

# ASTM Asphalt Specifications





Related Standards: ASTM D370, E177

## Bitumen Content

Qty.	Model	Description
1	H-1550	Bitumen soluble in organic solvents set
1	H-1550.1	Gooch crucible
1	H-1550.2	Crucible holder
1	H-1550.3	Buchner funnel
1	H-1550.8	Glass fiber filter
1	H-12155	Adapter, 3/8" threaded
1	H-4913.500	Flask, vented, 500 ml
1	H-1550.5	Stopper #7

Note: Also required but not part of basic set – Drying oven, Bunsen burner or muffle furnace, analytical balance, suction pump, desiccator, evaporating dish and watch glasses.

# ASTM D5

Related Standards: ASTM C670, D36, D244, E1, E77, E1137, E2251; ANSI Standard: B46.1); ISO Standard: 468

## Penetration of Bituminous Materials

Qty.	Model	Description
1	choose one: H-1200 H-1240 H-1240 .4F H-1250	Universal penetrometer (includes standard needle) Electric penetrometer (includes auto timer & needle), 120V 60Hz Electric penetrometer (includes timer & needle, 220V 50/60Hz Portable penetrometer (includes standard needle)
1	H-1352	Transfer dish
1	H-1350.3	Sample box w/Lid, tin 3028 (36 box)
1	choose from: H-2610.17C H-2600.17F H-2610.63C H-2600.63F H-2610.64C H-2600.64F	ASTM thermometer

Note: Also required but not part of basic set – Water bath; timing device on hand-operated models.

Related Standards: ASTM C670, D92, D140, D3461, E1)

## Softening Point of Bitumen (Ring-and-Ball Apparatus)

Qty.	Model	Description
1	choose one: H-1569 H-1570	Two ring assembly Four ring assembly
1	choose from: H-2600.15F H-2610.1C H-2600.16F H-2610.16C H-2600.113F H-2610.113C	ASTM thermometer
1	choose one: H-1595 H-1596 H-1596.4F	Single softening point apparatus set Single softening point apparatus set, w/ hot plate, 120V 60Hz Single softening point apparatus set, w/ hot plate, 220V 50/60Hz

# ASTM D70

Related Standards: ASTM C670, D140, D3142, D3289, D4311, E1

## Density of Semi-Solid Bituminous Materials (Pycnometer Method)

Qty.	Model	Description
1	choose one: H-2640 H-2660	Hubbard 24ml specific gravity bottle Hubbard-Carmick 24ml specific gravity bottle
1	H-2610.63C	Thermometer: -89 to 32°C
1	H-4911.600	Low form griffin 600 ml glass beaker

Note: Also required but not part of basic set – Water bath capable of .1°C and Balance to .001g

# ASTM D88

Related Standards: ASTM D93, D117, D140, D244, D445, D2161, D2170, D4057, D4177, E1, E11, E102

## Saybolt Viscosity

Qty.	Model	Description
1	choose one: H-2165 H-2165.4F	Saybolt viscometer bath, 120V 60Hz Saybolt viscometer bath, 220V 50/60Hz
2 - 4	choose one: H-2171 H-2172	Stainless steel viscometer tubes Brass viscometer tubes
2 - 4	choose one: H-2173 H-2174	Stainless steel universal orifices Stainless steel Furol orifices
1	H-2175	Tube cleaner 10
2 - 4	H-2176	Saybolt receiving flask, graduated 60ml
1	choose one: H-2600.17F H-2610.17C H-2600.18F H-2610.18C H-2600.19F H-2610.19C H-2600.20F H-2610.20C H-2610.21C H-2600.22F H-2610.22C	Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer Saybolt viscosity thermometer

Note: Also required but not part of basic set – distilled water, or Mineral oil H-2189, or Silicon oil H-2199 (high temp) and Optional Thermometer support H-2195

# ASTM D92

Related Standards: ASTM D93, D140, D1310, D4057, D4177, D4206, E1, E300  
(Related IP Standard: Specification for IP Standard Thermometers)  
(Related ISO Standards: Guide 34, Guide 35)

## Flash and Fire Points by Cleveland Open Cup Tester

Qty.	Model	Description
1	choose one: H-2085 H-2085.4F	Electric cleveland open cup flash tester*, 120V 60Hz Electric cleveland open cup flash tester*, 220V 50/60Hz
1	H-2095	Natural gas cleveland flash and fire point tester
1	H-2100	Gas cleveland flash and fire point tester

**Note:** Also required but not part of basic sets – Cleaning solvents, e.g., acetone or toluene

\* (Includes heating plate, flash cup, and thermometer)



# ASTM D95

Related Standards: D244, D1796, D4006, D4057, D4177, D5854, E123)  
(Related API Standards: MPMS Chapters 8.1, 8.2, 8.3, 10.2, 10.6)

## Water in Petroleum Products and Bituminous Materials by Distillation

Qty.	Model	Description
1	choose one: H-2430 H-2430.4F	Dean-Stark electric apparatus, 120V 60Hz Dean-Stark electric apparatus, 220V 50/60Hz
1	H-2440	Dean-Stark gas-heated water in petroleum products apparatus
1	H-2348	Still cleaner

**Note:** Also required but not part of basic set—Solvent-carrier liquid depending on material being tested.

# ASTM D97

Related Standards: ASTM D117, D396, D1659, D2500, D3245, E1, E77)  
(Related IP Standards: Specifications for IP Standard Thermometers)

## Pour Point of Petroleum Products

Qty.	Model	Description
1	H-2560	Cloud and Pour Point Apparatus Set
1	choose one: H-2600.5F H-2610.5C H-2600.6F H-2610.6C	ASTM E1 thermometer -36 to 120°F ASTM E1 thermometer -38 to 50°C ASTM E1 thermometer -112 to 70°F ASTM E1 thermometer -80 to 20°C

**Note:** Also required but not part of basic set—Low temperature bath solvents and melting point thermometer.

# ASTM D113

Related Standards: ASTM D670, D5, D1754, D2872, D6084, E1, E11.

## Ductility of Bituminous Materials

Qty.	Model	Description
1	choose one: H-1050 H-1050.2F H-1050.5F H-1068B H-1068B.2F H-1068B.5F HA-1060A.4F	Ductility testing machine, 3-speed, 120V 50/60Hz Ductility testing machine, 3-speed, 220V 60Hz Ductility testing machine, 3-speed, 220V 50Hz Ductility testing machine, 3-speed w/temp-control, 120V 50/60Hz Ductility testing machine, 3-speed w/temp-control, 220V 60Hz Ductility testing machine, 3-speed w/temp-control, 220V 50Hz Elite Series Ductilometer, Refrigerated, 220V 50/60Hz
1	H-2610.63C	ASTM Thermometer

**Note:** Also recommended but not part of basic set – H-1068PC plastic cover for constant temperature control

# ASTM D115

Related Standards: Many depending on property measured

## Testing Solvent Containing Varnishes Used for Electrical Insulation

Qty.	Model	Description
1	H-2640	Specific gravity bottle, 24 ml

**Note:** Also required but not part of basic set— numerous items specific to the test(s) being conducted.

Related Standards: Many

## Guide for Sampling, Test Methods, and Specifications for Electrical Insulating Oils of Petroleum Origin

Qty.	Model	Description
1	choose one: H-2405B H-2405S	choose one: Bacon bomb sampler, 8-oz., brass Bacon bomb sampler, 8-oz, stainless steel
1	H-2560	Cloud and pour point apparatus set
1	choose one: H-2085 H-2085.4F H-2095	choose one: Electric cleveland flash and fire point tester, 120V 60Hz. Electric cleveland flash and fire point tester, 220V 50/60Hz. Natural gas cleveland flash and fire point tester

**Note:** The above products represent only a small portion of items required. Please refer to the ASTM standard for a complete listing of the testing equipment required to carry out all test procedures used in the standard.

# ASTM D139

Related Standards: ASTM C670, D140, D244, D2170, E1  
(Related IEC Standards: 60854)

## Float Test for Bituminous Materials

Qty.	Model	Description
1	H-1400	Asphalt viscosimeter float test set
1	choose one: H-2600.15F H-2610.15C	Low softening point thermometer Low softening point thermometer

**Note:** Also required but not part of basic set—Testing bath, water bath, thermocouple thermometer and brass pouring plate.

# ASTM D189

Related Standards: ASTM D482, D524, D4046, D4057, D4175, D4177, D4530, E1, E133

## Conradson Carbon Residue of Petroleum Products

Qty.	Model	Description
1	H-2495	Conradson carbon residue apparatus

**Note:** Also required but not part of basic set—Weighing balance and timer

# ASTM D217

Related Standards: ASTM CD937, D1403

## Cone Penetration of Lubricating Grease

Qty.	Model	Description
1	choose one: H-2510 H-1200	Grease penetrometer Universal penetrometer
1	choose one: H-2520 H-2522	Hollow brass cone Hollow stainless steel cone
1	H-2535	Lever-operated grease worker
1	H-2540	Grease cutter
1	H-2631D	Dial thermometer
1	choose one: H-1240 H-1240.4F	Electric penetrometer, 120V 60Hz Electric penetrometer, 220V 50/60Hz
1	H-1250	Portable penetrometer

**Note:** Also required but not part of basic sets—Air or water bath at 25 +/- .5°C, and spatula.



# ASTM D244

Related Standards: Many since the method covers tests for composition, consistency, stability and examination of residue.

## Methods and Practices for Emulsified Asphalts

Qty.	Model	Description
1	choose one: H-2430 H-2430.4F	Dean-stark electric apparatus, 120V 60Hz Dean-stark electric apparatus,, 220V 50/60Hz
1	H-2440	Pycnometer top and jar
1	choose one: H-2450 H-2450.4F	Particle charge meter, 120V, 60Hz Particle charge meter, 220V, 50/60Hz
1	choose one: H-2600.19F H-2610.19C	ASTM thermometer ASTM thermometer
1	H-2444	Stirring rod, glass
1	H-2452	Two particle charge meter plates
1	H-4915.250	Beaker, 250ml
1	H-2285	Emulsified asphalts distillation apparatus
1	H-2290	Emulsified asphalt water content distillation apparatus
1	HB-5344A	Ohaus adventurer balance: 4,200g x 0.1g
1	choose one: H-2165 H-2165.4F	Saybolt viscometer bath, 120V 60Hz Saybolt viscometer bath, 220V 50/60Hz
1	choose one: H-2600.17F H-2610.17C	ASTM thermometer ASTM thermometer
1	choose one: H-2600.19F H-2610.19C	ASTM thermometer ASTM thermometer

\* Order H-2713B if a weighing bench & top platform and low-cost scale H-4537WB is preferred.

**Note:** Also required but not part of basic sets—No. 20 sieve, vacuum pump, freezer, water bath and labware.

# ASTM D270

Standard has been withdrawn

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## Methods of Sampling

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Related Standards: Many in list of test methods in this standard

## Guide for Clear and Pigmented Lacquers

Qty.	Model	Description
1	H-1530.1	No.1 orifice for ford viscosity cup
1	H-1530.2	No.2 orifice for ford viscosity cup
1	H-1530.3	No.3 orifice for ford viscosity cup
1	H-1530.4	No.4 orifice for ford viscosity cup
1	H-1530.5	No.5 orifice for ford viscosity cup
1	choose one: H-2600.17F H-2610.17C	ASTM thermometer ASTM thermometer
1	H-1535	Viscosity cup stand
1	HP-1108	Stainless steel weight-per-gallon cup

**Note:** The above products represent only a small portion of items required. Please refer to the ASTM standard for a complete listing of the testing equipment required to carry out all test procedures used in the standard.

# ASTM D365

Related Standards: Many depending on the test(s) being performed

## Guide for Nitrocellulose Based Solutions

Qty.	Model	Description
1	H-1530.1	No.1 orifice for ford viscosity cup
1	H-1530.2	No.2 orifice for ford viscosity cup
1	H-1530.3	No.3 orifice for ford viscosity cup
1	H-1530.4	No.4 orifice for ford viscosity cup
1	H-1530.5	No.5 orifice for ford viscosity cup
1	choose one: H-2600.17F H-2610.17C	ASTM thermometer ASTM thermometer
1	H-1535	Viscosity cup stand
1	HP-1108	Stainless steel weight-per-gallon cup

**Note:** The above products represent only a small portion of items required. Please refer to the ASTM standard for a complete listing of the testing equipment required to carry out all test procedures used in the standard.

# ASTM D402

Related Standards: ASTM D86, D370, E1, E133, E220; Related IP Standards: IP 12);  
Related British Standards: 658:1989, & C.O.3

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## Distillation of Cut-Back Asphaltic (Bituminous) Products

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Qty.	Model	Description
1	H-1910	Distillation of cut-back asphaltic (bituminous) products

**Note:** Also required but not part of basic set—Balance or Scale and a 500ml flask.

# ASTM D445

Related Standards: ASTM D446, D1193, D1217, D1480, D1481, D2162, D2170, D2171, D6074, D6617, E1, E77); Related ISO Standards: 3104, 3105, 3696, 5725, 9000, 17025; Related NIST Standards: Tech Note 1297, GMP 11, Special Pub. 819

## Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)

Qty.	Model	Description
1	choose one: H-1720 H-1720.4F	choose one: Constant temperature bath (cannon model CT-500), 120V 60Hz Constant temp. bath (cannon model CT-500), 240V 50-60Hz
1	H-1745	Vacuum manifold
1	H-1732	UBF Bath oil for use below 121°C
1	choose one: H-1730 H-1730.4F	Constant temp. bath (cannon model CT-1000), 120V 60Hz Constant temp. bath (cannon model CT-1000), 240V 50-60Hz
1	H-1735	Vacuum manifold
1	H-1733	High-temperature bath silicone for use above 135°C

**Note:** Also required but not part of basic sets—Glass capillary viscometer(s) depending on range & precision thermometer(s).

Related Standards: ASTM D217.

## Cone Penetration of Petrolatum

Qty.	Model	Description
1	choose one: H-1200 H-1240 H-1240.4F H-1250	Universal penetrometer (includes standard needle) Penetrometer with digital timer*, 120V, 60Hz Penetrometer with digital timer*, 220V, 50/60Hz Portable penetrometer (includes standard needle)
1	choose one: H-2520 H-2522	Grease penetration cone, brass cone Grease penetration cone, stainless steel cone

**Note:** Also required, but not part of the basic set: Oven, water bath, sample containers and thermometer.

\*includes auto timer & standard needle

# ASTM D968

Related Standards: D823, D1005, D1186, D1400, E11;

Related ANSI Standard: B74.12; Other related Standard: 42-GB-1984-R1993 FEPA

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## Abrasion Resistance of Organic Coatings by Falling Abrasive

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Qty.	Model	Description
1	HP-1160	Falling sand abrasion tester
1	H-3820	Ottawa silica sand (applies to method A)



Related Standards:

## Hydrocarbon Waxes Used for Electrical Insulation

Qty.	Model	Description
1	choose one: H-1200 H-1240 H-1240.4F H-1250	Universal penetrometer (includes standard needle) Electric penetrometer, 120V 60Hz Electric penetrometer, 220V 50/60Hz Portable penetrometer (includes standard needle)
1	choose one: H-1310 H-1317	Hardened, stainless steel wax penetration needle certified, to ASTM accuracy, hardened, stainless steel wax penetration needle

**Note:** Also required but not part of basic sets— spatula & thermometer.

\*includes auto timer & standard needle

# ASTM D1191

Related Standards: Standard has been withdrawn and replaced by ASTM D5329

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## Concrete Joint Sealers

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# ASTM D1200

Related Standards: ASTM E1

## Viscosity by Ford Viscosity Cup

Qty.	Model	Description
1	H-1530.1	No.1 orifice for ford viscosity cup
1	H-1530.2	No.2 orifice for ford viscosity cup
1	H-1530.3	No.3 orifice for ford viscosity cup
1	H-1530.4	No.4 orifice for ford viscosity cup
1	H-1530.5	No.5 orifice for ford viscosity cup
1	choose one: H-2600.17F H-2610.17C	ASTM thermometer ASTM thermometer
1	H-1535	Viscosity cup stand
1	HP-1108	Stainless steel weight-per-gallon cup

**Note:** Also required but not part of basic set —Timing device.

# ASTM D1310

Related Standards: ASTM D92, D3143

## Flash Point and Fire Point of Liquids by Tag Open Cup Apparatus

Qty.	Model	Description
1	choose one: H-1990 H-1990.4F	Tag open-cup flash tester, 120V, 60Hz Tag open-cup flash tester, 230V, 50/60Hz
1	H-1990.2	Leveling device
1	H-1990.3	Draft shield
1	choose one: H-2600.9F H-2610.9C	ASTM thermometer ASTM thermometer
1	H-1995	Tag open-cup burner with gas burner

**Note:** Also recommended but not part of basic sets—Replacement Pyrex cup H-1990.1

# ASTM D1321

Related Standards: ASTM D8, D87, D217, D937, D938, E1)

## Needle Penetration of Petroleum Waxes

Qty.	Model	Description
1	choose one: H-1200 H-1240 H-1240.4F H-1250	Universal penetrometer (includes standard needle) Electric penetrometer, 120V 60Hz Electric penetrometer, 220V 50/60Hz Portable penetrometer (includes standard needle)
1	choose one: H-1310 H-1317	Hardened, stainless steel wax penetration needle Certified, to ASTM accuracy, Hardened, stainless steel wax penetration needle
1	choose one: H-2600.64F H-2610.64C	ASTM Thermometer ASTM Thermometer

**Note:** Also required but not part of basic set — Brass cylinder mold & plate, water bath and test room.

Timing Device is needed if Penetrometer chosen does not include built-in timer, H-2261 recommended.

# ASTM D1395

ASTM standard withdrawn, no replacement

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## Abrasion Resistance of Clear Floor Coatings

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# ASTM D1403

Related Standards: D217, D4175; IP Standard: IP 50

## Cone Penetration of Lubricating Grease Using One-Quarter and One-Half Scale Cone Equipment

Qty.	Model	Description
1	choose one:	
	H-1200	Universal penetrometer (includes standard needle)
	H-1240	Electric penetrometer, 120V 60Hz
	H-1240.4F	Electric penetrometer, 220V 50/60Hz
	H-1250	Portable penetrometer (includes standard needle)
1	H-2519	Penetration cone for grease
1	H-2515	Micro grease
1	H-4907	Spatula

# ASTM D1461

Related Standards: ASTM D244, D979

## Moisture or Volatile Distillates in Bituminous Paving Mixtures

Qty.	Model	Description
1	H-2442.10	Distillation apparatus for moisture in Bituminous paving mixtures
1	H-2348	Still cleaner
1	H-2442.25	Distillation apparatus for volatiles in Bituminous paving mixtures

**Note:** Also required but not part of basic set— Various aromatic solvents..



# ASTM D1559

ASTM standard withdrawn, no replacement Related Standards: ASTM D6927

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## Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus

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# ASTM D1831

Related Standards: ASTM D217, D1403, D4175)

## Roll Stability of Lubricating Grease

Qty.	Model	Description
1	choose one: H-1200 H-1240 H-1240.4F H-1250	Universal penetrometer (includes standard needle) Electric penetrometer, 120V 60Hz Electric penetrometer, 220V 50/60Hz Portable penetrometer (includes standard needle)
1	H-2519	Penetration cone for grease
1	H-2515	Micro grease
1	H-4907	Spatula

**Note:** Also required but not part of basic set — Roll stability tester and constant temperature bath or room.

# ASTM D1855

ASTM standard withdrawn, Replaced by: ASTM D5329

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## **Jet Fuel Resistant Concrete Joint Sealer, Hot Poured Elastic Type**

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# ASTM D1856

Related Standards: ASTM C670, D96, D2172, D2939, E1

## Recovery of Asphalt From Solution by Abson Method

Qty.	Model	Description
1	choose one: H-1857A H-1857A.2F H-1857A.2F	choose one: Filterless centrifuge extractor, 120V 60Hz Filterless centrifuge extractor, 230V 60Hz Filterless centrifuge extractor, 230V 50Hz
1	choose one: H-2600.7F H-2610.7C	ASTM thermometer ASTM thermometer

**Note:** Also required but not part of basic sets—Carbon dioxide gas and reagent grade trichloroethylene.

# ASTM D1963

ASTM standard withdrawn, no replacement

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## **Specific Gravity of Drying Oils, Varnishes, Resins and Related Material at 25/250°C**

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# ASTM D2041

Related Standards: ASTM C670, D979, D4753, E1, E12;  
AASHTO T209, T283 for 6000g samples

## Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures

Qty.	Model	Description
1	choose one: H-1750 H-1750SS	Vacuum pycnometer, aluminum, (rice test) set Vacuum pycnometer, stainless steel, (rice test) set
1	choose one: H-1782 H-1782.4F H-1756.3F	Orbital de-airing table, 120V 60Hz Orbital de-airing table, 220V 50/60Hz Vibrating apparatus for pycnometer, 120/220V 50/60Hz
1	choose one: H-1754D H-1754D.4F	Digital manometer, 120V 60Hz Digital manometer, 120V 50/60Hz
1	H-1749	Vacuum slow release valve
1	choose one: H-1763A H-1763A.4F	High vacuum pump 120V 60Hz High vacuum pump 220V 50/60Hz
1	H-1759	Indicating drierite air drying unit

**Note:** Also required but not part of basic sets—Water bath, thermometers, drying oven and weighing balance.

### AASHTO 6000g Samples

Qty.	Model	Description
1	H-1820	Vacuum pycnometer, large capacity, (rice test) set
1	H-1826.3F	Vibrating apparatus for pycnometer, large, 120/220V 50/60Hz
1	choose one: H-1754D H-1754D.4F	Digital manometer, 120V 60Hz Digital manometer, 120V 50/60Hz
1	H-1749	Vacuum slow release valve
1	choose one: H-1763A H-1763A.4F	High vacuum pump 120V 60Hz High vacuum pump 220V 50/60Hz
1	H-1759	Indicating drierite air drying unit

# ASTM D2042

Related Standards: ASTM D4, D2318, D2764, E177); AASHTO Standard: T44

## Solubility of Asphalt Materials in Trichloroethylene

Qty.	Model	Description
1	H-1550	Bitumen soluble in organic solvents set
1	choose one: H-30105 H-30105.4F	Bench oven, forced air, 120V 60Hz Bench oven, forced air, 220V 50/60Hz

**Note:** Also required but not part of basic set—Technical grade trichloroethylene.

# ASTM D2170

Related Standards: ASTM C670, D92, D341, D445, D446, D2162, D2493, E1, E77;  
Related IP Standard: 319/84

## Kinematic Viscosity of Asphalts (Bitumens)

Qty.	Model	Description
1	H-1746.1 through .10	Zeitfuchs cross-arm viscometer and holder
1	choose one: H-2600.47F H-2610.47C	ASTM thermometer ASTM thermometer
1	choose one: H-2600.110F H-2610.110C	ASTM thermometer ASTM thermometer

**Note:** Entire series covers the range from .6 to 100,000 Centistokes  
Also required but not part of basic set—Constant temperature bath (see D445) and timer.



## Viscosity of Asphalts by Vacuum Capillary Viscometer

Qty.	Model	Description
1	H-1746.1 through .5	Zeitfuchs cross-arm viscometer and holder
1	choose one: H-2600.47F H-2610.47C	ASTM thermometer ASTM thermometer
1	choose one: H-1741H H-1741H.4F H-1741V H-1741V.4F	Digital vacuum pressure regulator, horizontal, 120V 60Hz Digital vacuum pressure regulator, horizontal, 120V 50/60Hz Digital vacuum pressure regulator, vertical, 120V 60Hz Digital vacuum pressure regulator, vertical, 220V 50/60Hz

**Note:** Entire series covers the range from 42 to 200,000 Poise. Also required, but not part of the basic set— Constant temperature bath (see D445). a vacuum pump or aspirator and timer.

# ASTM D2172

Related Standards: ASTM C117, C128, C136, C670, D70, D604, D979, D1461, D1856, D2111, D6368; Federal Spec.: O-T-634

## Quantitative Extraction of Bitumen from Bituminous Paving Mixtures— Test Method A

Qty.	Model	Description
1	choose one:	choose one:
	H-1456	1500g Centrifuge extractor, analog, 115V 60Hz
	H-1460	1500g Centrifuge extractor, digital, 115V 60Hz
	H-1461	1500g Centrifuge extractor, analog, 115V 60Hz
	H-1461.4F	1500g Centrifuge extractor, digital, 220V 50/60Hz
	H-1466	1500g Centrifuge extractor, digital, 115V 60Hz
	H-1466.4F	1500g Centrifuge extractor, analog, 220V 50/60Hz
	H-1464	3000g Centrifuge extractor, digital, 115V 60Hz
	H-1465	3000g Centrifuge extractor, analog, 115V 60Hz
	H-1465.4F	3000g Centrifuge extractor, analog, 220V 50/60Hz
	H-1471	3000g Centrifuge extractor, digital, 115V 60Hz
	H-1473	3000g Centrifuge extractor, analog, 115V 60Hz
H-1473.4F	3000g Centrifuge extractor, analog, 1220V 50/60Hz	
1	H-4915 series	Graduated cylinder
1	H-4962	Desiccab desiccator
1	choose one:	
	H-30105 H-30105.4F	Bench oven, forced air 120V 60Hz Bench oven, forced air 220V 50/60Hz
1	choose	
	H-1487.627	Replacement filter rings (100)
	H-1489.627 H-1481.627	Replacement filter rings (100) Replacement filter rings (100)

**Note:** Also required but not part of basic sets—Weighing balance, flat pan, reagent grade solvents, and vacuum source.

# ASTM D2172

Related Standards: ASTM C117, C128, C136, C670, D70, D604, D979, D1461, D1856, D2111, D6368; Federal Spec.: O-T-634

## Quantitative Extraction of Bitumen from Bituminous Paving Mixtures— Test Method B

Qty.	Model	Description
1	choose one: H-1495 H-1495.4F H-1499 H-1499.4F	1000g reflux extractor set, 115V 60Hz 1000g reflux extractor set, 220V 50/60Hz 2000g reflux extractor set, 115V 60Hz 2000g reflux extractor set, 220V 50/60Hz
1	H-4915 series	Graduated cylinder
1	H-4962	Desiccab desiccator
1	H-30105 H-30105.4F	Bench oven, forced air 115V 60Hz Bench oven, forced air 230V 50/60Hz
1	choose H-1497.613 H-1498.613	Filter paper, 33cm, (100) Filter paper, 40cm, (100)

**Note:** Also required but not part of basic sets—Weighing balance, flat pan, reagent grade solvents, and vacuum source.

# ASTM D2416

Related Standards: ASTM D140, D189, D370, D2415, E11

## Coking Value of Tar and Pitch (Modified Conradson)

Qty.	Model	Description
1	H-2494	Porcelain crucible
1	H-2497	Skidmore crucible and cover
1	H-2496	Carbon residue apparatus hood
1	H-2498	Nickel crucible with cover
1	H-2505	Refractory block insulator ring
1	H-3920FS30	Sieve, U.S. standard no. 30

**Note:** Also required but not part of basic set—Vertical electric furnace and pyrometer controller.

# ASTM D2500

Related Standards: ASTM D1500, E1; Energy Institute Standard: Spec for IP Standard Thermometers

## Cloud Point of Petroleum Products

Qty.	Model	Description
1	H-2560	Cloud and Pour Point Apparatus Set
1	choose one: H-2600.5F H-2610.5C H-2600.6F H-2610.6C	ASTM E1 thermometer, -35 to 120°F ASTM E1 thermometer, -38 to 50°C ASTM E1 thermometer, -112 to 70°F ASTM E1 thermometer, -80 to 20°C

**Note:** Also required but not part of basic set—Low temperature bath and technical grade solvents.

# ASTM D2872

Related Standards: ASTM D113, D2171, E1, E644, E1137

## Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)

Qty.	Model	Description
1	choose one: H-30068.2F H-30068.5F	Asphalt rolling thin film oven, 208-230V, 60Hz Asphalt rolling thin film oven, 220V 50Hz
1	H-2610.13C	ASTM E1 thermometer, 155 to 170C

**Note:** Also required but not part of basic set — A stainless steel or aluminum cooling rack.

# ASTM D3143

Related Standards: ASTM D92, D1310, E1; Related IP Standard: IP 36

## Flash Point of Cutback Asphalt with Tag Open-Cup Apparatus

Qty.	Model	Description
1	H-1995	Tag open-cup flash tester with gas burner
1	H-1990.2	Leveling device
1	H-1990.3	Draft shield
1	H-2610.9F	ASTM E1 thermometer, 20 to 230°F
	H-2610.9C	ASTM E1 thermometer, -5 to 110°C

**Note:** Also recommended but not part of basic set — Replacement Pyrex cup, H-1990.1.

# ASTM D4123

ASTM standard withdrawn, no replacement, Related Standards: ASTM D4867

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## **Indirect Tension Test for Resilient Modulus of Bituminous Mixtures**

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# ASTM D4867

Related Standards: Many - for preparing and testing specimens

## Effect of Moisture on Asphalt Concrete Paving Mixtures

Qty.	Model	Description
1	H-1750	Vacuum pycnometer set, aluminum, 2kg capacity
1	H-1756.3F	Vibrating table, variable-speed for H-1750 pycnometer, 110/220V 50/60Hz
1	choose one: H-1763A H-1763A.4F	Vacuum pump with gauge, high, 115V 60Hz Vacuum pump with gauge, high, 220V 50/60Hz
1	choose one: H-1754D H-1754D.4F	Manometer, digital with AC adapter, 110V 60Hz Manometer, digital with AC adapter, 220V 50/60Hz
1	choose one: HM-5120.3F HM-5120.3F	TSR loader, automatic, digital display, 110V 60Hz TSR loader, automatic, digital display, 220V 50/60Hz

**Note:** Also required but not part of basic set:

Oven with temperature specification 230 +/- 10°F (110+/- 5°C),

Water bath 77+/-2°F (25 +/-1°C) and thermometer to 1°F (0.5°C).

# ASTM D5329

Related Standards: Many standards use these test methods, refer to the material specification of interest

## Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements

Qty.	Model	Description
1	choose one:	
	H-1200	Universal penetrometer (includes standard needle)
	H-1240	Electric penetrometer (w/auto timer & needle), 120V 60Hz
	H-1240.4F	Electric penetrometer (w/auto timer & needle), 220V 50/60Hz
	H-1250	Portable penetrometer (includes standard needle)
1	H-1320	Resilience ball penetration tool

**Note:** Also required but not part of basic set— Items depend on the several tests that may be performed.

# ASTM D5581

Related Standards: ASTM C670, D1559, E11

## Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus (6 inch-Diameter Specimen)

Qty.	Model	Description
9	H-1367	Compaction mold for 6" marshall samples
1	H-1363	Mold extractor, 6 inch
1	choose one: H-1394 H-1394.4F	Constant temperature water bath, 110V 60Hz Constant temperature water bath, 220V 50/60Hz
1	H-1353A	Hand-operated sample ejector
1	choose one: H-1366 H-1366.2F H-1366.5F	Heavy-duty automatic single compactor, 120V 60Hz Heavy-duty automatic single compactor, 220V 50/60Hz Heavy-duty automatic single compactor, 220V 50/60Hz
1	H-1362	Breaking head, 6"
1	HM-5120.3F	Marshall/TSR loader with load cell, strain transducer and HMTS marshall module software, 115V 60Hz
1	choose one: H-3841 H-3841.2F H-3841.5F	Mixer, 5 Qt. ASTM-compliant, 120V 60Hz Mixer, 5 Qt. ASTM-compliant, 220V 60Hz Mixer, 5 Qt. ASTM-compliant, 220V 50Hz
1	H-4952	Heavy-duty hotplate

**Note:** Also required but not part of basic sets—Weighing balance, thermometers, various containers and labware.

# ASTM D5892

Related Standards: ASTM D5, D36, D92, D113, D140, D1754, D2170, D2872, D4957, D5546, D6084, E11)

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## **Type IV Polymer-Modified Asphalt Cement for Use in Pavement Construction**

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# ASTM D6084

Related Standards: ASTM C670, D5, D113, E1, E11, E77, E220, E644

## Elastic Recovery of Bituminous Materials by Ductilometer

Qty.	Model	Description
1	H-1030	Ductility mold with straight sides
1	choose one: H-1050 H-1050.2F H-1050.5F H-1068B H-1068B.2F H-1068B.5F	Ductility testing machine, 3-speed, 120V 60Hz Ductility testing machine, 3-speed, 220V 60Hz Ductility testing machine, 3-speed temp., 220V 50Hz Ductility testing machine, 3-speed temp. w/control, 120V 60Hz Ductility testing machine, 3-speed temp. w/control, 220V 60Hz Ductility testing machine, 3-speed temp. w/control, 220V 50Hz
1	choose one: H-2600.63F H-2610.63C	ASTM thermometer ASTM thermometer
1	H-3913FS20	No. 20 sieve, 3 in dia.
1	H-3913FS50	No. 50 sieve, 3 in. dia.

**Note:** Also required but not part of basic set – Scissors and optional H-1068PC plastic cover for constant temperature control.

# ASTM D6925

Related Standards: ASTM D188, D2041, D2726, D4402, D4753;  
AASHTO Standards: PP35, T312, TP4

## Preparation and Determination of Relative Density of Hot Mix Asphalt (HMA) by Means of the Superpave Gyratory Compactor

Qty.	Model	Description
2	choose one: H-1635	choose one: Superpave gyratory compactor, 120V 60Hz
	H-1635.4F	Superpave gyratory compactor, 220V 50/60Hz
1	H-1635.1	150mm mold assembly
1	H-1635.4	150mm paper disc

**Note:** Also required but not part of basic set—Thermometers, balance and ovens (2).

# ASTM D6926

Related Standards: ASTM D2171, D2493, D4402, E11

## Preparation of Bituminous Specimens Using Marshall Apparatus

Qty.	Model	Description
1	choose one: H-1364 H-1364.2F H-1364.5F H-1364R H-1364R.2F H-1364R.5F H-1336D H-1336D.2F H-1336D.5F H-1346D H-1346D.2F H-1346D.5F H-1356D H-1356D.2F H-1356D.5F	Heavy-duty automatic single compactor, 115V 60Hz Heavy-duty automatic single compactor, 115V 60Hz Heavy-duty automatic single compactor, 220V 50/60Hz Heavy-duty automatic, rotating single compactor, 115V 60Hz Heavy-duty automatic, rotating single compactor, 220V 50/60Hz Heavy-duty automatic, rotating single compactor, 220V 50/60Hz Single marshall automatic compactor, 115V 60Hz Single marshall automatic compactor, 220V 60Hz Single marshall automatic compactor, 220V 50Hz Double marshall automatic compactor, 115V 60Hz Double marshall automatic compactor, 220V 60Hz Double marshall automatic compactor, 220V 50Hz Triple marshall automatic compactor, 115V 60Hz Triple marshall automatic compactor, 220V 60Hz Triple marshall automatic compactor, 220V 50Hz
2	choose one: H-1341A H-1337 H-1367	Compaction mold for 4" (stationary base) Compaction mold for 4" (rotating base) Compaction mold for 6" (rotating or stationary base)
1	choose one: H-1348 H-1363 H-1353A H-1355	Mold extractor, 4 inch Mold extractor, 6 inch Hand-operated sample ejector Motorized sample ejector, 120V 60Hz
1	choose one: H-1390 H-1390.4F	choose one: Constant temperature water bath, 110V 60Hz Constant temperature water bath, 110V 60Hz
1	H-3841	ASTM-compliant mixer, 5Qt., 120V 60Hz
1	choose one: H-4952 H-4952.4F	choose one: Heavy-duty hotplate, 120V 60Hz Heavy-duty hotplate, 220V 50/60Hz
1	H-3760	Triangular trowel
1	H-1331	Marshall sample storage can

**Note:** Also required but not part of basic set — Weighing balance, thermometers, various containers and labware..

# ASTM D6927

Related Standards: ASTM C670, D2726, D3549, D6926

## Marshall Stability and Flow of Bituminous Mixtures

Qty.	Model	Description
1	choose one: H-30131 H-30131.4F	choose one: Bench oven, 120V 60Hz Bench oven, 220V 50/60Hz
1	H-1342	Breaking head, 4"
1	choose one: HM-5120.3F HM-5120.3F HM-5120.3F	choose one: Marshall/TSR loader*, 115V 60Hz Marshall/TSR loader*, 220V 60Hz Marshall/TSR loader*, 220V 50Hz
1	choose one: H-1390 H-1390.4F	choose one: Constant temperature water bath, 120V 60Hz Constant temperature water bath, 120V 50/60Hz
1	choose one: H-4952 H-4952.4F	choose one: Heavy-duty hotplate, 120V 60Hz Heavy-duty hotplate, 220V 50/60Hz

**Note:** Also required but not part of basic sets—Thermometers and in case of cutback binder and air bath.

\* includes: Load Cell, Strain Transducer and HMTS Marshall Module Software,





