

## SPECIFIC GRAVITY TEST SETS / SURFACE MOISTURE

The **C9305S** is used for determining bulk and apparent specific gravity of absorption of coarse aggregate and for use in determining volume of aggregate in concrete (ASTM C-88, C-127, AASHTO T-85, T-104). Samples are dried to constant weight, immersed in water, dried by an absorbent cloth and weighed in air and water. The sample is again dried to constant weight and weighed. The **G8831** sample splitter is for 2" maximum but other sizes may be substituted depending on the maximum size of the aggregate.

The **C9405S** & **C9406S** sets are used for specific gravity and absorption of fine aggregates (ASTM C-128, AASHTO T-84). The **C9461S** set is used for field determination of surface moisture in fine aggregate by displacement in water (ASTM C-70, AASHTO T-142). It can be determined by the weight method by weighing a known volume of water and comparing it with the same volume of fine aggregate and water mixture or by determining the change in volume of water by addition of a weighed sample of fine aggregate. The **C9403** Absorption Cone is constructed from brass and is 1-1/2" (40mm) ID at the top, 3-1/3" (90mm) at the bottom, and 2-7/8" (75mm) high. The **C9404** Tamper has a 1" dia. (25mm) face. The **C9421** Chapman Specific Gravity Flask is used to determine the approximate percentage of surface moisture and voids in fine aggregates. The flask has a lower bulb of 200 ml and an upper bulb of 175 ml. The stem is graduated above the bulbs from 375 to 450 ml. The LeChatelier Specific Gravity Flask **C3301** is used to obtain specific gravity of hydraulic cement, dust, sand, and other fine materials (ASTM C-188, AASHTO T-133). The body holds about 250 ml, small oval bulb in neck holds 17 ml. Below this bulb are graduations from 0 to 1.0 ml. Above the bulb, the neck is graduated from 18 to 24 ml. The flask is furnished with a stopper. The **C9455** Pycnometer Top with jar is spun brass with 3/8" hole and is threaded to fit a one quart Mason jar.

The **C9305S** and **C9406S** are used in conjunction for the SHRP test method Voids in Mineral Aggregate (VMA). Please refer to the set section for a complete listing of set contents.

MODELS	DESCRIPTION	STANDARDS
<b>C9305S</b>	SPECIFIC GRAVITY COARSE AGGREGATE SET	ASTM C-70, C-88 C-127, C-128, C-188 AASHTO T-84, T-85 T-104, T-133, T-142
<b>C9405S</b>	SPECIFIC GRAVITY FINE AGGREGATE SET I	
<b>C9406S</b>	SPECIFIC GRAVITY FINE AGGREGATE SET II	
<b>C9461S</b>	SPECIFIC GRAVITY FINE AGGREGATE SET III	

ACCESSORIES	DESCRIPTION
<b>C3301</b>	LeCHATelier FLASK, SPECIFIC GRAVITY
<b>C9301</b>	#8 DENSITY BASKET
<b>C9301A</b>	DENSITY BASKET W/ HANDLE #16 MESH
<b>C9303</b>	SPECIFIC GRAVITY CRADLE
<b>C9304</b>	W/ UNDERHOOK
<b>C9305</b>	HYDROMETER FOR SODIUM SULFATE SOLUTION
<b>C9403</b>	ABSORPTION CONE
<b>C9404</b>	TAMPER
<b>C9421</b>	CHAPMAN SPECIFIC GRAVITY FLASK
<b>C9455</b>	PYCNOMETER TOP W/ JAR
<b>G4774</b>	DIGITAL SCALE, 6100 X 0.1 G
<b>G4181</b>	TRIPLE BEAM BALANCE, 2610 X 0.1 G
<b>G8831</b>	SAMPLE SPLITTER, 2"
<b>L2557</b>	VOLUMETRIC FLASK, 500 ML
<b>L3156</b>	HEAVY STEEL BUCKET, 14 QT



## VOID CONTENT APPARATUS



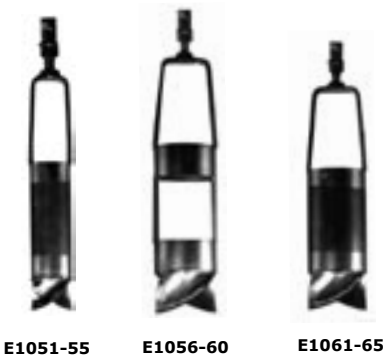
The **C9458** Void Content Apparatus determines the loose uncompacted void content of a sample of fine aggregate. Measuring the aggregates void content provides the angularity, sphericity, and surface texture. This method has been approved by SHRP to indicate the effect of the aggregate on the workability of a mixture in which it may be used. Samples of aggregate are mixed with water and then placed into the glass jar. When a proper sample is achieved it is allowed to flow through the funnel into the 100ml copper cylindrical measure. The measure has a centering hole which ensures the accuracy and the repeatability of the test. A spatula is used to strike off the excess aggregate and the results are then recorded. The apparatus consists of a funnel, funnel stand, glass jar, 100ml cylindrical measure, and a glass plate for calibration.

MODELS	DESCRIPTION	STANDARDS
<b>C9458</b>	VOID CONTENT APPARATUS	ASTM C-1252 / AASHTO TP-33 SHRP / NAA METHOD A

ACCESSORIES	DESCRIPTION
<b>C9459</b>	EXTRA GLASS JAR
<b>C9460</b>	EXTRA GLASS PLATE
<b>C9461</b>	EXTRA MEASURE, 100 ML
<b>L1255</b>	PAN, ST. STL., 14" DIA X 2" H
<b>L3514</b>	SPATULA, 6" BLADE

## BUCKET AUGER HEADS

These stainless steel bucket augers with high-carbon bits are extremely durable which allows deeper depths. The augers are available in three different types. The regular type **E1051** thru **E1055** are designed for use with ordinary soil sampling. The mud type **E1056** thru **E1060** are designed for sampling heavy, wet soil or clay samples the opening allows easy removal of wet samples. The sand type **E1061** thru **E1065** are designed for use with dry, sandy soils. The auger heads create holes 3/8" to 3/4" larger than the bit diameter. A 4 ft. seamless extension and cross handle are available for these augers



MODELS	DESCRIPTION	SIZE
<b>E1051</b>	BUCKET AUGER HEAD, REGULAR TYPE	2"
<b>E1052</b>		2-1/4"
<b>E1053</b>		2-3/4"
<b>E1054</b>		3-1/4"
<b>E1055</b>		4"
<b>E1056</b>	BUCKET AUGER HEAD, MUD TYPE	2"
<b>E1057</b>		2-1/4"
<b>E1058</b>		2-3/4"
<b>E1059</b>		3-1/4"
<b>E1060</b>		4"
<b>E1061</b>	BUCKET AUGER HEAD, SAND TYPE	2"
<b>E1062</b>		2-1/4"
<b>E1063</b>		2-3/4"
<b>E1064</b>		3-1/4"
<b>E1065</b>		4"

ACCESSORIES	DESCRIPTION
<b>E1066</b>	EXTENSION ROD, 2'
<b>E1067</b>	EXTENSION ROD, 3'
<b>E1068</b>	EXTENSION ROD, 4'
<b>E1069</b>	EXTENSION ROD, 5'
<b>E1070</b>	CROSS HANDLE

## SOIL AUGER, SCREW TYPE



This auger is used for sampling soils. It has a 1-1/2" x 4" long spiral auger bit. The overall length of the auger is 36" and has graduation marks every 6". The handle is removable to allow the attachment of an extension rod (**E1115**) that is 3' long.

MODELS	DESCRIPTION	STANDARDS
<b>E1111</b>	SOIL AUGER, SCREW TYPE	ASTM D-420, D-1452, D-1587 / AASHTO T-86, T-206, T-207

ACCESSORIES	DESCRIPTION
<b>E1115</b>	EXTENSION ROD

## SOIL AUGER, POST HOLE TYPE



These are Iwan type post hole diggers. They are furnished with a 36" long steel shaft and are 48" overall, and have a hard wood handle. Two types of extensions are available for these augers (except **E1121**). The first extension (**E1143**) is 4' long, the second extension (**E1146**) is adjustable from 5' to 9'.

MODELS	DESCRIPTION	STANDARDS
<b>E1121</b>	SOIL AUGER, 2"	ASTM D-420, D-1452 D-1587 / AASHTO T-86, T-206, T-207
<b>E1123</b>	SOIL AUGER, 3"	
<b>E1124</b>	SOIL AUGER, 4"	
<b>E1125</b>	SOIL AUGER, 6"	
<b>E1129</b>	SOIL AUGER, 9"	
<b>E1132</b>	SOIL AUGER, 12"	

ACCESSORIES	DESCRIPTION
<b>E1143</b>	EXTENSION ROD, 4'
<b>E1146</b>	ADJUSTABLE EXTENSION ROD, 5-9'

## COLOR CHARTS



These soil color charts are widely used by agronomists, soil scientists, geologists and archaeologists. They are standard equipment in the U.S. Soil Conservation Service and are featured in the U.S. Survey Manual. The **E1481** Soil Color Chart Set consists of seven hue charts (10R, 2.5YR, 5YR, 10YR, 2.5Y and 5Y) displaying 199 colors (1/2" x 5/8") on neutral gray chart stock. A Gley Chart is also included which shows values 4/ thru 7/ for six hues, all /1 chroma (near grays, hues from yellow thru green and blue) and neutral gray; for submerged soils in tropical regions. Charts are fitted into a six-ring binder.

MODELS	DESCRIPTION
<b>E1481</b>	SOIL COLOR CHARTS W/ GLEY CHART FOR SUBMERGED SOIL

## WATER LEVEL INDICATOR

The **E1651** & **E1652** Water Level Indicators provide an economical and accurate means of obtaining water level data in water wells under a wide variety of conditions. The standard lead electrode (**E1661**) assembly is 3/8" in dia. Depth indication is provided by metal tag numbering every ten feet and is powered by a self-contained battery supply. The cable is high tensile strength with two conductors which makes an outside ground connection unnecessary. The **E1653** thru **E1655** Water Level Indicators are very similar to the indicators described above except the electrode is 1/2" and brass and it utilizes a geophysical reel to hold the cable.



E1651 &amp; E1652



E1653-E1655

MODELS	DESCRIPTION	DEPTH
<b>E1651</b>	WATER LEVEL INDICATOR, 3/8" ELECTRODE	300'
<b>E1652</b>		500'
<b>E1653</b>	WATER LEVEL INDICATOR, 1/2" ELECTRODE	750'
<b>E1654</b>		1000'
<b>E1655</b>		1500'

ACCESSORIES	DESCRIPTION
<b>E1661</b>	REPLACEMENT LEAD ELECTRODE

## CORE DRILL, 3.5 HP

This core drill is a portable 3.5 hp drill with 2 speeds. This drill can obtain reinforced concrete (larger in softer materials) cores up to 8" in diameter by 18" in length. This model is suggested for use within structures. The drill can be set in position on the floor or wall by one person. A vacuum pad on the base grips the wall or floor to keep the drill from moving. The motor and carriage can be attached or removed without disturbing the drill location. The drill column can be rotated through a 180° radial arc.



MODELS	DESCRIPTION	STANDARDS
<b>E2181</b>	CORE DRILL, 3.5 HP, 110V / 60 Hz	ASTM D-420 AASHTO T-86
<b>E2182</b>	CORE DRILL, 3.5 HP, 220V / 50 Hz	

ACCESSORIES	DESCRIPTION
<b>E2185</b>	ANGLE ATTACHMENT, 90° TO 45°
<b>E2211</b>	SHAFT EXTENSION 9"
<b>E2212</b>	WATER PUMP, 115V / 60 Hz
<b>E2212E</b>	WATER PUMP, 220V / 50 Hz
<b>E2213</b>	DIAMOND BIT
<b>E2214</b>	EXTRA WHEEL



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