	6.50
202.903k	API sucker rod ring gages designated as P2 and B1—determination of dimensions specified in API Std. No. 11-B.	5.50
202.903L	API sucker rod ring gages designated as P4 and B3—determination of dimensions specified in API Std. No. 11-B.	6.50
202.903m	API sucker rod ring gages designated as P6 and B5—determination of dimensions specified in API Std. No. 11-B.	4.50
202.903n	API sucker rod gages—determination of dimensions of complete set (P1 to P6 and B1 to B6) of new gages of any one size.	80.00
202.903o	API sucker rod gages—determination of dimensions specified in API Std. No. 11-B for the inspection of used gages, per set of any one size.	29.00
202.903z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 202.904 Instruments and components.*

Item	Description	Fee
202.904a	Micrometer calipers—determination of errors at ten points selected to test uniformity of graduations as well as lead errors. Also determination of planeness and parallelism errors of contact surfaces.	\$7.50
202.904b	Dial micrometers—determination of errors in each tenth revolution of the pointer for one revolution and each half revolution up to five revolutions.	7.50
	NOTE: In the case of dial micrometers, the accuracy obtainable depends on the value of the smallest division on the dial and on the mechanical condition of the instrument as evidenced by the degree to which it will repeat its indications.	

Item	Description	Fee
202.904c	Thread wires—determination of diameter, straightness, and roundness of each of three wires in a set in accordance with specification for wires in Handbook H28, Screw Thread Standards for Federal Services, and certification of mean diameter and C correction on an approved type of container label supplied by the manufacturer. For the following best sizes of wires for standard 60° screw threads: 4, 4½, 5, 5½, 6, 7, 7½, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 36, 40, 44, 48, 50, 56, 64, 72, and 80 threads per inch and the following best sizes for acme standard threads: 1, 1½, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12, 14, and 16 threads per inch.	\$1.50
202.904d	Thread wires—for sizes not included in schedule 202.904c, per set of three wires.	10.25
202.904e	Penetration needles—test for compliance with ASTM specification 195-47T without reporting actual dimensions, each.	.60
202.904f	Penetration needles—determination of diameter of body and point, length of needle and angle of point, with actual dimensions reported, each.	1.00
NOTE: To obtain test at this fee, the needles or individual containers must be numbered and the manufacturer furnish a blank certificate in a form acceptable to this Bureau.		
202.904g	Polariscope tubes—determination of the average length of polariscope observation tube and marking with NBS serial number if length is within ±0.03 mm of nominal length for 100 and 200 mm tubes and ±0.04 mm for 400 mm tubes.	5.00
202.904h	Dimensions of miscellaneous components.	(f)
202.904i	Dimensions of miscellaneous articles.	(f)
202.904j	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

1 Special.

§ 202.905 Gill net gages.

Item	Description	Fee
202.905a	Gill net gages—test for compliance with specification noted below, for any lot tested, up to 25 gages (minimum charge \$5.00).	\$5.00
202.905b	Additional gages beyond 25 submitted at the same time (approved gages are marked with the letters "NBS" and the year of the test), each.	.20
NOTE: Gill net gages shall comply with the following specification: A gage shall be made of tempered carbon steel or tempered stainless steel, as specified. Sharp edges or burrs at ends shall be removed and the ends rounded, but ends shall not be sharpened to make a knife edge. A gage shall not be graduated and any necessary marking, such as length, shall be placed near the end of the gage. The mean length shall be as specified within ±0.002 inch and shall be marked on the gage. The gage shall be straight and ends shall be parallel within 0.002 inch. The width of the gage shall be ½ to ¾ inch. The thickness of the gage shall be such that when set vertically on a solid anvil, with the upper end of the gage loaded as follows, the gage will deflect at its middle 0.1 of its length: Length of gage Dead weight 1¾ inch or less 7¼ to 8¾ ounces Over 1¾ inch 7½ to 8½ ounces		
202.905c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

PART 203—HEAT AND POWER

TEMPERATURE MEASUREMENTS

Sec.

203.101 Laboratory thermometers.

- Sec.
203.102 Thermocouples, thermocouple materials, and pyrometer indicators.
203.103 Resistance thermometers.
203.104 Clinical thermometers.
203.105 Certain types of industrial thermometers.
203.106 Optical pyrometers and ribbon filament lamps.

THERMODYNAMICS

- 203.201 Gas calorimeters.

LUBRICATION

- 203.401 Oil filters.
203.402 Viscometers.
203.403 Standard viscosity samples.

AUTOMOTIVE

- 203.501 Internal combustion engine fuels.

AUTHORITY: §§ 203.101 to 203.403 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

TEMPERATURE MEASUREMENTS

§ 203.101 Laboratory thermometers.

Item	Description	Fee
203.101a	Thermometers, testing at points from 0 to 100° C. inclusive or from 32 to 212° F. inclusive, for each point tested.	\$1.50
203.101b	Thermometers, testing at points from 101 to 300° C. inclusive or from 213 to 600° F. inclusive, for each point tested.	3.50
203.101c	Thermometers, testing at points above 300° C. or 600° F., for each point tested.	7.00
203.101d	Thermometers, testing at points from -1 to -140° C. inclusive, or from 31 to -220° F. inclusive, for each point tested.	5.00
203.101e	Thermometers, testing in liquid air (-188 to -191° C.).	5.00
203.101f	Calorimetric thermometers, testing at intervals of 2° C. or 5° F.	15.00
203.101g	Beckman thermometers, with 5° or 6° C. scale, testing at 1° intervals by comparison with precision standards.	18.00
203.101h	When instruments submitted are found by preliminary tests to be unsuitable for test, a charge will be made to cover the cost of the preliminary work. Minimum fee.	1.00
203.101i	If a test, not covered by any schedule item, is undertaken, it will be subject to a special fee depending upon the nature and cost of the test.	

1 Items (f) and (g) apply particularly to the types of thermometers listed in table 5 of Circular No. 8.

§ 203.102 Thermocouples, thermocouple materials, and pyrometer indicators.

Item	Description	Fee
203.102a	High temperature thermocouples and thermocouple materials. Minimum length 24 inches. Certification of corresponding values of temperature and emf of a thermocouple material against the platinum standard of the NBS or of temperature and emf of a thermocouple at 4 to 15 points within the range 0° to 1,450° C. (32° to 2,650° F.).	\$22.00
	Certified accuracy of platinum to platinum-rhodium thermocouples 0.5° in the range 0° to 1,100° C. and from 0.5° at 1,100° C. to 2° at 1,450° C. Certified accuracy of base-metal thermocouples 0.5° to 1° C. depending upon the type of thermocouple and the highest temperature at which it is calibrated. Results above 1,100° C. are obtained by extrapolation.	
203.102b	High temperature thermocouples and thermocouple materials. Certification as per item 203.102a at less than 4 points, per point.	6.00
	Minimum charge per thermocouple or material.	12.00

Item	Description	Fee
203.102c	Standard platinum to platinum-rhodium thermocouples. Minimum length 24 inches. Certification of the emf of a thermocouple at any of the following thermometric fixed points, per point.	\$22.00
	Freezing points of zinc, antimony, silver and gold. Accuracy of certification 2 microvolts (about 0.2° C.).	
203.102d	Standard platinum to platinum-rhodium thermocouples. Minimum length 24 inches. Primary calibration at all of the fixed points listed in Item 203.102c and certification of not more than 15 corresponding values of emf and temperature to an accuracy of 0.3° in the range 0° to 1,100° C. and from 0.3° at 1,100° C. to 2° at 1,450° C. Accuracy of certification at fixed points 2 microvolts.	90.00
203.102e	High temperature thermocouples and thermocouple materials. Certification of interpolated corresponding values of emf and temperature as per item (a) or (d) above, per point.	.50
203.102f	Thermocouples. Minimum length 36 inches. Certification of corresponding values of emf, and temperature to an accuracy of about 0.1° in the range 0° to -70° C., per point.	6.00
	Minimum charge per thermocouple.	12.00
203.102g	Thermocouples. Minimum length 36 inches. Certification of corresponding values of emf, and temperature to an accuracy of about 0.1° in the range 0° to 300° C., per point.	8.00
	Minimum charge per thermocouple.	16.00
203.102h	Thermocouples. Minimum length 36 inches. Certification of corresponding values of emf, and temperature to an accuracy of about 0.1° in the range -140° to -70° C., per point.	8.00
	Minimum charge per thermocouple.	16.00
203.102i	Thermocouples. Minimum length 36 inches. Certification of corresponding values of emf, and temperature to an accuracy of about 0.1° in the range -183° to -196° C., per point.	8.00
	Minimum charge per thermocouple.	16.00
203.102j	Pyrometer indicators. Calibration of single scale of meter or single dial of potentiometer (reference junction compensator counting as a dial).	6.00
203.102k	Pyrometer indicators. Calibration of each additional dial of a multi-dial instrument (reference junction compensator counting as a dial) or of each additional range of each dial or scale of a multirange instrument.	2.50
	Calibration of a thermocouple and pyrometer indicator as a unit will be charged for as if the thermocouple and indicator were separately calibrated.	
203.102l	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	
	Thermocouples, thermocouple materials and pyrometer indicators submitted for calibration and test should be accompanied by an order requesting the test and specifying the Fee Schedule Item Number. A bill will be rendered at the completion of the work. It is preferable to send only the thermocouple wires in order to avoid the possible breakage of the insulating and protecting tubes. Length requirements are exclusive of lead wire. Lead wire need not be sent with thermocouples.	
	The calibration or test of an article will not be undertaken if, in our opinion, the article will not yield the specified accuracy, or if it possesses such unusual characteristics as to prevent the carrying out of the calibration or test at a reasonable cost. If, in the course of a calibration or test, it is found that the article is inferior to its general class, a report will be issued giving the results obtained. In such cases, a fee covering the cost of the work performed, will be charged.	

§ 203.103 Resistance thermometers.

Item	Description	Fee
203.103a	Standard platinum resistance thermometers—calibration at the ice, steam and sulfur points.....	\$42.00
203.103b	Standard platinum resistance thermometers—calibration under 203.103a and at the oxygen point.....	56.00
203.103c	Calorimetric platinum resistance thermometers—calibration at the ice and steam points and one intermediate point.....	42.00
203.103y	When instruments submitted are found by preliminary tests to be unsuitable for test, a charge will be made to cover the cost of the preliminary work. Minimum fee.....	1.00
203.103z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 203.104 Clinical thermometers.

Item	Description	Fee
203.104a	For any number of thermometers tested, not exceeding ten, total fee.....	\$1.50
203.104b	For any number of thermometers greater than ten, for each thermometer tested.....	.15
203.104z	If thermometers submitted are of a form such that they cannot be tested in the usual manner, a fee will be charged depending upon the cost of making the test. NOTE: Clinical thermometers marked "Government Tested" or its equivalent will not be accepted for test.	

§ 203.105 Certain types of industrial thermometers.

Item	Description	Fee
203.105a	Industrial thermometers, testing at points in the interval 0° to 100° C. (32° to 212° F.), for each point tested, or minimum fee for each thermometer submitted.....	\$3.00
203.105b	Industrial thermometers, testing at points above 100° C. and up to 300° C. or above 212° F. and up to 600° F., for each point tested..... (Thermometers will not be tested at less than 2 points nor more than 5 points on the scale.)	5.00
203.105z	If a test, not covered by the above schedule items, is undertaken, it will be subject to a special fee depending upon the nature and cost of the test. NOTE: For the present, thermometers having a depth of immersion of not less than six inches above the top of the bulb and not more than twenty-four inches immersion will be accepted for test. The test will be made in an oil bath of the type now in use in the laboratory. Tests are limited to the types of thermometers specified because it is considered reasonably certain, if the immersion is as much as 6 inches, that the indications will be sensibly the same under the conditions of test and of use. The limit of 24 inches is determined by the equipment now available.	

§ 203.106 Optical pyrometers and ribbon filament lamps.

Item	Description	Fee
203.106a	Optical pyrometers: Calibration of low range 800° to 1400° C. 15 or fewer certified values.....	\$28.00
203.106b	Optical pyrometers: Additional ranges, 15 or fewer certified values in each range, per range.....	20.00
203.106c	Ribbon filament lamps: Certified values of direct current versus brightness temperature at 20 or fewer points in the range 800° to 2300° C.....	25.00

Item	Description	Fee
203.106d	Additional interpolated values as per 203.106a, 203.106b, 203.106c per point.....	\$0.50
203.106z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test. Optical pyrometers and ribbon filament lamps submitted for calibration and test should be accompanied by an order requesting the test and specifying the Fee Schedule Item Number. If desired, the calibration points may be specified. A bill will be rendered at the completion of the work. Limit of error of the above calibrations is usually 4° at 800° C. decreasing to 3° at 1063° C. and then increasing to 8° at 2300° C. The calibration or test of an article will not be undertaken if, in our opinion, the article will not yield the specified accuracy, or if it possesses such unusual characteristics as to prevent the carrying out of the calibration or test at a reasonable cost. If, in the course of a calibration or test, it is found that the article is inferior to its general class, a report will be issued giving the results obtained. In such cases, a fee covering the cost of the work performed will be charged.	

THERMODYNAMICS

§ 203.201 Gas calorimeters.

Item	Description	Fee
203.201a	Test gas calorimeter, water flow type, calorimeter only.....	\$76.00

LUBRICATION

§ 203.401 Oil filters.

Item	Description	Fee
203.401a	Determination of efficiency of automotive oil filters for 1 day of testing, per element.....	\$30.00
203.401b	For each additional day of testing, per day, per element.....	10.00

§ 203.402 Viscometers.

Item	Description	Fee
203.402a	Standardization of Saybolt viscometer ¹ provided with one outlet tube: (1) Dimensional tests.....	\$5.50
203.402b	(2) Flow tests.....	11.00
203.402c	Standardization of extra outlet tube ¹ for Saybolt viscometers provided with two outlet tubes: (1) Dimensional tests.....	2.50
203.402d	(2) Flow tests.....	11.00
203.402e	Calibration of ASTM modified Ostwald viscometer (Fenske routine type).....	15.00
203.402f	Calibration of ASTM suspended level viscometer (Ubbelohde or FitzSimon type) except series 1 capillaries, per capillary.....	15.00
203.402g	Calibration of ASTM suspended level viscometer (Ubbelohde or FitzSimon type) series 1 capillaries, per capillary.....	20.00
203.402z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

¹ Complete standardization of a Saybolt viscometer or an extra outlet tube requires both dimensional and flow tests. Flow tests are made only with instruments which meet the dimensional requirements. Reports on the dimensional tests alone, are made only on instruments which do not meet the dimensional requirements for a standard instrument.

§ 203.403 Standard viscosity samples.

Item	Description	Fee ¹ F. o. b. Wash., D. C.
203.403a	1-pint sample of standard viscosity oil D, H, I, J, K, L, M, or N with report on its absolute viscosity, kinematic viscosity, and density at 20° C., 25° C., and 100° F., per 1-pint sample.....	\$10.00
203.403b	Determination of absolute or kinematic viscosity of standard viscosity oil D, H, I, J, K, L, M, or N at temperatures other than covered by Item 203.403a, additional fee, per sample per temperature.....	10.00
203.403c	1-pint sample of standard viscosity oil OB with report on absolute viscosity, kinematic viscosity, and density at 20°, 25°, and 40° C., per 1-pint sample.....	25.00
203.403d	1-pint sample of standard viscosity oil P with report on absolute viscosity, kinematic viscosity, and density at 30°, 40°, and 50° C., per 1-pint sample.....	25.00
203.403e	Determination of absolute or kinematic viscosity of oil OB or oil P at temperatures other than those covered by Item 203.403c and Item 203.403d, respectively, additional fee, per sample per temperature.....	16.00
203.403f	1-pint sample of standard viscosity oil SB with report on Saybolt Universal viscosity at 100° F., per 1-pint sample.....	5.00
203.403g	1-pint of standard viscosity oil SC with report on Saybolt Universal viscosity at 130° F., per 1-pint sample.....	5.00
203.403h	1-pint sample of standard viscosity oil SF with report on Saybolt Furol viscosity at 122° F., per 1-pint sample.....	5.00
203.403z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

¹ Shipments weighing not more than 4-lb. gross to points within the United States, its territorial possessions, Canada, Cuba, and Mexico, are sent under government frank. Shipments weighing more than 4-lb. gross to points within the United States are sent via express, transportation charges collect. Special arrangements must be made for shipments not coming under these two classifications.

AUTOMOTIVE

§ 203.501 Internal combustion engine fuels.

Item	Description	Fee
203.501a	Knock-rating of motor fuels and lean mixture rating of aviation fuels.....	\$25.00
203.501b	Comparison of power-development and specific fuel consumption.....	40.00
203.501c	Cetane rating of diesel fuels.....	25.00
203.501d	Supercharge rating of aviation fuels.....	40.00

PART 204—ATOMIC AND MOLECULAR

PHYSICS

RADIOMETRY

Sec.

204.201 Radiometry.

MASS SPECTROMETRY

204.301 Chemical and isotope analyses by mass spectrometer.

RADIOACTIVITY

204.401 Preparations of radium and mesothorium.

204.402 Radioactive standards.

204.403 Standard rock and ore samples.

204.404 Calibration and test of instruments.
204.405 Luminosity of self-luminous materials.

X-RAYS

204.501 X-ray protective materials.

204.502 X-ray instruments.

204.503 X-ray inspections.

AUTHORITY: §§ 204.201 to 204.501 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

RADIOMETRY

§ 204.201 Radiometry.

Item	Description	Fee
204.201a	Eye protective glasses: Test for compliance with safety code, covering transmission of ultra-violet, visible and total radiation, per sample.....	\$11.50
204.201b	Test for luminous transmittance by comparison with standard filters.....	7.00
204.201c	Transmittance of radiant energy: Measurement of per cent ultra-violet spectral transmittance at regular intervals or selected points in the spectrum.....	9.00
204.201d	Measurement of per cent infrared spectral transmittance at regular intervals using an infrared spectrophotometer.....	14.00
204.201e	Standards of radiation—lamps seasoned and calibrated for intensity of radiant energy per lamp.....	22.00
204.201f	Calibration of ultra-violet lamps and radiant energy meters: Calibration of radiant energy meter for energy of 2537A.....	7.50
204.201g	Measurement of radiant flux of 2537A, from germicidal or steril-lamp.....	8.00
204.201h	Laminated safety glass—determination of effect on exposure to ultra-violet radiant energy.....	6.75
204.201i	Calibration of photocell—determination of spectral response.....	26.75
204.201s	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

MASS SPECTROMETRY

§ 204.301 Chemical and isotope analyses by mass spectrometer.

Item	Description	Fee
204.301a	Chemical analyses of common gases and hydrocarbon mixtures with no important components heavier than C five: One analysis \$5 per component—minimum charge.....	\$50.00
204.301b	Additional analyses of similar samples \$3 per component—minimum charge.....	30.00
204.301c	Isotope analyses involving measurement of isotope ratios such as C^{13}/C^{12} in CO_2 and N^{15}/N^{14} in pure N_2 : Fee, one sample.....	15.00
204.301d	For additional similar samples, each.....	10.00
204.301e	Additional charges will be made where isotope analysis requires a complete or partial chemical analysis at a rate depending on man-hours of work required. Reduced rates will be made on simple chemical analyses and isotope analyses when 5 or more similar samples are submitted depending on actual man-hours of work required.	
204.301s	Analyses of more complicated hydrocarbons and substituted hydrocarbons can be made on a research basis at a cost depending on the work involved when samples of the pure compounds involved in the mixture are available.	

RADIOACTIVITY

§ 204.401 Preparations of radium and mesothorium. Radioactive preparations submitted to the Bureau for test are subject to the following conditions:

(a) *Financial responsibility.* The Bureau assumes no responsibility for loss or damage to radioactive preparations while in its possession. The risk should be covered by insurance.

(b) *Period of measurement.* Since measurements must extend over a time sufficient to test equilibrium, at least 10 days are required for measurement of radioactive preparations in equilibrium with their product. At least 30 days are

required for preparations not in equilibrium.

(c) *Sealing of specimens.* Radioactive preparations submitted for test must be carefully sealed so that no radon (radium emanation) can escape. Leaking preparations cannot be measured and may cause considerable loss of time and injury to measuring instruments.

(d) *Lead screening for shipment.* Preparations containing radium are prohibited by postal regulations from the mails. They will be accepted by express companies when packed in lead containers as required by the express companies. Local express agents should be consulted regarding these requirements.

Item	Description	Fee
204.401a	Gamma-ray measurements of radium preparations in equilibrium: 0+ to 8.0 mg. of radium.....	\$5.00
204.401b	8+ to 18.0 mg. of radium.....	6.00
204.401c	18+ to 28.0 mg. of radium.....	7.00
204.401d	28+ to 40.0 mg. of radium.....	8.50
204.401e	40+ to 60.0 mg. of radium.....	18.00
204.401f	60+ to 80.0 mg. of radium.....	11.50
204.401g	80+ to 110.0 mg. of radium.....	13.00
204.401h	110+ to 150.0 mg. of radium.....	15.00
204.401i	150+ to 200.0 mg. of radium.....	17.50
204.401j	200+ to 250.0 mg. of radium.....	20.00
204.401k	250+ to 350.0 mg. of radium.....	22.50
204.401L	350+ to 500.0 mg. of radium.....	25.00
204.401m	The fee will be double that given in the above table, if the material of a specimen is not practically in equilibrium when measurements are begun.	
204.401n	For measurements in groups not exceeding 10 preparations, double the fee for radium preparations of same content as the total content of the group.	
204.401o	Radium preparations which are in equilibrium, and are returned under Bureau of Standards' seal: Re-certification of, without measurement.....	3.00
204.401p	Re-certification of, with remeasurement.....	5.00
204.401q	Report, without certification.....	5.00
204.401r	Fees for mesothorium preparations will be charged as for radium preparations on the basis of the radium equivalent of the mesothorium, items (a) to (l) above.	
204.401s	Measurements of radium ores and similar weakly radioactive specimens: Comparison of activity of pulverized sample with standard sample of uranium oxide by means of alpha ray electroscop.....	18.00
204.401t	Comparison of gamma-ray activity of pulverized sample with gamma-ray activity of a sample of uranium oxide or dilute radium standard.....	17.00
204.401u	Determination of radon content of sample by emanation methods: Samples in solution or completely soluble in nitric acid.....	15.00
204.401v	Samples partly insoluble in nitric acid.....	25.00
204.401w	Air samples.....	14.00
204.401z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 204.402 Radioactive standards.

Item	Description	Fee
204.402a	Radon Standards, 100 milliliters sealed in glass containing: 10 ⁻³ grams of radium.....	\$2.00
204.402b	10 ⁻¹ grams of radium.....	2.00
204.402c	Blank solution.....	2.00
204.402d	Radium Gamma-Ray Standards, 5 ml. solution sealed in glass containing: 0.1 x 10 ⁻⁴ grams of radium.....	3.00
204.402e	0.2 x 10 ⁻⁴ grams of radium.....	3.00
204.402f	0.5 x 10 ⁻⁴ grams of radium.....	3.00
204.402g	1.0 x 10 ⁻⁴ grams of radium.....	3.00
204.402h	2.0 x 10 ⁻⁴ grams of radium.....	3.00
204.402i	5.0 x 10 ⁻⁴ grams of radium.....	3.00
204.402j	10.0 x 10 ⁻⁴ grams of radium.....	3.00
204.402k	20.0 x 10 ⁻⁴ grams of radium.....	3.00
204.402L	50.0 x 10 ⁻⁴ grams of radium.....	4.00
204.402m	100.0 x 10 ⁻⁴ grams of radium.....	5.00

Item	Description	Fee
204.402n	Cobalt ⁶⁰ Gamma-Ray Standards, 5 ml. solution sealed in glass containing, on the date of calibration, approximately: 10 ³ disintegrations per second—value furnished with certificate.....	\$5.00
204.402o	10 ⁵ disintegrations per second—value furnished with certificate.....	5.00
204.402p	Beta-Ray Standards, consisting of RaD+E in equilibrium, deposited on a silver disc 1 inch in diameter and faced with two mill of palladium, having on date of preparation: 100, 200, 500 disintegrations.....	10.00
204.402q	Blank silver discs for preparing working standards or deposits of other isotopes, each.....	2.00
204.402z	For special standards not covered by the above schedule, fees will be charged dependent upon the nature of the standard.	

§ 204.403 Standard rock and ore samples.

Item	Description	Fee
204.403a	Rock sample 100 grams of pulverized rock analyzed for radium content with petrographic data and chemical analysis: Dunite: average radium content 0.009±0.004 x 10 ⁻¹² g. Ra/g rock.....	\$3.00
204.403b	Carthage limestone: average radium content 0.15±0.03 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403c	Berea sandstone: average radium content 0.24±0.02 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403d	Columbia River basalt: average radium content 0.33±0.03 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403e	Chelmsford granite: average radium content 2.96±0.08 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403f	Quartzite: average radium content 0.06±0.01 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403g	Graniteville granite: average radium content 3.3±0.2 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403h	Gabbro-diorite: average radium content 0.18±0.02 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403i	Milford granite: average radium content 0.23±0.02 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403j	Triassic diabase: average radium content 0.18±0.03 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403k	Deccan trap: average radium content 0.21±0.04 x 10 ⁻¹² g. Ra/g rock.....	3.00
204.403L	Kimberlite: average radium content 0.59±0.04 x 10 ⁻¹² g. Ra/g rock.....	3.00

§ 204.404 Calibration and test of instruments.

Item	Description	Fee
204.404a	Calibration of Geiger-Müller counters with associated indicating circuits: Calibration of gamma ray counters for use with radium radiations in roentgens.....	\$15.00
204.404b	Calibration of beta-ray counters to determine effective response in a given geometry for a particular type of source.....	15.00
204.404c	Calibration of portable ionization chambers for measurement of radioactive radiations.....	20.00
204.404d	Test of Geiger-Müller counters to determine threshold voltage, length and slope of plateau and resolving time.....	10.00
204.404e	Test of scaler for use with Geiger-Müller counter to determine compliance with specifications.....	25.00
204.404f	Test of rate for use with Geiger-Müller counter to determine compliance with specifications.....	25.00
204.404g	Test of portable ionization chambers with associated indicating devices to determine compliance with specifications.....	25.00
204.404z	For special tests not covered by the above schedule fees will be charged dependent on the nature of the test.	

§ 204.405 Luminosity of self-luminous materials.

Item	Description	Fee
204.405a	Luminous measurements of self-luminous materials or surface.	
204.405b	Minimum charge, 1 to 10 samples. Per sample, after first 10 and up to 100.	\$13.50
204.405c	Per sample over 100.	1.75
204.405d	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	.50

X-RAYS

§ 204.501 X-ray protective materials.

Item	Description	Fee
204.501a	Determination of opacity of one sample—ionization method.	\$12.00
204.501b	Determination of opacity of one sample—each additional sample, ionization method.	2.50
204.501c	Determination of opacity of one sample—radiographic method.	15.00
204.501d	Determination of each additional sample—radiographic method.	2.50
204.501z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 204.502 X-ray instruments.

Item	Description	Fee
204.502a	X-ray ionometer—calibration in international roentgens for 1 voltage and 1 filtration.	\$27.50
204.502b	X-ray ionometer calibration—each additional voltage and filtration for the same instrument.	3.00
204.502z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 204.503 X-ray inspections.

Item	Description	Fee
204.503z	X-ray inspections—For special tests including the radiographic inspection of metal objects; measurement of X-ray fluorescence; calibration of fluorescent screens; inspection and testing of complete X-ray equipments; other special tests not covered by the above schedule. Fees will be charged dependent upon the nature of the test.	

PART 205—CHEMISTRY

ELECTRODEPOSITION

§ 205.601 Calibration of magnetic thickness gage (Magne-gage) for electroplated coatings.

Item	Description	Fee
205.601a	Calibration of Magne-gage, first calibration.	\$10.00
205.601b	Calibration of Magne-gage, each additional calibration (Each instrument can be calibrated for A, B, C, D, E, F, H ranges).	7.50
205.601c	Recalibration of Magne-gage, first calibration.	5.00
205.601d	Recalibration of Magne-gage, each additional recalibration.	3.75
205.601e	Standard samples (no calibration) each card of samples.	5.00
205.601f	Calibration M of special composite Magne-gage for copper plus nickel coatings on steel.	35.00

(Sec. 312, 47 Stat. 410; 15 U. S. C. 276).

PART 206—MECHANICS

SOUND

Sec.	Description
206.101	Acoustic measurements.
MECHANICAL INSTRUMENTS	
206.201	Pressure gages.
206.202	Mercurial barometers and manometers.
206.203	Aneroid barometers, barographs, altimeters and altigraphs.
206.204	Mechanical appliances and instruments, and controllers and regulators.

AERODYNAMICS

206.301	Aerodynamical measurements.
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ENGINEERING MECHANICS

206.401	Tensile tests.
206.402	Compressive tests.
206.403	Transverse tests.
206.404	Torsional tests.
206.405	Hardness tests.
206.406	Ductility tests.
206.407	Calibration of load-measuring devices other than proving rings including Amsler boxes, tension bars, etc.
206.408	Special mechanical tests of materials and structures.
206.409	Calibration of proving rings.
206.410	Knoop indenter tests.

HYDRAULICS

206.501	Water current meters.
206.502	Pitot tubes.

AUTHORITY: §§ 206.101 to 206.502 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

SOUND

§ 206.101 Acoustic measurements.

Item	Description	Fee
206.101a	Sound absorption coefficient, 72 sq. ft. of material at frequencies of 128, 256, 512, 1024, 2048, and 4096 c/s.	105.00
206.101b	Sound absorption coefficient, box tests, on 3 sq. ft. of material at 512 c/s.	16.00
206.101c	Sound transmission loss, wall panel 71' x 88½' at frequencies of 128, 192, 256, 384, 512, 768, 1024, 2048 and 4096 c/s.	127.00
206.101d	Sound transmission loss, floor panel, same as item c above, plus tapping loss for impact sounds.	154.00
206.101e	Pressure calibration of condenser microphones, 50 to 10,000 c/s, reciprocity method.	61.00
206.101f	Free field calibration of microphones and sound level meters, 100 to 10,000 c/s, single orientation of microphone.	113.00
206.101g	Free field calibration of microphones and sound level meters, 100 to 10,000 c/s, microphone oriented at angles 0°, ±30°, ±90°, ±120°, ±150°, ±180° relative to sound wave.	142.00
206.101h	Calibration of audiometers at frequencies of 128, 256, 512, 1024, 2048, 4096, and 8192 c/s.	168.00
206.101i	Calibration of earphones, 100 to 10,000 c/s.	32.00
206.101j	Calibration of tuning forks, per fork.	12.00
206.101z	For special tests, not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

¹ Plus cost of construction.

MECHANICAL INSTRUMENTS

§ 206.201 Pressure gages.

Item	Description	Fee
	Pressure gages, mechanical type. (Only those of 1/4% accuracy or better will be accepted.) Calibration test at room temperature, up to 10 test points.	
206.201a	Gage range, suction up to 30 in. of mercury or gage range up to 50 psi.	\$10.50
206.201b	Gage range 50 to 200 psi.	14.50
206.201c	Gage range 200 to 30,000 psi.	9.00
206.201d	Oxygen gages 100 to 5,000 psi.	14.50
	Each extra test point.	.50

Item	Description	Fee
206.201e	Dead weight gages: 1. Calibration against pressure standard. 2. Calibration of weights, fee based on cost. 3. Measurement of piston diameter, fee based on cost.	\$27.00
206.201z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 206.202 Mercurial barometers and manometers.

Item	Description	Fee
206.202a	Barometers, range 28-31 inches of mercury, calibration test at 25° C.	\$20.00
206.202b	Barometers, altitude type, calibration test at 25° C., 10 test points. For each additional barometer when all are tested as a unit.	25.00
	Each additional test point.	1.00
	Mercury manometers, for use as standards, calibration test at 25° C., 10 test points: Range up to 300 mm. of mercury.	14.00
206.202c	Range above 300 mm. of mercury.	23.00
206.202d	Each additional test point.	1.00
206.202z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 206.203 Aneroid barometers, barographs, altimeters and altigraphs.

Item	Description	Fee
206.203a	Aneroid barometers, barographs, altimeters and altigraphs, calibration test at room temperature (±30° C.) (includes hysteresis and after effect test): First 10 test points.	\$15.00
	Each additional test point.	.50
206.203b	Determination of flight duration and intermediate landing from barograph indications.	15.00
206.203c	Item (b) including pressure-altitude determination at specified points from barograph indications only.	30.00
206.203d	Maximum altitude determination from air pressure and air temperature measurements, including all necessary calibration of instruments.	150.00
206.203e	Maximum altitude determination from barograph indications only.	30.00
206.203f	Maximum altitude determinations from a combination of indications of pressure-recording and other instruments, not including air temperature indications.	50.00
206.203z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 206.204 Mechanical appliances and instruments, and controllers and regulators.

Item	Description	Fee
206.204a	Mechanical appliances, as, for example, postage meters, numbering machines, stapling machines, and door closers: Fees to be based on costs.	
206.204b	Mechanical instruments, as, for example, radiosondes, hygrometers (except dry and wet bulb), oxygen instruments for aircraft personnel, tachometers, and aircraft instruments: Fees to be based on costs.	
206.204c	Controllers and regulators, as, for example, oxygen regulators, and gas flow controllers for aircraft: Fees to be based on costs.	
206.204z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

AERODYNAMICS

§ 206.301 Aerodynamical measurements.

Item	Description	Fee
206.301a	Wind speed indicators—calibration of pitot tubes, venturi tubes, cup, vane and thermal type anemometers at wind speed within the range 2 to 80 miles per hour or (optional) 10-190 miles.	\$24.00
206.301b	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

ENGINEERING MECHANICS

§ 206.401 Tensile tests.

Item	Description	Fee
	The specimen must be standard and machined ready to place in the testing machine. Under exceptional circumstances the samples may be machined at the Bureau of Standards, but if this is done an additional charge will be made depending upon the cost of the work. The lowest fee schedule which covers all the properties requested will be used. Specimens of unusual size and shape requiring special equipment will be charged for an hourly rate.	
	Tensile tests—total load not over 200,000 pounds:	
206.401a	Determination of tensile strength and elongation	\$2.00
206.401b	Determination of yield point, tensile strength, percentage elongation and reduction of area	5.00
206.401c	Determination of proportional limit, yield strength, Young's modulus, tensile strength, percentage of elongation and reduction of area	15.00
206.401d	Determination of elastic limit by extensometer readings for permanent set	20.00
206.401e	Determination of circumference and weight of a standard length under specified tensile load	3.00
206.401f	Breaking strength for fiber rope, diameter up to and including 1 inch	5.00
206.401g	Breaking strength for fiber rope, diameter over 1 inch and up to and including 2 inches	7.00
206.401h	Breaking strength for fiber rope, diameter over 2 inches and up to and including 3 inches	10.00
206.401i	Breaking strength for fiber rope, diameter over 3 inches and up to and including 3½ inches	13.00
206.401j	Breaking strength for fiber rope, diameter over 3½ inches and up to and including 4 inches	15.00
	Sockeling wire rope for tensile test (2 sockets):	
206.401k	Wire rope, diameter up to and including 1 inch	20.00
206.401L	Wire rope, diameter over 1 inch and up to and including 1½ inches	25.00
206.401m	Wire rope, diameter over 1½ inches and up to and including 2 inches	30.00
206.401n	Wire rope, diameter over 2 inches and up to and including 2½ inches	40.00
206.401o	Wire rope, diameter over 2½ inches and up to and including 3 inches	50.00
206.401p	Wire rope, diameter over 3 inches	60.00
	Tensile test of wire rope:	
206.401q	Breaking strength for wire rope, diameter up to and including 1 inch	10.00
206.401r	Breaking strength for wire rope, diameter over 1 inch and up to and including 1½ inches	15.00
206.401s	Breaking strength for wire rope, diameter over 1½ inches and up to and including 2 inches	20.00
206.401t	Breaking strength for wire rope, diameter over 2 inches and up to and including 2½ inches	25.00
206.401u	Breaking strength for wire rope, diameter over 2½ inches and up to and including 3 inches	30.00
206.401v	Breaking strength for wire rope, diameter over 3 inches	40.00

§ 206.402 Compressive tests.

Item	Description	Fee
206.402a	Compressive test—load not over 200,000 pounds: Determination of load at a specified deformation, and the ultimate strength.	\$5.00
206.402b	Deformation readings. Determination of the proportional limit and Young's modulus by deformation readings, and the ultimate strength.	15.00

§ 206.403 Transverse tests.

Item	Description	Fee
206.403a	Total load not over 100,000 pounds: Determination of the load at a specified deflection and the ultimate strength.	\$5.00
206.403b	Determination of proportional limit and modulus of elasticity by deflection measurements and the modulus of rupture.	15.00

§ 206.404 Torsional tests.

Item	Description	Fee
206.404a	Determination of angular deformation at rupture, specimen not over 0.25 inch diameter.	\$1.00
206.404b	Determination of ultimate torque and angular deformation at rupture.	5.00
206.404c	Determination of the proportional limit and shearing modulus of elasticity, by deformation readings, and the modulus of rupture.	20.00

§ 206.405 Hardness tests.

Item	Description	Fee
206.405a	Determination of Brinell number of a block to be used for calibration purposes, three separate indentations on each specimen.	\$10.00

§ 206.406 Ductility tests.

Item	Description	Fee
206.406a	Cold bend test: reporting angle or elongation at which fracture began.	\$2.50

§ 206.407 Calibration of load measuring devices other than proving rings including Amsler boxes, tension bars, etc.

Item	Description	Fee
	These fees apply to calibration for 10 different loads. If the number of loads exceeds 10, see item 206.407x.	
	Calibration of elastic devices, capacity not exceeding 10,000 lb.:	
206.407a	Tension	\$25.00
206.407b	Compression	25.00
	Calibration of elastic devices, capacity exceeding 10,000 lb. but not exceeding 50,000 lb.:	
206.407c	Tension	41.00
206.407d	Compression	27.00
	Calibration of elastic devices, capacity exceeding 50,000 lb. but not exceeding 100,000 lb.:	
206.407e	Tension	46.00
206.407f	Compression	29.00
	Calibration of elastic devices, capacity exceeding 100,000 lb. but not exceeding 200,000 lb.:	
206.407g	Compression only	82.00
206.407h	Calibration of elastic devices, capacity exceeding 200,000 lb. but not exceeding 300,000 lb.:	
206.407i	Compression only	94.00
206.407x	For each test load in excess of 10 an additional fee equal to one-tenth of the applicable fee for calibration is charged.	

§ 206.408 Special mechanical tests of materials and structures.

Item	Description	Fee
	These fees apply to all mechanical tests of materials and structures performed in the Mechanics Division not covered by other fee schedules. The charge for special mechanical tests is made on the basis of the hours of service furnished by members of the staff. Where the tests require travel outside the limits of 15 miles from the District of Columbia, transportation and subsistence charges will be added to the service charge. The time shall be computed as the number of official working hours from the time the members of the staff leave the Bureau of Standards until they return to it plus any overtime spent on the tests.	
206.408a	Service of a staff member of associate professional grade or any higher grade, per hour	\$5.00
206.408b	Service of a staff member of grades below associate professional grade, per hour	3.00

§ 206.409 Calibration of proving rings.

Item	Description	Fee
	These fees apply to calibration and recalibration for ten different loads. If the number of loads exceeds 10, see item 206.409x. Fees for complete calibration apply to the following proving rings: 1. Rings submitted for initial calibration. 2. Rings not certified at their last calibrations. 3. Rings not certified since Apr. 4, 1934. 4. Rings which have been repaired or modified since their last calibration. Fees for recalibration apply to rings which received certificates at the times of their last calibrations, provided that such calibrations have been made since April 4, 1934, and provided that the rings have not been repaired or modified since their last calibrations.	
	Complete calibration of proving rings, capacity not exceeding 10,000 lb.:	
206.409a	Tension	\$35.00
206.409b	Compression	35.00
	Recalibration of proving rings, capacity not exceeding 10,000 lb.:	
206.409c	Tension	19.00
206.409d	Compression	19.00
	Complete calibration of proving rings, capacity exceeding 10,000 lb. but not exceeding 50,000 lb.:	
206.409e	Tension	48.00
206.409f	Compression	36.00
	Recalibration of proving rings, capacity exceeding 10,000 lb. but not exceeding 50,000 lb.:	
206.409g	Tension	25.00
206.409h	Compression	20.00
	Complete calibration of proving rings, capacity exceeding 50,000 lb. but not exceeding 100,000 lb.:	
206.409i	Tension	52.00
206.409j	Compression	38.00
	Recalibration of proving rings, capacity exceeding 50,000 lb. but not exceeding 100,000 lb.:	
206.409k	Tension	27.00
206.409L	Compression	20.00
	Complete calibration of proving rings, capacity exceeding 100,000 lb. but not exceeding 200,000 lb.:	
206.409m	Compression only	98.00
206.409n	Recalibration of proving rings, capacity exceeding 100,000 lb. but not exceeding 200,000 lb.:	
206.409o	Compression only	67.00
206.409p	Complete calibration of proving rings, capacity exceeding 200,000 lb. but not exceeding 300,000 lb.:	
206.409q	Compression only	104.00
206.409r	Recalibration of proving rings, capacity exceeding 200,000 lb. but not exceeding 300,000 lb.:	
206.409s	Compression only	71.00
206.409x	For each test load in excess of 10, an additional fee equal to one-tenth of the applicable fee for complete calibration or recalibration is charged.	

§ 206.410 *Knoop indenter tests.*

Item	Description	Fee
206.410a	Measurement of mounting, included longitudinal edge angle, included transverse edge angle, and half angles.....	\$8.00
206.410b	Inspection of edges for nicks, offset at the point, and application of proof load.....	15.00

HYDRAULICS

§ 206.501 *Water current meters.*

Item	Description	Fee
206.501a	Water current meters—routine rating of usual types, not in excess of 7 velocities.....	\$15.00
206.501b	Water current meters—routine rating of usual types in excess of 7 velocities but not in excess of 11 velocities.....	17.00
206.501c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 206.502 *Pitot tubes.*

Item	Description	Fee
206.502a	Pitot tubes for use in water, determination of calibration constant. Fee charge will depend on nature of test and range of velocities.	

PART 214—CENTRAL RADIO PROPAGATION LABORATORY

HIGH-FREQUENCY STANDARDS

Sec.	
214.801	Radio field intensity meters.
214.802	Vacuum tube voltmeters.
214.803	Power factor and dielectric constant of electrical insulating materials.
214.804	Capacitance and power factor of capacitors (from 10 kc. to 75 Mc.).

MICRO WAVE STANDARDS

214.901	Frequency meters (above 300 Mc/s.).
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AUTHORITY: §§ 214.801 to 214.901 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

HIGH-FREQUENCY STANDARDS

§ 214.801 *Radio field intensity meters.*

(a) Radio field intensity meters. Two types of calibration service are available for portable field intensity meters, the abridged calibration and the complete calibration. The former gives sufficient data for practical use of a field intensity meter in the field. The latter includes the former short calibration and other tests that apply to some instruments, such as the linearity of the receiver output indicating instrument, linearity of the first detector, i-f amplifier and output indicator, and the relation between field intensity and voltage input to the grid of the first detector.

(b) Field intensity calibrations of meters mounted in automobiles are not made by the Bureau. Field intensity meters thus mounted can be calibrated in terms of a portable instrument to obtain the loop antenna coefficients. Internal characteristics (attenuator ratios,

linearity, etc.) of such meters are made by the Bureau.

(c) Field intensity meters are not accented for calibration unless they are in perfect working condition. Before sending an instrument for calibration, it should be thoroughly inspected and tested, new tubes installed if necessary; or if in need of repairs, it should be sent to the manufacturer.

Item	Description	Fee
214.801a	Determination of loop antenna coefficients throughout broadcast band (535-1605kc/s) 12 frequencies or less.....	\$55.00
214.801b	Determination of loop antenna coefficients at other frequencies below or above broadcast band if in addition to item 214.801a, per frequency.....	5.00
214.801c	If item 214.801a is not included, minimum fee for 10 frequencies or less.....	55.00
214.801d	Determination of attenuator ratios, resistance type, in terms of one setting, at one input frequency (7 ratios maximum).....	35.00
214.801e	Determination of attenuator ratios, mutual inductance type, in terms of one setting, at one input frequency.....	40.00
214.801f	Determination of attenuator ratios, capacitance type, in terms of one setting, at one input frequency.....	30.00
214.801g	Determination of attenuator ratios, any type, at each additional frequency.....	15.00
214.801h	Determination of linearity of output meter.....	35.00
214.801i	Determination of linearity of first detector, i-f amplifier and output system at one frequency.....	35.00
214.801j	Determination of linearity of first detector, i-f amplifier and output system, at each additional frequency.....	35.00
214.801k	Determination of relation between input in volts per meter and input volts to grid of first detector, at one frequency.....	5.00
214.801c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the tests.	

NOTE: For tests of radio equipment and material for which no fees have been published arrangements should be made in advance. Fees for such tests will be determined upon the nature of the work to be done.

§ 214.802 *Vacuum tube voltmeters.*

(a) Vacuum tube voltmeters are accepted for calibration in the voltage and frequency ranges indicated below. The calibrations are in two general classes: (1) Those of highest accuracy against primary voltage standards. (2) those of lower accuracy against secondary voltage standards.

(b) The fees given below are based on the voltmeter submitted being equipped with either type N or General Radio types 274 or 774 terminals. If the voltmeter is not so equipped, an additional charge up to \$50 may be made to cover cost of making a suitable adaptor.

Item	Description	Fee
214.802a	Calibration in terms of primary standard within the following ranges, 0.1 to 0.5 volt, 50 kc. to 300 Mc., 5 voltage points at 1 frequency.....	\$50.00
214.802b	Additional voltage points at same frequency (maximum of 7 points), per point.....	3.50
214.802c	Calibration in terms of primary standard within the following ranges, 0.5 to 1.5 volts, 50 kc. to 300 Mc., 5 voltage points at 1 frequency.....	70.00
214.802d	Additional voltage points at same frequency (maximum of 7 points), per point.....	2.00

Item	Description	Fee
214.802e	Calibration in terms of primary standard within the following ranges, 5.0 to 150 volts, 50 kc. to 50 Mc., 5 voltage points at one frequency.....	\$55.00
214.802f	Additional voltage points at same frequency (maximum of 7 points), per point.....	2.00
214.802g	Calibration in terms of secondary standard within the following ranges, 0.1 to 1.5 volts, 50 kc. to 300 Mc., 5 voltage points at one frequency.....	45.00
214.802h	Additional voltage points at same frequency, per point.....	1.00
214.802i	Calibration in terms of secondary standard within the following ranges, 5.0 to 150 volts, 50 kc. to 50 Mc., if calibration of 214.802g not included, five voltage points at one frequency.....	45.00
214.802j	Additional voltage points at same frequency, per point.....	1.00
214.802k	Each voltage point at additional frequencies, per frequency.....	1.00
214.802c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 214.803 *Power factor and dielectric constant of electrical insulating materials.*

Item	Description	Fee
214.803a	Power factor and dielectric constant at 1 temperature and one relative humidity, 3 frequencies in range up to 40 Mc., per sample.....	\$30.00
214.803b	Each additional frequency in same range, per sample.....	5.00
214.803c	Each additional temperature at same rh, per sample.....	5.00
214.803d	Each additional rh at same temperature, per sample.....	5.00
214.803e	Each additional sample.....	5.00
214.803f	Power factor and dielectric constant at one temperature and one relative humidity, 3 frequencies in range 40 Mc. to 300 Mc., per sample.....	40.00
214.803g	Each additional frequency in same range, per sample.....	6.00
214.803h	Each additional temperature at same rh, per sample.....	6.00
214.803i	Each additional rh at same temperature, per sample.....	6.00
214.803j	Each additional sample.....	6.00
214.803c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 214.804 *Capacitance and power factor of capacitors (from 10 kc. to 75 Mc.).*

Item	Description	Fee
214.804a	Capacitance calibration of variable capacitor at 25° C. and 50% relative humidity, 10 points at 1 frequency.....	\$30.00
214.804b	Each additional capacitance point at same frequency.....	1.00
214.804c	Each additional capacitance point at different frequency.....	1.00
214.804d	Power factor of capacitor at 25° C. and 50% relative humidity, 10 points at 1 frequency.....	10.00
214.804e	Power factor, 10 points at each additional frequency.....	10.00
214.804f	Capacitance of fixed capacitor at 25° C. and 50% relative humidity, at 1 frequency.....	5.00
214.804g	Capacitance at each additional frequency.....	1.00
214.804h	Capacitance at each additional temperature and humidity.....	5.00
214.804i	Power factor of fixed capacitor at 25° C. and 50% relative humidity, at 1 frequency.....	5.00
214.804j	Power factor at each additional frequency.....	1.00
214.804k	Power factor at each additional temperature and humidity.....	5.00
214.804c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

MICRO WAVE STANDARDS

§ 214.901 Frequency meters (above 300 Mc/s).

Item	Description	Fee
	Calibration of cavity-type frequency meter (wave meter) of the adjustable type:	
214.901a	At a prescribed frequency.....	\$25.00
214.901b	At one point (or initial point).....	20.00
214.901c	At each additional point (after initial point) within required range.....	3.50
214.901d	At each additional point (after initial point) at a prescribed frequency.....	6.00
214.901e	Calibration of cavity-type frequency meter (wave meter) fixed type.....	25.00

PART 215—OPTICS

PHOTOMETRY AND COLORIMETRY

Sec.

215.501	Lamp standards of candlepower or luminous flux.
215.502	Calibration of photometric instruments and accessories.
215.503	Miscellaneous photometric measurements and tests.
215.504	Rating and life testing of incandescent lamps.
215.505	Spectrophotometric standards.
215.506	Spectrophotometric measurements.
215.507	Colorimetry.
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215.509	Opacimetry.
215.510	Glossimetry.
215.511	Lovibond glasses.
215.512	Signal glasses.
215.513	Enamel standards for raw silk.
215.514	Transmittance standards for petroleum products.

OPTICAL INSTRUMENTS

215.601	Optical instruments.
215.602	Photographic objectives.
215.603	Optical components, spectacle lenses, goggle lenses, etc.
215.604	Refractometric instruments and sextants.
215.605	Refractive indices.

PHOTOGRAPHIC TECHNOLOGY

215.701	Photography.
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AUTHORITY: §§ 215.501 to 215.701 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

PHOTOMETRY AND COLORIMETRY

§ 215.501 Lamp standards of candlepower or luminous flux.

Item	Description	Fee
	<i>Incandescent lamps issued as standards of luminous intensity or luminous flux</i>	
215.501a	Vacuum tungsten-filament lamps, 25 to 100 watts, clear bulbs, approximately 110-volt lamps, horizontal candles in a fixed direction, each lamp rotating, each.....	\$10.00
215.501b	Same, mean horizontal candles, lamp rotating, each.....	10.00
215.501c	Gas-filled tungsten-filament lamps, 100, 200, and 500 watts, projection type, horizontal candles in a fixed direction, each.....	10.00
215.501d	Vacuum tungsten-filament lamps, 25 to 100 watts, luminous flux (lumens), each.....	10.00
215.501e	Gas-filled tungsten-filament lamps, 40 to 200 watts, luminous flux (lumens), each.....	10.00
	<i>Standardization of seasoned incandescent lamps submitted for calibration</i>	
215.501f	Determination of horizontal candles in a fixed direction, at 1 voltage or current, 1 lamp.....	15.00
215.501g	Same, each additional lamp of the same size and type.....	8.00

Item	Description	Fee
	<i>Standardization of seasoned incandescent lamps submitted for calibration—Continued</i>	
215.501h	Same, 2 or more voltages, or currents, each additional voltage or current.....	\$8.00
215.501i	Determination of mean horizontal candles, lamp rotating, at 1 current or voltage, 1 lamp.....	15.00
215.501j	Same, each additional lamp of same size and type.....	8.00
215.501k	Same, at 2 or more voltages or currents, each additional voltage or current.....	8.00
215.501L	Determination of luminous flux (lumens) at one voltage or current, 1 lamp, all sizes to 1,000 watts. (Double-filament automobile headlamps are charged for as two lamps.).....	15.00
215.501m	Same, each additional lamp of same size and type.....	8.00
215.501n	Same, at two or more voltages or currents, each additional voltage or current.....	8.00
215.501o	Same, 3,000 and 5,000 watt, multiple lamps and 15 and 20 ampere series lamps, at 1 voltage or current, 1 lamp.....	25.00
215.501p	Same, each additional lamp of same size and type.....	15.00
215.501q	Seasoning of incandescent lamps for standardization, and preliminary measurements, 15 to 200 watts, each lamp.....	3.00
215.501r	Same, other sizes and types up to 5,000 watts and all series lamps, each lamp.....	5.00
	<i>Standardization of seasoned fluorescent and mercury lamps submitted for calibration</i>	
215.501s	Determination of luminous flux (lumens) of "white" or "daylight" fluorescent lamps, 1 lamp.....	15.00
215.501t	Same, each additional lamp.....	8.00
215.501u	Determination of luminous flux (lumens) of mercury vapor lamps, 1 lamp.....	25.00
215.501v	Same, each additional lamp.....	15.00
215.501z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.502 Calibration of photometric instruments and accessories.

Item	Description	Fee
215.502a	Calibration of portable photometers and illuminometers, one point on scale.....	\$15.00
215.502b	Same, each additional point.....	4.00
215.502c	Calibration of reference standard for Macbeth illuminometer.....	15.00
215.502d	Same, each additional standard.....	8.00
215.502e	Calibration of neutral filter.....	15.00
215.502f	Same, each additional neutral filter.....	8.00
215.502g	Calibration of luminance (photometric brightness) standard at one luminance.....	15.00
215.502h	Same, each additional setting.....	8.00
215.502z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.503 Miscellaneous photometric measurements and tests.

Item	Description	Fee
215.503a	Determination of luminous flux (lumens) versus time of photographic flash lamps, 1 lamp.....	\$15.00
215.503b	Same, each additional lamp of same size and type.....	2.00
215.503c	Determination of luminous transmittance of colored filter, 1 sample.....	15.00
215.503d	Same, each additional sample.....	8.00
215.503e	Candlepower measurements on distress lights, fuses and flares (not less than 2 samples), each.....	10.00
215.503f	Candlepower measurements on parachute flares (not less than 2 samples), each.....	25.00
215.503g	Chromaticity determinations on above (215.503e or 215.503f) each sample.....	3.00

Item	Description	Fee
215.503h	Candlepower measurements on automobile headlamps, 8-point test, one or two pairs of devices.....	\$85.00
215.503i	Same, on automobile signal devices, one or two samples.....	85.00
215.503j	Same, on automobile rear lamp devices, one or two samples.....	85.00
215.503k	Candlepower distribution measurements on luminaires, 1 sample.....	85.00
215.503L	Same, each additional sample, same size.....	40.00
215.503m	Measurement of luminance (photometric brightness) of above luminaires (215.503k or 215.503L) each point.....	1.00
215.503z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test. These include tests on projectors, globes, lenses, mirrors, and lighting units of various kinds, including determinations of candlepower distribution curves, beam candlepower, chromaticity, etc.	

§ 215.504 Rating and life testing of incandescent lamps.

Item	Description	Fee
	<i>Rating tests on lamps</i>	
215.504a	Rating of seasoned lamps, 15 to 1,000 watts, 1 lamp.....	\$10.00
215.504b	Same, each additional lamp of same size and type.....	2.00
	<i>Life tests of lamps—Not less than 5 lamps of 1 type are accepted for life test at 1 time</i>	
215.504c	10- to 1,000-watt lamps, at normal life, each lamp.....	10.00
215.504d	Miniature lamps, all sizes, each lamp.....	10.00
215.504z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.505 Spectrophotometric standards.

Item	Description	Fee
	<i>Standards of spectral transmittance for checking the photometric scale of spectrophotometers; these consist of polished disks of glass, 2 to 3 mm. thick and 30 mm. in diameter or 25 mm. square, designated as cobalt blue, copper green, carbon yellow, selenium orange; report includes (1) values of transmittance at 25° C. at certain wavelengths from 390 to 750 mμ, (2) estimated uncertainty of each value, (3) effect of temperature change on transmittance at each wavelength:</i>	
215.505a	Each disk.....	\$35.00
	<i>Transmittance, 955 to 1,000 mμ for standardization purposes; samples submitted must be in good optical condition, measurements at room temperature. (If the sample is a disk 29.7±0.2 mm in diameter, the measurements can be made at a specified temperature):</i>	
215.505b	One sample at one wavelength.....	15.00
215.505c	Each additional wavelength on the same sample.....	5.00
	<i>Didymium glass standards for checking the wavelength calibration of General Electric recording spectrophotometers; these consist of Corning 5120 glass, 2 x 2 inches, 3.0 mm. thick, polished; report includes table of wavelengths of minimum transmittance:</i>	
215.505d	400 to 750 mμ, slits equivalent to approximately 4 mμ of spectrum, each standard.....	15.00
215.505e	400 to 750 mμ, 8 mμ slits, each standard.....	15.00
215.505f	400 to 750 mμ, 10 mμ slits, each standard.....	15.00
215.505g	730 to 1080 mμ, 20 mμ slits, each standard.....	15.00

Item	Description	Fee
215.505h	For two calibrations on the same glass, items (215.505d and 215.505e) or items (215.505f and 215.505g) each standard.....	\$25.00
215.505i	Working standards of spectral directional reflectance for use on General Electric recording spectrophotometers with nearly perpendicular irradiation and diffuse reception; standards consist of white structural vitrolite glass, 4 x 4 inches, 1/4 inch thick; report includes table of spectral directional reflectances relative to freshly prepared magnesium oxide at every 10 mμ.....	25.00
215.505j	400 to 750 mμ, specular component both included and excluded (on same glass), 10 mμ slits, each standard.....	30.00
215.505k	750 to 1080 mμ, specular component both included and excluded (on same glass), 20 mμ slits, each standard.....	30.00
215.505L	Working standards of spectral directional reflectance for use on the Beckman quartz spectrophotometer with nearly perpendicular irradiation and approximately 45° circular reception; standards consist of white structural vitrolite glass, 1 1/4 x 2 inches, 1/4 inch thick; report includes table of spectral directional reflectances relative to freshly prepared magnesium oxide at every 10 mμ.....	25.00
215.505m	380 to 770 mμ, each standard.....	25.00
215.505n	350 to 1000 mμ, each standard.....	50.00
215.505a	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of test.	

§ 215.506 Spectrophotometric measurements. The tests described in this schedule (215.506) are primarily made for informational purposes, and samples so tested should not be accepted as "standards" certified by the National Bureau of Standards. All measurements are made at room temperatures. For various types of spectrophotometric standards, see schedule 215.505.

Item	Description	Fee
215.506a	Spectral transmittance, 210 to 1,000 mμ.....	\$15.00
215.506b	1 sample at 1 wavelength.....	1.00
215.506c	Each additional wavelength on the same sample.....	1.00
215.506d	Each additional sample, each wavelength.....	1.00
215.506e	Spectral directional reflectance relative to MgO, normal irradiation and 45° circular reception, as obtained with the Beckman spectrophotometer, 254 to 1,000 mμ.....	15.00
215.506f	1 sample at 1 wavelength.....	2.00
215.506g	Each additional wavelength on the same sample.....	2.00
215.506h	Each additional sample, each wavelength.....	2.00
215.506i	Spectral transmittance or transmittance curves obtained on General Electric recording spectrophotometer, including 100% and zero calibration curves and didymium glass curve for checking the wavelength calibration; report includes oscillograms of tracings.....	15.00
215.506j	Testing a single sample, 400 to 750 mμ, or 750 to 1,080 mμ, with slits approximating 10 mμ or 20 mμ (respectively) of spectrum, either spectral range.....	3.00
215.506k	Each additional curve or each additional sample.....	3.00
215.506l	Same as 215.506k but both spectral ranges, 400 to 1080 mμ.....	25.00
215.506m	Each additional pair of curves or each additional sample.....	5.00

Item	Description	Fee
215.506k	Spectral directional reflectance curves obtained on General Electric recording spectrophotometer, including (1) Vitrolite calibration curve for checking values relative to fresh MgO as 100%, (2) zero curve, (3) didymium glass curve for checking the wavelength calibration; report includes oscillograms of tracings: One sample, 400 to 750 mμ, or 750 to 1080 mμ, with slits approximating 10 mμ or 20 mμ (respectively) of spectrum, with specular component of reflected energy included or excluded; either spectral range, and either condition of specular reflection.....	\$15.00
215.506L	Each additional curve; or each additional sample, each curve.....	3.00
215.506m	Same as 215.506k, but both spectral ranges, 400 to 1080 mμ.....	25.00
215.506n	Each additional pair of curves; or each pair of curves on each additional sample.....	5.00
215.506o	Spectral transmittance, transmittance or directional reflectance curves obtained on General Electric recording spectrophotometer, including 100% (or Vitrolite) and zero calibration curves and didymium glass curve for checking the wavelength calibration; specular component of reflected energy partly included, partly excluded: One sample, 400 to 750 mμ, with slits approximating 4 or 8 mμ of spectrum.....	15.00
215.506p	Each additional curve or each additional sample.....	3.00
215.506q	For reduction of data obtained as in 215.506o to 215.506p, giving table of values of transmittance, transmittance, or directional reflectance relative to MgO for every 10 mμ, for each curve.....	5.00
215.506a	For special test not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.507 Colorimetry.

Item	Description	Fee
215.507a	Colorimetric computations: Computing chromaticity coordinates and luminous directional reflectance or transmittance from spectrophotometric data for certain specified illuminants, per illuminant per sample.....	\$5.00
215.507b	Computing luminous directional reflectance or transmittance from spectrophotometric data for certain specified illuminants, per illuminant per sample.....	2.00
215.507c	Computing dominant wavelength and purity from chromaticity coordinates for certain specified illuminants and heterogeneous stimuli, per illuminant per stimulus per sample.....	2.00
215.507d	Conformity to chromaticity of standard, sample and standard illuminated normally by artificial daylight or by incandescent lamp light and viewed at 45°, chromaticity differences expressed in terms of chromaticity coordinates on fundamental colorimetric coordinate system: One sample relative to a standard.....	15.00
215.507e	Each additional sample relative to the same standard.....	5.00
215.507f	Conformity to color of standard within a tolerance, by visual comparison under a specified illuminant with a standard sample and a limit sample: Inspecting 1 sample.....	15.00
215.507g	Same, each additional sample.....	1.00
215.507h	Color temperature of incandescent lamps, voltage for specified color temperature, current for neighboring specified voltage to check permanence: 1 color temperature, each lamp.....	15.00
215.507i	1 color temperature, each lamp, including cost of 500-watt projection lamp.....	17.00
215.507j	Each additional color temperature on the same lamp.....	6.00
215.507k	Equation giving any color temperature from 2,000° to 2,850° K., each lamp, fee includes cost of 500-watt projection lamp.....	35.00

Item	Description	Fee
215.507a	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.508 Reflectometry.

Item	Description	Fee
215.508a	Set of eleven 45° 0' directional reflectance standards ranging in directional reflectance from 90% to less than 1%, consisting of ten porcelain-enamelled-iron panels and one vitrolite glass panel, each approximately 4 1/4 inches square, in box. These standards are essentially nonselective spectrally; that is, they are white, gray or black in color. Three reflectances for each panel are given in percent relative to magnesium oxide as 100% for radiant energy obtained by use of the blue, green and amber tristimulus filters described in NBS Circular C429: Set of 11 standards in box.....	\$85.00
215.508b	Directional reflectance relative to magnesium oxide or other standard, for visual or photoelectric instrument, angles and apertures of illumination and observation as restricted by available instruments, for incandescent lamp or artificial daylight illumination, or for certain spectral regions isolated by filters: 1 standard or sample under 1 set of experimental conditions.....	15.00
215.508c	Each additional standard under same conditions.....	8.00
215.508d	Each additional sample under same conditions, for informational purposes.....	2.00
215.508e	Each additional set of experimental conditions for 215.508b, 215.508c or 215.508d.....	2.00
215.508f	Luminous or photoelectric reflectance (total) as determined on the Taylor or General Electric (Baumgartner) reflectometers, respectively: 1 sample on either instrument.....	15.00
215.508g	Each additional sample on the same instrument.....	3.00
215.508a	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.509 Opacimetry. Opacity of opal glass by contrast-ratio method, defined as ratio of directional reflectance with black backing to directional reflectance with white backing, approximately diffuse illumination and nearly normal viewing or equivalent.

Item	Description	Fee
215.509a	(1) Reflectance of white backing taken so as to accord with the opacimeter correctly adjusted to read contrast ratio for thin samples with a white backing reflecting 0.915 relative to MgO (Technical Association of the Pulp and Paper Industry test method T425m-36), samples prepared by Bureau: Each opal-glass standard, for National Bureau of Standards type visual opacimeter, opacity between 0.60 and 0.80, as specified.....	\$15.00
215.509b	Each opal-glass standard for Bausch & Lomb type photoelectric opacimeter, opacity between 0.80 and 0.95 as desired.....	15.00
215.509c	(2) Reflectance of white backing taken as 0.70 relative to MgO, opacity measured via Priest-Lange reflectometer with film of water over sample and between sample and backings (see American Dental Association specification for dental silicate cement), samples not prepared by Bureau: Opal-glass samples, opacity approximately 0.35 and 0.55, respectively, each pair.....	15.00

Item	Description	Fee
215.509d	(3) Reflectance of white backing taken at any desired value: One sample under one set of experimental conditions.....	\$15.00
215.509e	Each additional sample under the same experimental conditions.....	3.00
215.509f	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.510 Glossimetry.

Item	Description	Fee
215.510a	Set of ten 60° specular gloss standards consisting of 8 glazed ceramic tiles and 2 pieces of white vitrolite glass, each approximately 4 1/4 inches square, in box. The gloss of these standards ranges from approximately 1 to 100 on the ASTM scale; they are calibrated in accordance with ASTM Method D523.	\$70.00
215.510b	Standard of 60° specular gloss for certain nominal values between 1 and 100 on the ASTM scale calibrated in accordance with ASTM Method D523; standard of glazed ceramic tile or vitrolite glass approximately 4 1/4 inches square furnished in box:	
215.510b	1 standard.....	15.00
215.510c	Each additional standard.....	8.00
215.510d	60° specular gloss of sample submitted; values reported on ASTM scale, measured in accordance with ASTM method D523:	
215.510d	1 standard or sample.....	15.00
215.510e	Each additional standard.....	8.00
215.510f	Each additional sample, for informational purposes.....	2.00
215.510g	Contrast gloss, defined as the fraction whose denominator is the directional reflectance of the sample illuminated unidirectionally and viewed in the direction of regular reflection, and whose numerator is the same directional reflectance minus the directional reflectance of the sample similarly illuminated and viewed normally; angle of illumination 60°, angular apertures as restricted by available instruments:	
215.510g	1 sample.....	15.00
215.510h	Each additional sample.....	3.00
215.510i	(For specular or contrast gloss at other than the above angles, or for distribution curves of directional reflectance, the fees will be as given in test fee schedule 215.608b to e.)	
215.510j	Distinctness-of-image gloss, tested by visual resolution of lines of illuminated target of concentric rings, image of target viewed at approximately 45° to surface of sample; for conformity to standard within a tolerance by comparison with a standard sample and a limit sample, or for arrangement of samples in order of distinctness-of-image gloss:	
215.510j	1 sample.....	15.00
215.510k	Each additional sample.....	1.00
215.510l	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.511 Lovibond glasses. Lovibond red glasses, determination of numeral on the additive (N") scale established (by Priest and Gibson's adjustment of Set B. S. 9940) at the bureau in 1927, the value given being the effective value when the given red glass is used in combination with a 35-yellow glass, each glass to be marked with the NBS test number and the numeral found for the glass. (Lovibond yellow and blue glasses are not accepted for routine calibration. Test has shown that discrepancies among the 35-yellow glasses are not important in the vegetable oil trade and at present their calibration is, therefore, considered unnecessary.

The standardization of the bureau's own set of yellow glasses from 0.01 to 20.0 has not been completed. Until this set is satisfactorily standardized, the bureau cannot accept Lovibond yellow glasses for calibration. There has been no demand for standardization of the blue glasses.)

Item	Description	Fee
215.511a	For testing a single red glass.....	\$15.00
215.511b	For each additional red glass.....	3.00
215.511c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.512 Signal glasses. Railroad signal glasses, duplicates of standard limit glasses selected by Association of American Railroads (A. A. R.) Signal Section and conforming in color to A. A. R. Signal Section specifications; 2-inch polished squares for testing pressed ware designated as red, yellow, green, blue, purple, or lunar white, or for testing kerosene lantern ware designated as red, yellow, green, or blue; or 1-inch diameter polished disks for testing disk ware designated as red, green, or purple, or 1-inch diameter disks with one surface ground and one surface polished for testing disk ware designated as yellow; in all cases there are two limit glasses for each color designation for each kind of ware. The Bureau does not prepare these glasses, its fee including only the cost of measurement and certification. Certificates includes (1) a statement of conformity to the chromaticity requirements of the respective A. A. R. specification, for all glasses, (2) the value of luminous transmittance on the A. A. R. scale, for all except disk yellow glasses, (3) a statement as to the uniformity of transmittance of the glass, for all except disk glasses, and (4) the value of the ratio of red to total luminous transmittance, for blue and purple glasses only.

Item	Description	Fee
215.512a	Testing and certification, each glass.....	\$15.00
215.512b	Each glass rejected.....	10.00
215.512c	For traffic signal glasses, aviation signal glasses, and special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.513 Enamel standards for raw silk.

Item	Description	Fee
215.513a	Conformity in color and gloss to the master standards, designated as raw-silk white, raw-silk ivory, and raw-silk cream, selected by the National Association of Hosiery Manufacturers, within tolerances as follows: Luminous directional reflectance for daylight incident perpendicularly and for 45° viewing, ± 0.03 ; chromaticity coordinates (x, y) on the 1931 I. C. I. colorimetric coordinate system, same illuminating and viewing conditions, ± 0.0010 ; distinctness-of-image gloss, must be intermediate between the master standards:	
215.513a	Testing and certification in groups of 9 or more, each sample.....	\$5.00
215.513b	Each sample rejected from a group submitted as above.....	3.00

Item	Description	Fee
215.513a	For samples submitted in groups smaller than 9, fees will be charged as in schedules 215.507d and e, 215.508d and 215.510d. For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.514 Transmittance standards for petroleum products. Two-inch squares of glass for calibration of photoelectric colorimeters in accord with Proposed ASTM Method for Determination of Color Index of Petroleum Products, Photoelectric Method, Committee D-2 Report, Proc. ASTM, 47, 307 (1947), as amended by further action of Subcommittee VI, Committee D-2, at their meeting of February 11, 1948. Five standards (Nos. 12, 13, 14, 15 and 16) are intended to duplicate essentially the spectral transmittances typical of petroleum products; two standards (Nos. 21 and 22), a red and a green, are intended for use in conjunction with the above-listed five to check the spectral sensitivity of the photocell and afford a basis for disqualification of photocells too far different in spectral sensitivity from that specified in the method; and one standard (No. 10) of clear glass is used to set 100% relative transmittance on the colorimeter scale for each of the other standards. Glass standards are prepared by the Bureau and certified as to relative transmittance (100T/T_m) for the "North Sky," Violet, and Red filters specified in the method and also for tristimulus green, blue, and amber filters. That is, certified values of 100Y/Y_m, 100Z/Z_m, and 100 (X-0.17Z)/(X-0.17Z)_m are also supplied, where X, Y, and Z are tristimulus values in accord with the standard observer and coordinate system for colorimetry recommended in 1931 by the International Commission on Illumination (ASTM Designation D307-44).

Item	Description	Fee
215.514a	Set of 8 glass standards together with certified values of relative transmittance.....	\$40.00
215.514b	Any single glass of the set.....	20.00
215.514c	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

OPTICAL INSTRUMENTS

§ 215.601 Optical instruments.

Item	Description	Fee
215.601a	Telescopes: Complete test of telescope for conformity with type specifications comprising measurement of resolving power, true angular field, apparent angular field, diameter of entrance pupil, diameter of exit pupil, magnification, and transmittance.....	\$30.00
215.601b	Determination of resolving power, true angular field, diameter of entrance pupil, diameter of exit pupil, and magnification.....	18.00
215.601c	Determination of transmittance.....	12.00
215.601d	General purpose test comprising measurement of resolving power and general comments on image quality.....	5.00

Item	Description	Fee
215.601e	Binoculars: Complete test of a binocular for conformity with type specifications comprising measurement of resolving power, true angular field, apparent angular field, diameter entrance pupil, diameter of exit pupil, magnification, parallelism of axes, relative orientation of field, and transmittance.	\$45.00
215.601f	Measurement of resolving power, diameter of entrance pupil, diameter of exit pupil, magnification, and true angular field.	20.00
215.601g	Measurement of transmittance.	15.00
215.601h	General purpose test comprising measurement of resolving power, parallelism of axes, relative orientation of fields, and general comments on image quality.	15.00
215.601i	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.602 Photographic objectives.

Item	Description	Fee
215.602a	Photographic objectives not mounted in cameras: Determination of focal length and back focal length.	\$8.00
215.602b	Determination of equivalent focal length, back focal length, separation of nodal points, and thickness.	12.00
215.602c	Determination of equivalent focal length, back focal length, separation of the nodal points, and distortion at 5° intervals from the center to edge of field for one specified ratio of object to image size.	30.00
215.602d	Fee for each additional ratio.	15.00
215.602e	Determination of resolving power at 5° intervals from center to edge of field for parallel light at one aperture.	10.00
215.602f	Determination of back focal length, equivalent focal length, distortion and resolving power at 5° intervals from the center to edge of the field.	25.00
	Note: This is the test usually required for lenses that are to be mounted in precision airplane mapping cameras.	
215.602g	Determination of equivalent focal length and true geometric f-number for 1 marked stop.	10.00
215.602h	Fee for each additional stop.	2.00
215.602i	Calibration of the f-numbers in terms of the f-numbers of a lens having 100% transmittance.	30.00
215.602j	Calibration of the f-numbers in terms of the f-numbers of a lens having 100% transmittance, determination of the equivalent focal length, true geometric f-numbers, and transmittance.	50.00
	Photographic objectives mounted in cameras:	
215.602k	Determination of focal length for lens mounted in camera.	11.00
215.602l	Fee for each extra magazine.	5.00
215.602m	Determination of equivalent focal length, distortion and resolving power at 5° intervals from center to edge of field for lens mounted in camera.	30.00
215.602n	Location of the principal point, and check of 90° condition for lens mounted in camera.	25.00
215.602o	Setting the principal point and 90° condition, checking and dovetailing for lens mounted in camera.	17.00
215.602p	Certification of precision airplane mapping camera equipped with lens of 8¼-inch focal length, in accordance with U. S. Department of Agriculture Specification No. A-APC-1102.	75.00
215.602q	Certification of precision airplane mapping camera, equipped with lens of 8¼-inch focal length that has performed satisfactorily under test No. 215.602f or 215.602m in accordance with U. S. Department of Agriculture Specification No. A-APC-1102.	40.00
	Photographic objectives, telescope objective, eyepieces, etc.:	
215.602r	Determination of back focal length, equivalent focal length, and curvature of field.	25.00

Item	Description	Fee
215.602s	Photographic objectives, telescope objective, eyepieces, etc.—Con. Determination of back focal length, equivalent focal length, and longitudinal spherical aberration by a visual method.	\$25.00
215.602t	Determination of axial chromatic aberration for three colors.	25.00
215.602u	Determination of lateral chromatic aberration for three colors.	50.00
215.602v	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.603 Optical components, spectacle lenses, goggle lenses, etc.

Item	Description	Fee
215.603a	Optical components: Determination of equivalent focal length of single component lens.	\$8.00
215.603b	Fee for each additional lens.	7.00
215.603c	Determination of a single radius of curvature.	12.00
215.603d	Fee for each additional determination.	10.00
215.603e	Spectacle lenses: Determination of spherical and cylindrical power, axis of sphere, and axis of cylinder for a single spectacle lens.	3.00
215.603f	Fee for each additional lens.	1.00
215.603g	Determination of spherical and cylindrical powers, axis of sphere, and axis of cylinder for a single spectacle lens with bifocal segment.	4.00
215.603h	Fee for each additional lens.	2.00
215.603i	Sunglass lenses: Determination of refractive power, surface quality, and definition to determine compliance of a single sunglass lens with commercial standards.	3.00
215.603j	Fee for each additional lens.	2.00
215.603k	Goggle lenses: Determination of lens dimensions, refractive power, prismatic power and definition; and making drop test on a single hardened goggle lens to determine compliance with Federal Specification GGG-G-501b.	3.00
215.603L	Fee for each additional lens.	2.00
215.603m	Determination of lens dimensions, refractive power, prismatic power, and definition; and making strength tests on a single welder's goggle lens to determine compliance with Federal Specification GGG-G-511a.	3.00
215.603n	Fee for each additional lens.	2.00
215.603z	For special test not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.604 Refractometric instruments and sextants.

Item	Description	Fee
215.604a	Abbe refractometer: Test and calibration at 4 or more scale readings, including test of compensator for determining dispersion.	\$25.00
215.604b	Test and calibration at 4 or more scale readings, including test of compensator only as used in determining index (to $\pm 1 \times 10^{-4}$).	12.00
215.604c	Precision Abbe refractometer reading (by estimation or use of tables) to 5th decimal place of index.	
215.604d	Test and calibration at 4 or more scale readings for each spectral line, including test of compensator only as used in determining index (to $\pm 5 \times 10^{-4}$).	15.00
215.604e	Immersion refractometer: Test and calibration at 4 or more scale readings.	12.00
215.604f	Butter, or fat, refractometer: Test and calibration at 4 or more scale readings.	12.00
215.604g	Pulfrich refractometer: Test and calibration at 4 or more scale readings for each spectrum line—each prism of the refractometer.	12.00

Item	Description	Fee
215.604g	Marine sextants: (See N. B. S. Circular No. 119)	\$15.00
215.604h	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

§ 215.605 Refractive indices.

Item	Description	Fee
215.605a	Index of refraction (approximately $\pm 1 \times 10^{-4}$) for D spectrum line for one liquid by precision Abbe refractometer: Determination of, for single temperature.	\$10.00
215.605b	For each additional sample submitted at the same time for same temperature, or for each determination on additional spectral lines for same temperature.	4.00
215.605c	For 1 determination at each additional temperature.	8.00
215.605d	Index of refraction ($\pm 1 \times 10^{-4}$) for D spectrum line for 1 solid by precision Abbe refractometer: Determination of, for 1 sample.	5.00
215.605e	For each additional sample submitted at the same time.	2.00
215.605f	Index of refraction ($\pm 1 \times 10^{-4}$) for D spectrum line for 1 solid by Pulfrich refractometer: Determination of, for 1 sample.	6.00
215.605g	For each additional sample submitted at same time.	3.00
215.605h	For each additional spectrum line, C, F, or G.	1.00
215.605i	Index of refraction ($\pm 1 \times 10^{-4}$) of solid submitted in form of 60° prism: Determination for one spectrum line.	12.00
215.605j	Determination for each additional spectrum line.	5.00
215.605k	Optical glass: determination of transmittance.	5.00
215.605z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

PHOTOGRAPHIC TECHNOLOGY

§ 215.701 Photography.

Item	Description	Fee
215.701a	Determination of characteristic curve and rate of development curve (1 sample, 4 sensitometric curves).	\$35.00
215.701b	Spectrographic tests (relative spectral sensitivity) (3 samples).	25.00
215.701c	Calibration of photographic stop wedges (1 sample—21 stops).	6.00
215.701d	Residual sodium thiosulphate content of processed permanent record film (3 samples).	9.00
215.701e	Residual sodium thiosulphate content of processed photographic paper (3 samples).	12.50
215.701f	Determination of silver content in fixing bath (3 samples).	15.00
215.701g	Dimensional change of film or paper caused by changes in relative humidity (3 samples).	40.00
215.701h	Film processing shrinkage (10 samples).	20.00
215.701i	Paper processing shrinkage (10 samples).	30.00
215.701j	Test on permanent record film base (1 sample).	80.00
215.701k	Microcopying resolution charts each.	.30
215.701z	For special tests not covered by the above schedule, fees will be charged dependent upon the nature of the test.	

Subchapter B—Standard Samples

PART 230—STANDARD SAMPLES ISSUED OR IN PREPARATION BY THE NATIONAL BUREAU OF STANDARDS

SUBPART A—PURCHASE PROCEDURE

- Sec.
230.1 Identification of samples.
230.2 Ordering.
230.3 Terms of shipping.

SUBPART B—STANDARD SAMPLES WITH SCHEDULE OF WEIGHTS AND FEES

Sec.
230.11 Descriptive list.

SUBPART C—GENERAL INFORMATION

230.21 Literature.
230.22 Samples out of stock.
230.23 New samples.

AUTHORITY: §§ 230.1 to 230.33 issued under sec. 312, 47 Stat. 410; 15 U. S. C. 276.

SUBPART A—PURCHASE PROCEDURE

§ 230.1 *Identification of samples.* The samples are listed by groups; the sample numbers represent the order of issuance of the first representative of each kind. Renewals of an analyzed sample are indicated by the original number, with an added letter to denote its intended relation. Thus, 10a is the first, 10b the second, and 10c the third renewal of No. 10 Bessemer 0.4 C steel. In this way a given number will always represent a material of fixed or approximately fixed composition. Numbers missing from the series in the following table represent samples of which the supply has become exhausted and which it is not the present intention to replace.

§ 230.2 *Ordering.* Orders should give both the number and name of the sample wanted. Example: No. 9d, steel, Bessemer 0.2 C. The list of standard samples, their numbers, prices, and analyses are to be found in the succeeding pages. No samples of smaller size than those listed are distributed.

For hydrocarbons see special order procedure indicated in § 230.11 (w).

§ 230.3 *Terms of shipping—(a) Domestic.* Samples must be paid for in advance with order. The former practice of sending samples c. o. d. has been discontinued. No discounts are allowed on any orders. Shipments intended for the United States, its possessions, Mexico, Canada, and Cuba are prepaid.

(b) *Foreign.* For foreign shipments other than the above, additional charges for postage and handling will be made for the particular order.

(c) *Money orders, etc.* Money orders, etc., should be payable to the National Bureau of Standards. Payment for foreign orders should be by an international money order or by a check payable through the New York Clearing House or a bank in the United States.

SUBPART B—STANDARD SAMPLES WITH SCHEDULE OF WEIGHTS AND FEES

§ 230.11 *Descriptive list—(a) Steels (Chemical Standards).*

Sample No.	Name	Approximate weight of sample in grams	Price per sample
8g	Bessemer, 0.1 C	150	\$3.00
9d	Bessemer, 0.2 C	150	3.00
10a	Bessemer, 0.4 C	150	3.00
10b	Bessemer, 0.6 C	150	3.00
10c	B. O. H., 0.1 C	150	3.00
11a	B. O. H., 0.2 C	150	3.00
11b	B. O. H., 0.4 C	150	3.00
11c	B. O. H., 0.6 C (tin-bearing)	150	3.00
12a	B. O. H., 0.6 C	150	3.00
12b	B. O. H., 0.8 C	150	3.00
12c	B. O. H., 1.0 C	150	3.00
12d	A. O. H., 0.2 C	150	3.00
12e	A. O. H., 0.4 C	150	3.00
12f	A. O. H., 0.6 C	150	3.00

Sample No.	Name	Approximate weight of sample in grams	Price per sample
24a	A. O. H., 0.8 C	150	\$3.00
24b	A. O. H., 1.0 C	150	3.00
24c	Electric furnace, 1.2 C	150	3.00
24d	Basic electric	150	3.00
100a	Medium manganese	150	3.00
105	High-sulfur	150	2.00
125	High-silicon	150	3.00
125a	High-sulfur (SAE X1112)	150	3.00
130	Lead-bearing	150	3.00
151	Boron	150	3.00
33e	Nickel (SAE 2335)	150	3.00
32e	Cr-Ni (SAE 3140)	150	3.00
72d	Cr-Mo (SAE X4130)	150	3.00
111a	Ni-Mo (SAE 4620)	150	3.00
30d	Cr-V (SAE 6135)	150	3.00
139	Cr-Ni-Mo (N. E. 8637)	150	3.00
156	Cr-Ni-Mo (N. E. 9450)	150	3.00
106a	Cr-Mo-Al (Nitrailloy G)	150	3.00
30	2 Cr-1 Mo	150	2.00
135	5 Cr-0.5 Mo	150	3.00
70b	18W-4 Cr-IV	150	3.00
132	7 Mo-6 W-4 Cr-1.5 V	150	4.00
134	9 Mo-2 W-4 Cr-1 V	150	4.00
153	8 Mo-1.5 W-4 Cr-2 V-8 Co	150	4.00
155	0.5 Cr-0.5 W	150	4.00
73a	Stainless (14 Cr)	150	4.00
133	Stainless (14 Cr-0.6 Mo-0.4 S)	150	4.00
101c	18 Cr-9 Ni (SAE 30905)	150	4.00
121a	18 Cr-10 Ni (Ti-bearing)	150	4.00
123a	18 Cr-8 Ni (Cb-bearing)	150	4.00
126a	High-nickel (86 Ni)	150	4.00
129	Chromium-molybdenum-silver steel	150	4.00
160	19 Cr-9 Ni-3 Mo steel	150	4.00
166	Low carbon 19 Cr-9 Ni-steel	100	3.00

(b) Irons.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
4g	Cast iron	150	\$4.00
51	Cast iron	150	4.00
6e	Cast iron	150	4.00
7d	Cast iron	150	4.00
122a	Cast iron (car wheel)	150	4.00
82	Nickel-chromium cast iron	150	4.00
107	Nickel-molybdenum cast iron	150	4.00
115	Nickel-chromium-copper cast iron	150	4.00
12b	Ingot iron	150	4.00

(c) Steel-making alloys.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
87	Refined silicon	60	\$4.00
28	Ferro-silicon (75% silicon)	75	4.00
59	Ferro-silicon (50% silicon)	75	4.00
61a	Ferrovanadium (high carbon)	100	4.00
64a	Ferrocromium (high carbon)	100	4.00
66a	Spiegel-iron	100	4.00
67	Manganese metal	100	4.00
68a	Ferromanganese	100	4.00
73	Ferrotungsten	150	4.00
60	Ferrophosphorus	75	4.00
71	Calcium molybdate	60	4.00
116a	Ferrotitanium (low carbon)	100	4.00

(g) Microchemical standards.

Sample No.	Name	Constituents determined or intended use	Approximate weight of sample in grams	Price per sample
140	Benzole acid	C, H	2	\$3.00
141	Acetanilide	N, C, H	2	3.00
142	Asiatic acid	Methoxyl	2	3.00
143	Cytidine	C, H, N	2	3.00
144	2-chlorobenzoic acid	Cl	2	3.00
145	2-iodobenzoic acid	I	2	3.00
146	Triphenylphosphite	P	2	3.00

(d) Nonferrous alloys.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
85a	Aluminum alloy, wrought	65	\$3.50
86c	Aluminum-base casting alloy	65	3.50
87	Aluminum-silicon alloy	65	3.50
82b	Bearing metal, lead-base	200	4.50
84c	Bearing metal, tin-base	200	4.50
83b	Bearing metal, phosphor-bronze	150	4.50
37d	Brass, sheet	150	4.50
82b	Brass, cast	150	4.50
124b	Onion metal (85 Cu-5 Pb-5 Sn-5 Zn)	150	4.50
62b	Brass, manganese	150	4.50
127	Solder, 35 Sn-65 Pb	200	4.50
157	Nickel-Silver (Cu 71-Ni 18-Zn 10)	125	4.50
161	Nickel-chromium casting alloy	150	4.50
162	66 Ni 29 Cu Alloy (monel type)	150	4.50
94a	Zinc-base die-casting alloy	150	4.50
108	Zinc spelter	200	4.50
109	Do	200	4.50
110	Do	200	4.50

(e) Ores.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
69	Bauxite	60	\$3.00
26	Iron ore, Crescent	100	3.00
29a	Iron ore, Magnetite	75	3.00
28	Iron ore, Norrie	50	2.00
27b	Iron ore, Sibley	125	3.00
25b	Manganese ore	100	3.00
56a	Phosphate rock (Tennessee)	45	3.00
120	Phosphate rock (Florida)	45	3.00
137	Tin ore (Bolivian concentrate)	50	3.00
138	Tin ore (N. E. L. concentrate)	50	3.00
113	Zinc ore (Tri-State concentrate)	50	3.00

(f) Ceramic materials.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
104	Burned magnesite	60	\$3.00
76	Burned refractory (40% Al ₂ O ₃)	60	3.00
77	Burned refractory (60% Al ₂ O ₃)	60	3.00
78	Burned refractory (70% Al ₂ O ₃)	60	3.00
103	Chrome refractory	60	3.00
97	Clay, flint	60	3.00
98	Clay, plastic	60	3.00
70	Feldspar, potash	40	3.00
99	Feldspar, soda	40	3.00
79	Fluorspar	60	3.00
92	Glass, low boron	45	3.00
93	Glass, high boron	45	3.00
89	Glass, lead-barium	45	3.00
91	Glass, opal	45	3.00
80	Glass, soda-lime	45	3.00
128	Glass, soda-lime (B ₂ O ₃ , BaO)	45	3.00
81	Glass sand	60	3.00
14	Limestone, argillaceous	50	3.00
88	Limestone, dolomitic	50	3.00
102	Silica brick	60	3.00
112	Silicon carbide	85	3.00
154	Titanium dioxide	40	3.00
165	Glass sand (Iron Standard)	60	3.00

(h) Chemicals.

Sam- ple No.	Name	Constituents determined or intended use	Approx- imate weight of sample in grams	Price per sample
84c	Acid potassium phthalate	Acidimetric value	50	\$3.00
30c	Benzoic acid	Acidimetric and calorimetric values	30	3.00
40c	Sodium oxalate	Oxidimetric value	60	3.00
85a	Ascorbic trioxide	do	75	3.00
136	Potassium dichromate	Calorimetric and spectrophotometric values	70	3.00
17	Sucrose (cane-sugar)	Reducing value	70	3.00
41	Dextrose (glucose)			

(i) pH Standards.

Sam- ple No.	Name	Constituents determined or intended use	Approx- imate weight of sample in grams	Price per sample
185	Acid potassium phthalate	pH (approx.) 4.0	60	12.50
186	Potassium dihydrogen phosphate	pH (approx.) 6.8	60	5.00
187	Sodium hydrogen phosphate Borax	pH (approx.) 9.2	30	2.50

Two phosphates are to be used together in equal molar proportions.
30 grams of each phosphate are furnished.

(j) Melting-point standards.

Sam- ple No.	Name	Constituents determined or intended use	Approx- imate weight of sample in grams	Price per sample
44d	Aluminum	659.7° C	200	\$2.50
45d	Copper	1083.7° C	450	2.50
46d	Gold	2777.0° C	1,000	2.50
47d	Iron	2797.0° C	850	2.50
48d	Zinc	419.5° C	350	2.50

(k) Turbidimetric and fineness standard.

Sam- ple No.	Name	Constituents determined or intended use	Approx- imate weight of sample in grams	Price per sample
47i	Portland cement	No. 200 sieve = 9.4% (No. 325 sieve residue, 15.2%) Surface area = 1,800 sq cm per gram	100	\$2.50
114e	Cement	[Air permeability = 3,300 sq cm per gram]	12	2.50

(l) Thermoelectric standards.

Sam- ple No.	Name	Constituents determined or intended use	Approx- imate weight of sample in grams	Price per sample
118	Alumel wire No. 5 gage	emf vs. NBS Pt no. 27, 0 to 1,200° C	3 ft	\$2.00
119	Chromel wire No. 5 gage	emf vs. NBS Pt no. 27, 0 to 1,200° C	3 ft	2.00

(m) Spectrographic standards—(1) Steels.

Sample No.	Name	Price per sample
1401, 1401	B. O. H., 0.4 C	\$45.00
402, 802	B. O. H., 0.3 C	5.00
403, 803	A. O. H., 0.4 C	5.00
404, 804	Basic electric	5.00
405, 805	Medium manganese	5.00
406, 806	Chromium-manganese	5.00
407, 807	Chromium-vanadium	5.00
408, 808	Chromium-nickel	5.00
1409	Nickel	5.00
1410a, 410	Cr-Mo	5.00
1410b	Cr-Mo	5.00
411a, 811a	Cr-Mo (SAE X4130)	5.00
412a, 812a	Cr-Mo (SAE X4130)	5.00
413a, 813a	Cr-Mo (SAE X4130)	5.00
414a, 814a	Cr-Mo (SAE X4130)	5.00
415a, 815a	Cr-Mo (SAE X4130)	5.00
416a, 816a	Cr-Mo (SAE X4130)	5.00
417a, 817a	Cr-Mo (SAE X4130)	5.00
418a, 818a	Cr-Mo (SAE X4130)	5.00
419a, 819a	Cr-Mo (SAE X4130)	5.00
420, 820	Low alloy steel, 0.01 C	5.00

Sizes are: 400 series, rods 1/2 in. in diameter, 4 in. long (20 c); 800 series, rods 1/2 in. in diameter, 2 in. long (20 c).
For each sample in the 400 and 800 series.
This standard is available in only one size.

(n) Hydrocarbons—(1) Paraffins.

Sample No.	Formula	Compound Name	Amount of impurity	Volume per sample	Price per sample
201a-1	C ₁₀ H ₂₂	n-pentane	Mole percent 0.14±0.07	ml	\$10.00
201a-2	C ₁₀ H ₂₂	do	15±.07	8	18.00
201a-3	C ₁₀ H ₂₂	do	15±.07	20	18.00
201a-4	C ₁₀ H ₂₂	3-methylpentane (isopentane)	0.04±.02	8	18.00
201a-5	C ₁₀ H ₂₂	3-methylpentane (isopentane)	0.04±.02	20	18.00
201a-6	C ₁₀ H ₂₂	n-hexane	10±.05	8	18.00
201a-7	C ₁₀ H ₂₂	do	10±.05	20	18.00
201a-8	C ₁₀ H ₂₂	3-methylpentane	16±.08	8	18.00
201a-9	C ₁₀ H ₂₂	3-methylpentane	16±.08	20	18.00
201a-10	C ₁₀ H ₂₂	2,3-dimethylbutane	10±.05	8	18.00
201a-11	C ₁₀ H ₂₂	2,3-dimethylbutane	10±.05	20	18.00
201a-12	C ₁₀ H ₂₂	n-heptane	10±.05	8	18.00
201a-13	C ₁₀ H ₂₂	do	10±.05	20	18.00
201a-14	C ₁₀ H ₂₂	3-methylpentane	20±.10	8	18.00
201a-15	C ₁₀ H ₂₂	3-methylpentane	20±.10	20	18.00
201a-16	C ₁₀ H ₂₂	2,3-dimethylbutane	13±.03	8	18.00
201a-17	C ₁₀ H ₂₂	2,3-dimethylbutane	13±.03	20	18.00
201a-18	C ₁₀ H ₂₂	2,4-dimethylpentane	21±.06	8	18.00
201a-19	C ₁₀ H ₂₂	2,4-dimethylpentane	21±.06	20	18.00
201a-20	C ₁₀ H ₂₂	2,5-dimethylpentane	17±.05	8	18.00
201a-21	C ₁₀ H ₂₂	2,5-dimethylpentane	17±.05	20	18.00
201a-22	C ₁₀ H ₂₂	2,2,3-trimethylbutane	10±.05	8	18.00
201a-23	C ₁₀ H ₂₂	2,2,3-trimethylbutane	10±.05	20	18.00
201a-24	C ₁₀ H ₂₂	n-octane	0.04±.02	8	18.00
201a-25	C ₁₀ H ₂₂	3-methylheptane	41±.20	8	18.00
201a-26	C ₁₀ H ₂₂	3-methylheptane	41±.20	20	18.00
201a-27	C ₁₀ H ₂₂	4-methylheptane	12±.07	8	18.00
201a-28	C ₁₀ H ₂₂	4-methylheptane	12±.07	20	18.00
201a-29	C ₁₀ H ₂₂	2,3-dimethylhexane	20±.10	8	18.00
201a-30	C ₁₀ H ₂₂	2,3-dimethylhexane	20±.10	20	18.00
201a-31	C ₁₀ H ₂₂	2,4-dimethylhexane	30±.15	8	18.00
201a-32	C ₁₀ H ₂₂	2,4-dimethylhexane	30±.15	20	18.00
201a-33	C ₁₀ H ₂₂	2,5-dimethylhexane	20±.10	8	18.00
201a-34	C ₁₀ H ₂₂	2,5-dimethylhexane	20±.10	20	18.00
201a-35	C ₁₀ H ₂₂	3-methyl-3-ethylpentane	18±.09	8	18.00
201a-36	C ₁₀ H ₂₂	3-methyl-3-ethylpentane	18±.09	20	18.00
201a-37	C ₁₀ H ₂₂	2,2,3-trimethylpentane	43±.20	8	18.00
201a-38	C ₁₀ H ₂₂	2,2,3-trimethylpentane	43±.20	20	18.00

See footnotes at end of table.

Sample No. 1	Compound		Amount of impurity †	Volume per sample ‡	Price per sample
	Formula	Name			
218-25	C ₁₀ H ₁₈	do	Mole percent 0.12±0.05	ml 25	\$35.00
219-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
220-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
221-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
222-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
223-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
224-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
225-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
226-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
227-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
228-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
229-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
230-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00
231-25	C ₁₀ H ₁₈	1,4-dimethylcyclohexane	0.12±0.05	5	25.00

(4) Monoolefins.

Sample No. 1	Compound		Amount of impurity †	Volume per sample ‡	Price per sample
	Formula	Name			
281-53	C ₁₀ H ₁₈	1-pentene	Mole percent 0.06±0.01	ml	\$25.00
282-53	C ₁₀ H ₁₈	2-pentene	0.06±0.01	5	25.00
283-53	C ₁₀ H ₁₈	3-pentene	0.06±0.01	5	25.00
284-53	C ₁₀ H ₁₈	4-pentene	0.06±0.01	5	25.00
285-53	C ₁₀ H ₁₈	1-methyl-1-butene	0.06±0.01	5	25.00
286-53	C ₁₀ H ₁₈	2-methyl-1-butene	0.06±0.01	5	25.00
287-53	C ₁₀ H ₁₈	3-methyl-1-butene	0.06±0.01	5	25.00
288-53	C ₁₀ H ₁₈	4-methyl-1-butene	0.06±0.01	5	25.00
289-53	C ₁₀ H ₁₈	1-hexene	0.06±0.01	5	25.00
290-53	C ₁₀ H ₁₈	2-hexene	0.06±0.01	5	25.00
291-53	C ₁₀ H ₁₈	3-hexene	0.06±0.01	5	25.00
292-53	C ₁₀ H ₁₈	4-hexene	0.06±0.01	5	25.00
293-53	C ₁₀ H ₁₈	1-heptene	0.06±0.01	5	25.00
294-53	C ₁₀ H ₁₈	2-heptene	0.06±0.01	5	25.00
295-53	C ₁₀ H ₁₈	3-heptene	0.06±0.01	5	25.00
296-53	C ₁₀ H ₁₈	4-heptene	0.06±0.01	5	25.00
297-53	C ₁₀ H ₁₈	1-octene	0.06±0.01	5	25.00
298-53	C ₁₀ H ₁₈	2-octene	0.06±0.01	5	25.00
299-53	C ₁₀ H ₁₈	3-octene	0.06±0.01	5	25.00
300-53	C ₁₀ H ₁₈	4-octene	0.06±0.01	5	25.00
301-53	C ₁₀ H ₁₈	1-nonene	0.06±0.01	5	25.00
302-53	C ₁₀ H ₁₈	2-nonene	0.06±0.01	5	25.00
303-53	C ₁₀ H ₁₈	3-nonene	0.06±0.01	5	25.00
304-53	C ₁₀ H ₁₈	4-nonene	0.06±0.01	5	25.00
305-53	C ₁₀ H ₁₈	1-decene	0.06±0.01	5	25.00
306-53	C ₁₀ H ₁₈	2-decene	0.06±0.01	5	25.00
307-53	C ₁₀ H ₁₈	3-decene	0.06±0.01	5	25.00
308-53	C ₁₀ H ₁₈	4-decene	0.06±0.01	5	25.00

(5) Diolefins.

Sample No. 1	Compound		Amount of impurity †	Volume per sample ‡	Price per sample
	Formula	Name			
312-53	C ₁₀ H ₁₈	1,2-butadiene	Mole percent 0.08±0.05	ml	\$35.00
313-53	C ₁₀ H ₁₈	1,3-butadiene	0.08±0.05	5	35.00
314-53	C ₁₀ H ₁₈	2-methyl-1,3-butadiene (isoprene)	0.08±0.05	5	35.00
315-53	C ₁₀ H ₁₈	1,5-hexadiene	0.11±0.08	5	35.00

See footnotes at end of table.

Sample No. 1	Compound		Amount of impurity †	Volume per sample ‡	Price per sample
	Formula	Name			
317-5	C ₁₀ H ₁₈	2,2,4-trimethylpentane #1	Mole percent 0.12±0.05	ml	\$10.00
318-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
319-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
320-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
321-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
322-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
323-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
324-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
325-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
326-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
327-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
328-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
329-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
330-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
331-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
332-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
333-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
334-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
335-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
336-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
337-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
338-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
339-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
340-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
341-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
342-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
343-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
344-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
345-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
346-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
347-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
348-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
349-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
350-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
351-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
352-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
353-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00
354-5	C ₁₀ H ₁₈	do	0.12±0.05	5	15.00

(2) Alkyl cyclopentanes.

Sample No.1	Compound		Amount of impurity ‡	Volume per sample ‡	Price per sample
	Formula	Name			
19-53	C ₅ H ₁₀	Cyclopentane	Mole percent 0.05±0.02	ml	\$18.00
68-5	C ₆ H ₁₂	Methylcyclopentane	0.05±0.02	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
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68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H ₁₂	do	11±.06	5	10.00
68-5	C ₆ H<				

(6) Cyclomonoolefins.

Sample No. ¹	Compound		Amount of impurity ²	Volume per sample ³	Price per sample
	Formula	Name			
288-SS	C ₅ H ₈	Cyclopentene	Mole percent 0.034±0.021	5 ml	\$25.00
522-SS	C ₆ H ₁₀	Cyclohexene	0.023±0.020	5	35.00
557-SS	C ₆ H ₁₀	4-ethenyl-1-cyclohexene (4-vinyl-1-cyclohexene)	0.10±0.07	5	35.00

(7) Acetylenes.

Sample No. ¹	Compound		Amount of impurity ²	Volume per sample ³	Price per sample
	Formula	Name			
514-SS	C ₄ H ₆	1-butyne	Mole percent 0.13±0.07	5 ml	\$25.00
515-SS	C ₄ H ₆	2-butyne	0.009±0.038	5	25.00

(8) Alkyl benzenes.

Sample No. ¹	Compound		Amount of impurity ²	Volume per sample ³	Price per sample
	Formula	Name			
210a-SS	C ₆ H ₆	Benzene	Mole percent 0.03±0.02	5 ml	\$10.00
210a-SS	C ₆ H ₆	do	0.03±0.02	8	18.00
210a-25	C ₆ H ₆	do	0.03±0.02	25	35.00
211a-5	C ₇ H ₈	Methylbenzene ⁴ (toluene)	0.04±0.02	5	10.00
211a-SS	C ₇ H ₈	do	0.04±0.02	8	18.00
211a-25	C ₇ H ₈	do	0.04±0.02	25	35.00
211a-50	C ₇ H ₈	do	0.04±0.02	50	60.00
212a-5	C ₈ H ₁₀	Ethylbenzene	0.04±0.02	5	10.00
212a-SS	C ₈ H ₁₀	do	0.04±0.02	8	18.00
212a-25	C ₈ H ₁₀	do	0.04±0.02	25	35.00
213a-5	C ₈ H ₁₀	1,2-dimethylbenzene (o-xylene)	0.10±0.007	5	10.00
213a-SS	C ₈ H ₁₀	do	0.004±0.007	8	18.00
213a-25	C ₈ H ₁₀	do	0.10±0.007	25	35.00
214a-5	C ₈ H ₁₀	1,3-Dimethylbenzene (m-xylene)	0.06±0.04	5	10.00
214a-SS	C ₈ H ₁₀	do	0.05±0.04	8	18.00
214a-25	C ₈ H ₁₀	do	0.06±0.04	25	35.00
215a-5	C ₈ H ₁₀	1,4-dimethylbenzene (p-xylene)	0.06±0.03	5	10.00
215a-SS	C ₈ H ₁₀	do	0.05±0.03	8	18.00
215a-25	C ₈ H ₁₀	do	0.06±0.03	25	35.00
221-SS	C ₉ H ₁₂	n-propylbenzene	0.25±0.08	5	25.00
220-5	C ₉ H ₁₂	Isopropylbenzene	0.07±0.03	5	10.00
220-SS	C ₉ H ₁₂	do	0.07±0.03	8	18.00
220-25	C ₉ H ₁₂	do	0.07±0.03	25	35.00
246-SS	C ₁₀ H ₁₄	1-methyl-2-ethylbenzene	0.27±0.07	5	25.00
247-SS	C ₁₀ H ₁₄	1-methyl-3-ethylbenzene	0.43±0.15	5	25.00
248-SS	C ₁₀ H ₁₄	1-methyl-4-ethylbenzene	0.13±0.03	5	25.00
249-SS	C ₁₀ H ₁₄	1,2,3-trimethylbenzene	0.18±0.012	5	25.00
250-SS	C ₁₀ H ₁₄	1,2,4-trimethylbenzene	0.33±0.20	5	25.00
251-SS	C ₁₀ H ₁₄	1,2,5-trimethylbenzene	0.05±0.02	5	25.00
501-SS	C ₁₀ H ₁₄	n-butylbenzene	0.12±0.08	5	25.00
502-SS	C ₁₀ H ₁₄	Isobutylbenzene	0.13±0.09	5	25.00
503-SS	C ₁₀ H ₁₄	sec-butylbenzene	0.12±0.08	5	25.00
504-SS	C ₁₀ H ₁₄	tert-butylbenzene	0.06±0.03	5	25.00
523-SS	C ₁₀ H ₁₄	1,2-diethylbenzene	0.05±0.03	5	25.00
524-SS	C ₁₀ H ₁₄	1,3-diethylbenzene	0.07±0.04	5	25.00
525-SS	C ₁₀ H ₁₄	1,4-diethylbenzene	0.07±0.02	5	25.00

(9) Polycyclic aromatic hydrocarbons.

Sample No. ¹	Compound		Amount of impurity ²	Volume per sample ³	Price per sample
	Formula	Name			
556-SS	C ₁₅ H ₁₀	2,3-dihydroindene (indan)	Mole percent 0.06±0.02	5 ml	\$35.00

¹ The designations following the sample numbers indicate the following: "SS" or "SS", a sample of 5 ml. or 8 ml. sealed "in vacuum" in a special pyrex glass ampoule with internal "break-off" tip; "5", "25", or "50", a sample of 5, 25, or 50 ml. sealed "in vacuum" in a plain glass ampoule.

² Unless otherwise indicated, the purity has been evaluated from measurements of freezing points. See J. Research NBS 35, 353 (1945) RP1676.

³ Tolerance approximately ±10 percent.

⁴ Estimated by analogy with isomers subjected to similar purification.

⁵ Certified with regard to density and refractive index.

⁶ Certified with regard to calorimetric heat of combustion.

⁷ This isomer formerly labeled "trans," has the following properties: boiling point at 1 atm., 120.00° C.; refractive index, n_D^{25} at 25° C., 1.4266; density at 25° C., 0.7620 g/ml. See table 7a, Selected Values of Properties of Hydrocarbons. American Petroleum Institute Research Project 44 at the National Bureau of Standards.

⁸ This isomer, formerly labeled "cis," has the following properties: boiling point at 1 atm., 124.45° C.; refractive index, n_D^{25} at 25° C., 1.4284; density at 25° C., 0.7806 g/ml. See table 7a, Selected Values of Properties of Hydrocarbons. American Petroleum Institute Research Project 44 at the National Bureau of Standards.

⁹ When sealed. Polymer formed may be removed as residue by simple vaporization of the sample "in vacuum" at an appropriate temperature.

(10) Hydrocarbon samples certified for density and refractive index. The following three compounds of the original NBS list are certified with respect

to values of density, for air-saturated material at 1 atmosphere, at 20, 25, and 30° C, to ±0.00002 g/ml, and also with respect to values of refractive index, for

each of 7 wavelengths (helium 668 and 502, hydrogen 656 (C) and 486 (F), mercury 546 (e) and 436 (g), and sodium 589 (D₁, D₂) at 20, 25, and 30° C, to ±0.00002).

No. 217. 2,2,4-Trimethylpentane

No. 218. Methylcyclohexene

No. 211a. Toluene

These standards may be used to calibrate refractometers, pycnometers, and density balances, as well as spectrometers. A certificate is supplied with each of these samples.

(11) Hydrocarbon certified for calorimetric heat of combustion. Standard Sample No. 217,2,2,4-Trimethylpentane, is also certified with regard to the value for calorimetric heat of combustion, primarily for calibrating apparatus for determining the heating value of gasoline and other liquid fuels.

NOTES: Instructions and connecting tubes. A set of instructions for transferring Standard Samples of hydrocarbons "in vacuum" may be obtained on request.

The unsaturated hydrocarbons available as Standard Samples are usually sealed in ampoules of Pyrex Red glass. In order to facilitate the handling of these ampoules, each laboratory obtaining one or more of the unsaturated hydrocarbon Standard Samples will be supplied gratis one special graded glass connecting tube of appropriate diameter consisting of Pyrex Red to Pyrex Uranium to Pyrex Clear glass.

Orders. Standard Samples Nos. 201 to 218, inclusive, and No. 220 are obtainable only from the National Bureau of Standards. All the other Standard Samples, No. 219 and those numbered 221 and higher, are obtainable either from the American Petroleum Institute or the National Bureau of Standards. For the benefit of the cooperative program between the American Petroleum Institute and the National Bureau of Standards, orders for the latter compounds from petroleum laboratories should be sent to the American Petroleum Institute, while orders from all other laboratories should be sent to the National Bureau of Standards.

Petroleum laboratories should send their orders, in duplicate, with payment in advance, to American Petroleum Institute, 50 West 50th Street, New York 20, N. Y., specifying clearly by both name and number the compounds wanted.

All other laboratories (and also the petroleum laboratories for the 19 Standard Samples available only from the National Bureau of Standards) should send their orders, with payment in advance, to National Bureau of Standards, Washington 25, D. C., specifying clearly by both name and number the compounds wanted.

(o) Paint-pigment standards for color and tinting strength only.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
300	Toluidine red toner	40	\$3.00
301	Yellow ochre	45	3.00
302	Raw sienna	45	3.00
303	Burnt sienna	50	3.00
304	Raw umber	45	3.00
305	Burnt umber	50	3.00
306	Venetian red	60	3.00
307	Metallic brown	60	3.00
308	Indian red	50	3.00
309	Mineral red	65	3.00
310	Bright red oxide	50	3.00
311	Carbon black (high color)	10	3.00
312	Carbon black (all-purpose)	20	3.00
313	Black iron oxide	42	3.00
314	Yellow iron oxide, light lemon	20	3.00
315	Yellow iron oxide, lemon	20	3.00

Sample No.	Name	Approximate weight of sample in grams	Price per sample
316	Yellow iron oxide, orange	25	\$3.00
317	Yellow iron oxide, dark orange	40	3.00
318	Lampblack	15	3.00
319	Primrose chrome yellow	65	3.00
320	Lemon chrome yellow	60	3.00
321	Medium chrome yellow	65	3.00
322	Light chrome orange	100	3.00
323	Dark chrome orange	100	3.00
324	Ultramarine blue	37	3.00
325	Iron blue	25	3.00
326	Light chrome green	60	3.00
327	Medium chrome green	50	3.00
328	Dark chrome green	45	3.00

(p) Standards for rubber compounding.

Sample No.	Name	Approximate weight of sample in grams	Price per sample
370	Zinc oxide	2,000	\$1.65
371	Sulfur	1,000	.60
372	Stearic acid	600	1.20

APPROXIMATE VISCOSITIES¹

Oil	Absolute, in poises at—					Kinematic, in stokes at—					Price ² per sample, f. o. b., Washing- ton, D. C.		
	20° C.	25° C.	30° C.	37.78° C. (100° F.)	40° C.	50° C.	20° C.	25° C.	30° C.	37.78° C. (100° F.)		40° C.	50° C.
D	0.020	0.018		0.014			0.026	0.023		0.019			\$10.00
H	.074	.063		.044			.091	.078		.055			10.00
I	.12	.10		.066			.14	.12		.081			10.00
J	.21	.17		.11			.25	.21		.13			10.00
K	.41	.32		.18			.48	.38		.22			10.00
L	1.0	.74		.37			1.1	.84		.43			10.00
M	2.8	2.0		1.0			3.2	2.3		1.1			10.00
N	14	9.6		4.0			16	11		4.6			10.00
OB	350	220			61		390	250			69		25.00
P			440		190	90			490		215	100	25.00

¹ Viscosity values can be supplied, as a special service, for other temperatures in the range 20° to 100° C., except that values for oil F can be supplied only for temperatures in the range 30° to 100° C. An extra charge is made for these special services. For oils D through N, the charge is \$10 per sample per temperature in addition to the charge of \$10 per sample listed in the table. For oils OB and P, the charge is \$16 per sample per temperature in addition to the charge of \$25 per sample listed in the table.

² Normally, samples are shipped via railway express, express charges collect. Requests for shipment by other methods usually will be disregarded.

(2) For use with Saybolt Viscometers. Price covers the sample and a report containing an accurate value, at the time of shipment, for the viscosity at the indicated temperature.

APPROXIMATE VISCOSITY¹

Oil	Temperature, °F	Viscosity	Price per ² sample, f. o. b., Washington, D. C.
SB	100	370 seconds, Saybolt Universal	\$5.00
SC	130	360 seconds, Saybolt Universal	5.00
SF	122	200 seconds, Saybolt Furol	5.00

¹ Viscosity values at other temperatures or in other units are not supplied.

² Normally samples are shipped via railway express, express charges collect. Requests for shipment by other methods usually will be disregarded.

(r) Standards of reference. In addition to the standards already enumerated, the Bureau distributes standards of reference that have been compared with master samples at the Bureau or measured for compliance with an arbitrary standard. These standards are:

Standard colors for kitchen and bathroom accessories—Sets of 10 enameled iron plaques, 3 by 5 inches, in accordance with Commercial Standards CS62-38 and CS63-38. Price, \$10.00 per set.

Standard finish samples for builders' hardware—Sets of 18 finishes, 7 by 2¼ inches,

metal escutcheons, in accordance with Commercial Standard CS22-40. Price, \$9.00 per set.

Dyed paper for standardization of light-fastness tests (no charge).

Fiber comparison samples for use in fiber analysis of paper (no charge).

Photometric standards (incandescent electric lamps).

Lamp standards of color temperature.

Glass opacity standards for the paper industry.

Glass standards for the calibration of spectrophotometers.

Gloss standards.

(q) Standard oils for use as viscometer calibrating liquids. These oils are not intended for use as permanent viscosity standards. They are not suitable for stockroom items and should be ordered only for immediate use. More than a 1-pint sample of any given oil is not supplied unless it is established that this quantity is inadequate.

(1) For use with viscometers calibrated in units of absolute or kinematic viscosity. Price covers the sample and a report containing accurate values, at time of shipment, for absolute viscosity, kinematic viscosity and density at the following temperatures:

Sample No.	Name	Approximate weight of sample in grams	Price per sample
373	Benzothiazyl-disulfide	600	\$1.20
374	Tetramethylthiuram-disulfide	600	2.25
375	Channel black	8,000	3.50
376	Light magnesia	140	.85

Reflectance standards (white, gray, and black).

Standards of thermal radiation (incandescent electric lamps) for calibrating thermopiles.

Radon standards, 10⁻⁶ and 10⁻¹¹ g of radium. Gamma-ray standards, 0.1×10⁻⁶ to 100.0×10⁻⁶ g of radium.

Rock samples analyzed for radium content.

Prices and further information on these standards can be obtained by applying to the Bureau.

SUBPART C—GENERAL INFORMATION

§ 230.21 Literature. Detailed certificates of analysis are sent under separate cover to the same destination as the samples. In the case of new or renewed samples provisional typewritten certificates will be supplied until they can be replaced by the printed certificates and labeled when ready.

§ 230.22 Samples out of stock. The preparation of "renewal" samples is intended to be completed at the time each kind of sample becomes exhausted, but owing to delays encountered in obtaining a proper grade of material and for other reasons this is not always possible. If orders are received for samples that are out of stock, notice will be mailed to that effect. The "renewal" of an analyzed sample will have a composition more or less different from that of its predecessor but, as regards the characteristic constituent or constituents, will pattern after it closely.

§ 230.23 New samples. When new samples or renewals of old ones are issued, announcement will be made in scientific and trade journals.

Subchapter C—Transcript Services

PART 235—TRANSCRIPT SERVICES

Sec.

235.1 General.

235.2 Microfilm.

235.3 Photoprints.

235.4 Motion pictures.

235.99 Certification of publications.

AUTHORITY: §§ 235.1 to 235.99 issued under 49 Stat. 202; 15 U. S. C. 189a.

§ 235.1 General. Transcripts of studies and records, and certification of either printed or processed publications, will be furnished upon receipt of a written request, accompanied by sufficient information to enable the bureau to properly identify the specific study, record, or publication desired. Fees for such transcripts or certifications will be charged in accordance with the fees itemized in the subsequent sections.

§ 235.2 Microfilm.

Item and description	Fee
R-1-2.1 Periodical articles, any article in a single volume of a periodical, per article	\$0.50
R-1-2.2 Books and serial publications, for each 50 pages or fraction thereof	.50

These prices are computed on cost factors and are therefore subject to change.

§ 235.3 Photoprints.

Item and description	Fee
R-1-3.1 Any single volume, for each 5 pages or fraction thereof	\$0.50

This price is computed on cost factors and is therefore subject to change.

§ 235.4 Motion pictures.

Item and description	Fee
R-2-4.1 Motion picture film, Subject: "Silicate Cement", 800 feet of sound, color film, 16 mm. running time 18½ minutes.....	\$85.00

This is an approximate price. The actual cost will depend on the number of copies ordered by the Bureau at a specific time on the basis of requests received.

§ 235.99 Certification of publications.

Item and description	Fee
R-3-99.1 Certification of any Bureau publication whether printed or processed (not including cost of the publication).....	\$1.00

For information concerning titles and prices of bureau publications address inquiries to the National Bureau of Standards, Washington 25, D. C.

Subchapter D—Standards for Barrels

PART 240—BARRELS AND OTHER CONTAINERS FOR LIME

Sec.	
240.1	Title of act.
240.2	Application.
240.3	Permissible sizes.
240.4	Definitions.
240.5	Required marking.
240.6	Tolerances.

AUTHORITY: §§ 240.1 to 240.6 issued under sec. 4, 39 Stat. 531; 15 U. S. C. 240.

§ 240.1 *Title of act.* The act, "Public—No. 228—64th Congress," approved August 23, 1916 (39 Stat. 530; 15 U. S. C. 237-242), entitled "An Act to standardize lime barrels," shall be known and referred to as the "Standard Lime-Barrel Act."

§ 240.2 *Application.* The rules and regulations in this part are to be understood and construed to apply to lime in barrels, or other containers packed, sold, or offered for sale for shipment from any State or Territory or the District of Columbia to any other State or Territory or the District of Columbia; and to lime in containers of less capacity than the standard small barrel sold in interstate or foreign commerce; and to lime imported in barrels from a foreign country and sold or offered for sale; also to lime not in barrels or containers of less capacity than the standard small barrel, sold, charged for, or purported to be delivered as a large or small barrel or a fractional part of said small barrel of lime, from any State or Territory or the District of Columbia to any other State or Territory or the District of Columbia.

§ 240.3 *Permissible sizes.* Lime in barrels shall be packed only in barrels containing 280 pounds or 180 pounds, net weight. For the purposes of this section the word "barrel" is defined as a cylindrical or approximately cylindrical vessel, cask or drum.

§ 240.4 *Definitions.* (a) The term "container of less capacity than the standard small barrel," as mentioned in section 3 of the law and as used in the rules and regulations in this part, is defined as any container not in barrel form containing therein a net weight of lime of less than 180 pounds.

(b) The term "label" as used in the rules and regulations in this part is defined as any printed, pictorial, or other matter upon the surface of a barrel or other container of lime subject to the provisions of this act, or upon cloth or paper or the like which is permanently affixed to it by pasting or in a similar manner.

(c) The term "tag" is defined as a tough and strong strip of cloth or paper or the like, bearing any printed, pictorial, or other matter, which is loose at one end and which is secured to a container of lime subject to the provisions of the act.

§ 240.5 *Required marking.* (a) The lettering required upon barrels of lime by section 2 of the law shall be as follows: The statement of net weight shall be in bold-face capital letters and figures at least 1 inch in height and not expanded or condensed; it shall be clear, legible, and permanent, and so placed with reference to the other lettering that it is conspicuous. The name of the manufacturer of the lime and where manufactured, and, if imported, the name of the country from which it is imported, shall be in bold-face letters at least one-half inch in height and not expanded or condensed, and shall be clear, legible, conspicuous, and permanent. None of these letters and figures shall be superimposed upon each other, nor shall any other characters be superimposed upon the required lettering or otherwise obscure it. All the above statements shall form parts of the principal label.

(b) The information required upon containers of lime of less capacity than the standard small barrel by section 3 of the law shall be included in a label: *Provided, however,* That in order to allow the utilization of second-hand or returnable bags made of cloth, burlap, or the like, such information may be upon a tag firmly attached to the container in a prominent and conspicuous position. In case a tag is used to give the required information there must not be any label or another tag upon the container which bears any statement having reference to lime, or any statement of weight whatever, which is not identical with the information upon the tag mentioned above; if a container is to be utilized which bears any such inaccurate information upon a label, such container shall be turned inside out or such information shall be obliterated in so far as it is inaccurate by blotting out the letters or figures; or if such inaccurate information is upon a tag, by removing such tag.

(c) If the required lettering is upon a label, the statement of net weight shall be in bold-face capital letters and figures at least three-fourths inch in height and not expanded or condensed; it shall be clear, legible, and permanent, and so placed with reference to the other lettering that it is conspicuous. The word "net" shall form part of the statement of weight. The name of the manufacturer of the lime and the name of the brand, if any, under which it is sold, and, if imported, the name of the country from which it is imported, shall be in bold-face letters at least one-half inch in height and not expanded or condensed, and shall be

clear, legible, conspicuous, and permanent. None of these letters and figures shall be superimposed upon each other, nor shall any other characters be superimposed upon the required lettering or otherwise obscure it. All the above statements shall form parts of the principal label.

(d) If the required lettering is upon a tag, the statement of net weight shall be in bold-face capital letters and figures not less than one-half the height of the largest letters or figures used upon such tag: *Provided, however,* That in every case they shall be not less than one-eighth inch in height (12-point capitals), and not expanded or condensed. The word "net" shall form part of the statement of weight. The statement shall be clear, legible, and permanent, and so placed with reference to the other lettering that it is conspicuous. The name of the manufacturer of the lime, and the name of the brand, if any, under which it sold, and, if imported, the name of the country from which it is imported, shall be in bold-face letters and figures not less than one-eighth inch in height (12-point capitals), and not expanded or condensed, and shall be clear, legible, conspicuous, and permanent. None of these letters and figures shall be superimposed upon each other nor shall any other characters be superimposed upon the required lettering or otherwise obscure it. All the above statements shall be included upon the same side of the tag.

(e) In case the lime is actually packed in barrels or in containers of less capacity than the standard small barrel by some person other than the manufacturer of the lime, the information mentioned above must be given in the manner there described, and in addition there must be a statement to this effect: "Packed by _____" (giving the name and address of the packer). This statement shall be in letters not smaller than is specified for the general statement required in the case of barrels and containers of less capacity than the standard small barrel, respectively (see paragraphs (a) and (b) of this section); it shall not be obscured and shall form part of the principal label or be upon the same side of the tag as in those cases provided.

(f) In the case of all lime sold in barrels, the actual place of manufacture of the lime shall be stated on the barrel. In general, this will be the name of the post office nearest or most accessible to the plant. However, when the actual place of manufacture of the lime and the offices of the company are separated but are within the boundaries of the same county of a State, or when, though not within the boundaries of the same county they are so close together that the post-office address of the offices represents substantially and to all intents and purposes the actual place of manufacture of the lime, then the post-office address of the offices of the company will be sufficient: *Provided, however,* That the address given shall always correctly show the State in which the lime is actually manufactured.

(g) More than one place of manufacture of a manufacturer shall not be

shown on the same barrel unless the one at which the particular lime in question is manufactured is pointed out.

(h) If the location of the home offices is stated and this is not the place of manufacture within the meaning of the above definition, an additional statement must be included to this effect: "Manufactured at _____" (giving the location of the plant).

§ 240.6 *Tolerances.* (a) When lime is packed in barrels the tolerance to be allowed on the large barrel or the small barrel of lime shall be 5 pounds in excess or in deficiency on any individual barrel; *Provided, however,* That the average error on 10 barrels of the same nominal weight and packed by the same manufacturer shall in no case be greater than 2 pounds in excess or in deficiency. In case all the barrels available are not weighed, those which are weighed shall be selected at random.

(b) When lime is packed in containers of less capacity than the standard small barrel, the tolerance to be allowed in excess or in deficiency on individual containers of various weights, shall be the values given in the column headed "Tolerance on individual package," of the following table: *Provided, however,* That the average error on 10 containers of the same nominal weight and packed by the same manufacturer shall in no case be greater than the values given in the column headed "Tolerance on average weight," of the following table. In case all the containers available are not weighed, those which are weighed shall be selected at random.

Weight of package	Tolerance on individual package	Tolerance on average weight
Not greater than 50 lbs.	Pounds 1½	Pounds ¾
More than 50 lbs. and not greater than 100 lbs.	2	¾
More than 100 lbs. and not greater than 150 lbs.	3	1¼
More than 150 lbs. and less than 180 lbs.	4	1¾

(c) When lime in bulk is sold, charged for, or purported to be delivered as a definite number of large or small barrels, the tolerance to be allowed in excess or in deficiency on such amounts of lime shall be 15 pounds per 1,800 pounds (10 small barrels), or 25 pounds per 2,800 pounds (10 large barrels).

PART 241—BARRELS FOR FRUITS, VEGETABLES AND OTHER DRY COMMODITIES, AND FOR CRANBERRIES

- Sec.
241.1 Capacities.
241.2 Legal standard barrels.
241.3 Application of tolerance for "distance between heads."
241.4 Application of tolerance for "diameter of head."
241.5 Standard dimensions.
241.6 Classes of barrels for tolerance application.
241.7 Tolerances to be allowed.

AUTHORITY: §§ 241.1 to 241.7 issued under sec. 3, 38 Stat. 1187; 15 U. S. C. 236.

NOTE: The rules and regulations in this part refer entirely to individual barrels, and

no separate tolerance has been placed on the average content of a number of barrels taken at random from a shipment. It is not believed that barrels can be so made as to take advantage of the tolerances, and, of course, no attempt should be made to do this. It is, therefore, expected that as many barrels will be above as below the standard capacity.

§ 241.1 *Capacities.* (a) The capacities of the standard barrel for fruits, vegetables, and other dry commodities, other than cranberries, and its subdivisions, are as follows:

Size	Cubic inches	Bushels ¹	Quarts ¹
Barrel.....	7056	3.281	165
¾ barrel.....	5292	2.461	123¾
½ barrel.....	3528	1.641	82½
¼ barrel.....	2352	1.094	55

¹ Struck measure.

(b) The capacities of the standard cranberry barrel and its subdivisions are as follows:

Size	Cubic inches	Bushels ¹	Quarts ¹
Cranberry barrel.....	5826	2.709	86¾
¾ cranberry barrel.....	4369.5	2.032	65¼
½ cranberry barrel.....	2913	1.355	43½
¼ cranberry barrel.....	1942	.903	28¾

¹ Struck measure.

§ 241.2 *Legal standard barrels.* (a) Any barrel having the dimensions specified for a standard barrel for fruits, vegetables, and other dry commodities, other than cranberries, in section 1 of the standard-barrel law, or any barrel or a subdivision thereof having the contents specified in section 1 of the standard-barrel law and in § 241.1 (a) regardless of its form or dimensions, is a legal standard barrel for fruits, vegetables, or other dry commodities other than cranberries, or a legal subdivision thereof. No other barrel or subdivision in barrel form is a legal container for fruits, vegetables, or other dry commodities other than cranberries.

(b) Any barrel having the dimensions specified for a standard barrel for cranberries in section 1 of the standard-barrel law, or any subdivision thereof having the contents specified in § 241.1 (b), regardless of its form or dimensions, is a legal standard barrel for cranberries or a legal subdivision thereof. No other barrel or subdivision in barrel form is a legal container for cranberries.

§ 241.3 *Application of tolerance for "distance between heads."* The tolerance established in this part for the dimension specified as "distance between heads" shall be applied as follows on the various types of barrels in use:

(a) When a barrel or subdivision thereof has two heads, the tolerance shall be applied to the distance between the inside surfaces of the heads and perpendicular to them.

(b) When a barrel or subdivision thereof has but one head and a croze ring or other means for the insertion of a head, such as an inside hoop, etc., at the opposite end, the tolerance shall be applied to the distance from the inside surface of the bottom head and perpendicular to it to the inside edge of the

croze ring, or to a point where the inside surface of a head would come were such head inserted in the barrel.

(c) When a barrel or subdivision thereof has but one head and no croze ring or other means for the insertion of a head, such as an inside hoop, etc., at the opposite end, the tolerance shall be applied to the distance from the inside surface of the bottom head and perpendicular to it to a point 1½ inches from the opposite end of the staves in the case of a barrel or a ¾ barrel, and to a point 1 inch or ¾ inch from the opposite end of the staves in the case of the ½ barrel and ¼ barrel, respectively. When a barrel or subdivision thereof has been manufactured with but one head and no croze ring or other means for the insertion of a head at the opposite end, and it is desired to insert a second head, the croze ring shall be so cut that the inside edge shall not be more than 1½ inches from the end of the staves in the case of a barrel or ¾ barrel or not more than 1 inch or ¾ inch from the end of the staves in the case of the ½ barrel and ¼ barrel, respectively, or the other means shall be so adjusted that the inside surface of the head when inserted shall not exceed these distances from the end of the staves.

§ 241.4 *Application of tolerance for "diameter of head."* (a) The tolerance established in this part for the dimension specified as "diameter of head" shall be applied to the diameter of the head over all, including the part which fits into the croze ring of the completed barrel.

(b) The tolerance established in this part for the dimension specified as "effective diameter of head" shall be applied as follows on the various types of barrels and subdivisions in use:

(1) When a barrel or subdivision thereof has two heads, the tolerance shall be applied to the mean of the average diameters from inside to inside of staves at the inner edges of the heads.

(2) When a barrel or subdivision thereof has but one head and a croze ring or other means for the insertion of a head at the opposite end, the tolerance shall be applied to the mean of the average diameters, one taken from inside to inside of staves at the inner edge of the head, the other from inside to inside of staves at the inner edge of the croze ring, or from inside to inside of staves at a point where the inside surface of a head would come were such head inserted in the barrel.

(3) When a barrel or subdivision thereof has but one head and no croze ring or other means for the insertion of a head at the opposite end, the tolerance shall be applied to the mean of the average diameters, one taken from inside to inside of staves at the inner edge of the head, the other taken from inside to inside of staves at a point 1½ inches from the end of the staves in the case of a barrel or ¾ barrel, or at a point 1 inch or ¾ inch from the end of the staves in the case of a ½ barrel or ¼ barrel, respectively.

(c) The standard allowance for depth of croze ring shall be ¾ inch. Therefore, the standard "effective diameter of

head" in the case of the standard barrel is $16\frac{3}{4}$ inches and in the case of the standard cranberry barrel is $15\frac{1}{2}$ inches.

§ 241.5 *Standard dimensions.* Whenever in the rules and regulations in this part the error on a dimension is mentioned, this error shall be determined by taking the difference between the actual measured dimension and the standard dimension. The error is an error in excess and is to be preceded by a plus sign when the measured dimension is greater than the standard dimension. The error is an error in deficiency and is to be preceded by a minus sign when the measured dimension is less than the standard dimension.

(a) The standard dimensions of a barrel for fruits, vegetables, and other dry commodities other than cranberries, and of a barrel for cranberries, with which the actual measured dimensions are to be compared, are as follows:

Dimensions	Barrel for fruits, vegetables, and other dry commodities other than cranberries	Barrel for cranberries
Diameter of head	17 $\frac{3}{4}$ inches	16 $\frac{3}{4}$ inches
Effective diameter of head (see § 241.4)	16 $\frac{3}{4}$	15 $\frac{1}{2}$
Distance between heads	26	25 $\frac{1}{2}$
Circumference of bulge, outside measurement	64	58 $\frac{1}{2}$
Length of stave	28 $\frac{1}{2}$	28 $\frac{1}{2}$

(b) In the case of all subdivisions of the barrel for fruits, vegetables, and other dry commodities other than cranberries, and all subdivisions of the barrel for cranberries, the following dimensions are hereby standardized for the purpose of the application of tolerances, and the actual measured dimensions are to be compared with these:

SUBDIVISIONS OF BARREL FOR FRUITS, VEGETABLES, AND OTHER DRY COMMODITIES OTHER THAN CRANBERRIES

Dimensions	$\frac{3}{4}$ barrel	$\frac{1}{2}$ barrel	$\frac{1}{4}$ barrel
Effective diameter of head (see § 241.4)	15 $\frac{1}{4}$ inches	13 $\frac{3}{4}$ inches	11 $\frac{1}{4}$ inches
Distance between heads	23 $\frac{1}{2}$	20 $\frac{1}{2}$	18
Circumference of bulge, outside measurement	55 $\frac{1}{4}$	51 $\frac{1}{4}$	45 $\frac{1}{4}$

SUBDIVISIONS OF BARREL FOR CRANBERRIES

Dimensions	$\frac{3}{4}$ barrel	$\frac{1}{2}$ barrel	$\frac{1}{4}$ barrel
Effective diameter of head (see § 241.4)	14 $\frac{1}{4}$ inches	12 $\frac{3}{4}$ inches	11 inches
Distance between heads	23	20	17 $\frac{1}{2}$
Circumference of bulge, outside measurement	53 $\frac{1}{4}$	47	41 $\frac{1}{4}$

§ 241.6 *Classes of barrels for tolerance application.* For the purpose of the application of tolerances, barrels for fruits, vegetables, and other dry commodities other than cranberries, are hereby divided into two classes as follows:

(a) Class 1 shall include (1) all barrels no dimension of which is in error by more than the following amounts, and (2) all barrels one or more of the dimensions of which are in error by more than the following amounts, and which in

addition have no dimension in error in the opposite direction:

	Error, inches
Effective diameter of head	$\frac{1}{4}$
Distance between heads	$\frac{1}{4}$
Circumference of bulge, outside measurement	1 $\frac{1}{2}$

(b) Class 2 shall include all barrels at least one dimension of which is in error by more than the amounts given above, but which in addition have at least one dimension in error in the opposite direction. (This class includes all barrels mentioned in section 1 of the law in the proviso reading: "Provided, That any barrel of a different form having a capacity of seven thousand and fifty-six cubic inches shall be a standard barrel.")

§ 241.7 *Tolerances to be allowed.* (a) The tolerances to be allowed in excess or in deficiency on the dimensions of all barrels of Class 1 shall be as follows:

	Tolerance, inches
Diameter of head	$\frac{1}{4}$
Effective diameter of head	$\frac{1}{4}$
Distance between heads	$\frac{1}{4}$
Circumference of bulge, outside measurement	1 $\frac{1}{2}$
Length of stave	$\frac{1}{2}$

(1) If no dimension of a barrel of Class 1 is in error by more than the tolerance given above, then the barrel is within the tolerance allowed.

(2) If one or more of the dimensions of a barrel of Class 1 is in error by more than the tolerance given above, then the barrel is not within the tolerance allowed.

(b) The tolerance to be allowed in excess or in deficiency on all barrels of Class 2 shall be $1\frac{1}{2}$ inches (1.5) inches, and this tolerance is to be applied to the result obtained by the application of the following rule:

(1) Having determined the errors of each dimension and given to each its proper sign (see § 241.4), add the errors on the effective diameter of head and the distance between heads algebraically and multiply the result by 1.67 (or $\frac{5}{3}$). Then add this result to the error on the circumference of bulge algebraically. If the result obtained is not greater than the tolerance given above, then the barrel is within the tolerance allowed; if the result is greater than this tolerance, then the barrel is not within the tolerance allowed.

NOTE: To find the algebraic sum of a number of quantities having different signs, first add all those having one sign; then add all those having the opposite sign; then subtract the smaller sum from the larger, giving this result the sign of the larger quantity.

(c) The tolerance to be allowed in excess or in deficiency on the dimensions of all barrels for cranberries shall be as follows:

	Tolerance, inches
Diameter of head	$\frac{1}{4}$
Effective diameter of head	$\frac{1}{4}$
Distance between heads	$\frac{1}{4}$
Circumference of bulge, outside measurement	1 $\frac{1}{2}$
Length of stave	$\frac{1}{2}$

(1) If no dimension of a barrel for cranberries is in error by more than the tolerance given above, then the barrel is within the tolerance allowed.

(2) If one or more of the dimensions of a barrel for cranberries is in error by more than the tolerance given above, then the barrel is not within the tolerance allowed.

(d) The tolerances to be allowed in excess or in deficiency on all subdivisions of the standard barrel for fruits, vegetables, and other dry commodities other than cranberries, and on all subdivisions of the standard barrel for cranberries, shall be the values given in the following table, and these tolerances are to be applied to the result obtained by the application of the following rule:

(1) Having determined the errors on each dimension and given to each its proper sign (see § 241.5), add the errors on the effective diameter of head and the distance between heads algebraically and multiply the result by 1.67 (or $\frac{5}{3}$). Then add this result to the error on the circumference of bulge algebraically. If the result obtained is not greater than the tolerance given in the following table for the proper subdivision, then the barrel is within the tolerance allowed; if the result is greater than this tolerance, then the barrel is not within the tolerance allowed.

Size of subdivision	Tolerance	
	For fruits, vegetables, and other dry commodities	For cranberries
$\frac{3}{4}$ barrel	1 $\frac{3}{4}$ (1.375) inches	1 $\frac{1}{4}$ (1.25) inches
$\frac{1}{2}$ barrel	1 $\frac{1}{4}$ (1.25) inches	1 $\frac{1}{2}$ (1.125) inches
$\frac{1}{4}$ barrel	1 $\frac{1}{2}$ (1.125) inches	1 (1.00) inch

Subchapter E—Fellowship

PART 255—FELLOWSHIPS IN LABORATORY STANDARDIZATION AND TESTING FOR QUALIFIED CITIZENS OF OTHER AMERICAN REPUBLICS

Sec.

- 255.1 Type of fellowships.
- 255.2 Qualifications.
- 255.3 Award of fellowships.
- 255.4 Allowances and expenses.
- 255.5 Progress reports.
- 255.6 Duration of fellowships.
- 255.7 Official notification.

AUTHORITY: §§ 255.1 to 255.7 issued under 53 Stat. 1290, 57 Stat. 281; 22 U. S. C. 501, 502.

§ 255.1 *Type of fellowships.* Fellowships shall be of the combined intern-training and training-in-research type, and may include any or all of the following courses:

(a) Orientation courses consisting of lectures and conferences at the National Bureau of Standards pertaining to laboratory standardization and testing.

(b) Practical laboratory training in various branches of physics, chemistry, and engineering research, under the direction of the National Bureau of Standards, which will include the usual subdivisions of physics (weights and measures, heat, optics, mechanics, atomic physics, electrical measurements and radio) and also technologic applications in research and testing on metals, rubber, leather, paper, textiles, plastics, and clay and silicate products.

(c) Observation and study in such other laboratories within the continental United States as may be selected by the Director of the National Bureau of Standards.

(d) Courses of instruction or research assignments supplementing the practical laboratory training, in universities or colleges selected by the Director of the National Bureau of Standards.

§ 255.2 *Qualifications.* Each applicant selected for a fellowship shall be:

(a) A citizen of an American republic other than the United States;

(b) In possession of a certificate of medical examination issued by a licensed physician within 60 days of the date of application, describing the applicant's physical condition and stating that he is free from any communicable disease, physical deformity or disability that would interfere with the proper pursuit of training, research, or any other activity or work incident to the fellowship;

(c) Able to speak, read, write and understand the English language;

(d) Of good moral character and possessing intellectual ability and suitable personal qualities; and

(e) In possession of acceptable evidence that he has successfully completed the equivalent of a four-year university course in a recognized university, college or other institution of learning, with some training or experience in the field of activity which he desires to pursue. Equivalent experience may be substituted for the university training in the case of candidates who are otherwise specially well qualified.

§ 255.3 *Award of fellowships.* Fellowships shall be awarded by the Director of the National Bureau of Standards, with the approval of the Secretary of Commerce and the Secretary of State, or the duly authorized representative of the Secretary of State. Applications shall be transmitted to the Secretary of State by the government of the American republic of which the applicant is a citizen through the American diplomatic mission accredited to that government.

§ 255.4 *Allowances and expenses.* Allowances and expenses shall be as provided in State Department regulations given in 22 CFR 1944 Supp., 28.1-28.12, and as provided in Department of Commerce Administrative Order No. 202-3.¹

§ 255.5 *Progress reports.* Applicants awarded fellowships under the regulations in this part shall submit written reports of progress in training and research at such intervals as the Director of the National Bureau of Standards may determine.

§ 255.6 *Duration of fellowships.* Fellowships may be awarded for periods of varying length, not exceeding one 12-month period of actual training and research and may be extended for not exceeding the same periods in the manner prescribed under § 255.3 and subject to the availability of appropriations. Fellowships may be cancelled for cause by the Director of the National Bureau of Standards, with the approval

of the Secretary of Commerce and the Secretary of State, or the duly authorized representative of the Secretary of State.

§ 255.7 *Official notification.* Each applicant selected by the Director of the National Bureau of Standards and approved by the Secretary of Commerce and the Secretary of State, or the duly authorized representative of the Secretary of State, shall be notified of his award through diplomatic channels. The notification shall state the duration and type of fellowship, outline the program of training and research, and state the allowances authorized: *Provided, however,* That the Director of the National Bureau of Standards may subsequently amend the program and duration of the fellowship if in his opinion such action would be in the interest of obtaining training and research better suited to the needs and capabilities of the fellow than those prescribed in the notification. The amount originally authorized for monthly allowances and other expenses may also be amended, if necessary, with the approval of the Secretary of Commerce and the Secretary of State, or the duly authorized representative of the Secretary of State.

[SEAL] E. U. CONDON,
Director,
National Bureau of Standards.

Approved:

CHARLES SAWYER,
Secretary of Commerce.

[F. R. Doc. 48-11298; Filed, Dec. 27, 1948;
8:47 a. m.]

TITLE 7—AGRICULTURE

Chapter XI—Production and Marketing Administration (War Food Distribution Orders)

PART 1596—FOOD IMPORTS

TERMINATION OF STATEMENT OF POLICY RE
ISSUANCE OF IMPORT AUTHORIZATIONS FOR
FLAXSEED AND LINSEED OIL

Correction

Federal Register Document 48-11152, appearing on page 8176 of the issue for Wednesday, December 22, 1948, was incorrectly published under Title 7, Chapter IX. The document should have appeared under Title 7, Chapter XI.

TITLE 20—EMPLOYEES' BENEFITS

Chapter V—Bureau of Employment Security, Social Security Administration, Federal Security Agency

TRANSFER AND REVISION OF REGULATIONS

The procedures and regulations contained in 45 CFR, Chapter III, and 29 CFR, Subtitle B, Chapter I are hereby combined, revised and transferred to 20 CFR, Chapter V, as set forth in full below. Codification of the organizational material published pursuant to section 3 (a) (1) of the Administrative Procedure Act and appearing in 45 CFR, Chapter III, 29 CFR, Subtitle A, § 2.012 and Subtitle B, Chapter I, is hereby discontinued.

Such material has been combined and revised and is published in the Notices section of this issue of the FEDERAL REGISTER, under the heading Federal Security Agency, Social Security Administration, Bureau of Employment Security. Future amendments of organizational material will be published in the Notices section of the FEDERAL REGISTER.

Part

- 601 Administrative procedure.
- 602 Cooperation of United States Employment Service and States in establishing and maintaining a national system of public employment offices.
- 603 Instructions to State agencies for preparation and submittal of State plan of operation under the Wagner-Peyser Act.
- 604 Policies of the United States Employment Service.
- 605 Reconversion Unemployment Benefits for Seamen.

PART 601—ADMINISTRATIVE PROCEDURE

SUBPART A—APPROVAL, CERTIFICATION AND FINDINGS WITH RESPECT TO STATE LAWS AND PLANS OF OPERATION FOR NORMAL AND ADDITIONAL TAX CREDIT AND GRANT PURPOSES

- 601.1 General.
- 601.2 Approval of State unemployment compensation laws.
- 601.3 Findings with respect to State laws and plans of operation.
- 601.4 Certification for tax credit.
- 601.5 Withholding payments and certifications.

SUBPART B—GRANTS, ADVANCES AND AUDITS

- 601.6 Grants for administration of unemployment insurance and employment service.
- 601.7 Request for funds for servicemen's readjustment allowance program.
- 601.8 Agreement with Postmaster General.
- 601.9 Advances to States—Federal Unemployment Account.
- 601.10 Reconversion unemployment benefits for seamen.
- 601.11 Adults.

SUBPART A—APPROVAL, CERTIFICATION AND FINDINGS WITH RESPECT TO STATE LAWS AND PLANS OF OPERATION FOR NORMAL AND ADDITIONAL TAX CREDIT AND GRANT PURPOSES

§ 601.1 *General.* State unemployment compensation laws are approved and certified as provided in section 1603 of the Internal Revenue Code; findings are made regarding reduced rates permitted by a State law (section 1602 (a) of the Internal Revenue Code) and such laws are certified as provided in section 1602 (b); findings are made regarding the inclusion of specified provisions (section 303 (a) of the Social Security Act) in State laws approved under section 1603 (a) of the Internal Revenue Code; findings are made whether the States have accepted the provisions of the Wagner-Peyser Act and whether their plans of operation for public employment offices comply with the provisions of said Act.

Normal and additional tax credit is given to taxpayers against taxes imposed by section 1600 of the Internal Revenue Code.

Grants of funds are made to States for administration of their employment security laws if their unemployment compensation laws and their plans of operation for public employment offices

¹ Not filed with the Division of the Federal Register.

should be 2.008