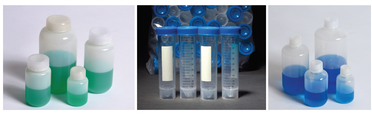
Lab Pro's Botanicals Labware Guide

Cultivation & Harvesting

Cultivation begins with determining the correct environmental conditions for the desired plant variety. Light, temperature, air quality, soil, nutrients, and water are some examples of variables to consider

LEARN MORE



Sample Preparation

Sample preparation is the method used to treat product prior to analysis. Typically this step of the process is done in a laboratory setting after harvesting is complete

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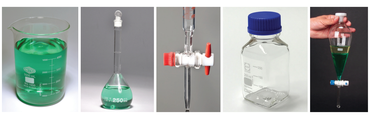

Extraction

Extraction uses chemicals or physical conditions (e.g. temperature, pressure) to separate desired compounds from the plant material. CO2 or ethanol extraction are currently the two most common methods.

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Winterization

Winterization is the process of filtering out unwanted waxy plant particles after extraction. The extract and a solution are combined and placed in a freezer overnight. The waxy particles resulting from the freezing procedure are removed using vacuum filtration. This process works best when low temperatures are maintained.

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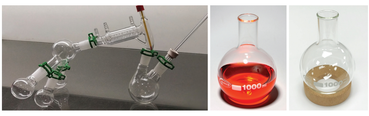

Distillation

Distillation is the process of separating the compounds of a solution according to their boiling points. Short path distillation uses a very small condenser and low pressure to isolate desired compounds. The compounds are collected in recovery flasks.

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Resource Information

PROPERTIES OF UNITED GLASSWARE

Chemical Composition:
Our glassware is manufactured from lowexpansion Type 1, Class A Borosilicate 3.3 glass that complies with ASTM E438 Standard Specification for Glasses in Laboratory Apparatus. It is low alkali glass with a typical chemical composition of approximately 81% silica, 13% boric oxide, 4% sodium oxide, and 2% aluminum oxide. It is virtually free of magnesia-lime-zinc group, and contains only traces of heavy metals.

Thermal Properties:
Borosilicate glass has a low coefficient of thermal expansion. Therefore, the thermal stresses under a given temperature gradient are low, and the glass can withstand higher temperature gradients as well as sudden temperature changes / thermal shocks. However, even minute scratching of glass surface can reduce its thermal resistance.

The 'Strain Point' (about 500°C) is generally recommended as the maximum safe operating temperature for United glassware. The glass may acquire permanent stresses upon cooling if it is heated above 500°C. Our glassware is annealed in modern ovens under strictly controlled conditions to ensure minimal residual stress.

Chemical Durability:
United glassware is highly resistant to water, neutral and acid solutions, concentrated acids and their mixtures, as well as to chloride, bromine, iodine, and organic matters. Even during extended period of reaction and at temperatures above 100°C, its chemical resistance exceeds that of most metals and other materials. Our glassware can withstand repeated dry and wet sterilization and offers good resistance against various chemicals, except for hydrofluoric acid, hot phosphoric acid and alkaline solutions.

Safety:
Treated with proper care, United glassware will offer long-term, reliable service in the laboratory. Please contact us for detailed recommendations regarding heating and cooling, mixing and stirring, vacuum and pressure, cleaning, and safety precautions that must be followed while using glassware.

Optical Properties:
United glassware has a clear and colorless appearance, and shows no noticeable absorption in the visible region of the spectrum.

ABOUT UNITED VOLUMETRIC GLASSWARE

Manufacturing:
United volumetric glassware is of high quality and manufactured to ASTM standards using state-of-the-art manufacturing and calibration equipment. The calibration laboratory is NABL accredited in accordance with ISO 17025:2005 standards.

Class A:
Class A versions of our volumetric ware comply with USP (United States Pharmacopia) standards. Burettes and pipettes are calibrated 'to deliver' (TD, Ex). Flasks and graduated cylinders are calibrated 'to contain' (TC, In).

Class B:
Class B volumetric instruments feature tolerances that are about twice that of comparable Class A instruments (e.g. if a Class A burette has a tolerance of ±0.05ml, the corresponding Class B version will have a tolerance of approximately ±0.10ml).

Heat Resistance:
Volumetric instruments can be heated up to 250°C in a drying cabinet or sterilizer without any resulting volume changes. Never heat volumetric instruments on a hot plate.

Reference Temperature:
The standard reference temperature (i.e., the temperature at which volumetric instruments will contain or dispense their stated volume) is 20°C.

PHYSICAL PROPERTIES OF UNITED PLASTIC LABWARE

Our plastic labware is manufactured from high-quality resins. Treated with proper care, United plasticware will offer long-term satisfactory service in the laboratory. Please refer to the chart below for physical properties of United plasticware.

Resin	Maximum Use Temperature (°C)	Brittleness Temperature (°C)	Transparency	Autoclavable*
High Density Polyethylene (HDPE)	120	-100	Translucent	No
Low Density Polyethylene (LDPE)	80	-100	Translucent	No
Polycarbonate (PC)	135	-135	Clear	Yes
Acrylic (PMMA)	50	20	Clear	No
Polymethylpentene (PMP)	175	20	Clear	Yes
Polypropylene (PP)	135	0	Translucent	Yes
Polystyrene (PS)	90	20	Clear	No
Polytetrafluoroethylene (PTFE)	270	-200	Opaque	Yes
Polyvinyl Chloride (PVC)	70	-30	Clear	No

CHEMICAL PROPERTIES OF UNITED PLASTIC LABWARE

Class of Substance at Room Temperature	HDPE	LDPE	PC	PMMA	PP	PS	PSF	PTFE	PMP
Acids, Dilute or Weak	E	E	E	G	E	E	E	E	E
Acids, Strong and Concentrated	E	E	N	N	E	F	G	E	E
Alcohols, Aliphatic	E	E	G	N	E	E	G	E	E
Aldehydes	G	G	F	G	G	N	F	E	G
Bases	E	E	N	F	E	E	E	E	E
Esters	G	G	N	N	G	N	N	E	G
Hydrocarbons, Aliphatic	G	F	F	G	G	N	G	E	F
Hydrocarbons, Aromatic	G	F	N	N	F	N	N	E	F
Hydrocarbons, Halogenated	F	N	N	N	F	N	N	E	N
Ketones	G	G	N	N	G	N	N	E	F
Oxidizing Agents, Strong	F	F	N	N	F	N	G	E	F

Resin Code

HDPE	High-density polyethene
LDPE	Low-density polyethylene
PC	Polycorbonate
PMMA	Polymethyl methacrylate
PP	Polypropylene
PS	Polystyrene
PSF	Polysulfone
PTFE	Polytetrafluoroethylene
PMP	Polymethylpentene

Chemical Resistance Classification

E = Excellent - 30 days of constant exposure cause no damage. Plastics may even tolerate for years.

G = Good - Little or no damage after 30 days of constant exposure to the reagent.

F = Fair - Some effect after 7 days of constant exposure to the reagent like crazing, cacking, loss of strength or discoloration.

N = Not Recommended - Not for continuous use. Immediate damage may occur.

Cultivation & Harvesting

ABOUT CULTIVATION & HARVESTING

• Cultivation begins with determining the correct environmental conditions for the desired plant variety. Light, temperature, air quality, soil, nutrients, and water are some examples of variables to consider

• Harvesting requires each unique plant variety to be monitored by growers to produce maximum yield

HOW UNITED (PRODUCTS) CAN HELP

• Leaf quality requires regular inspection to determine optimal harvest timing (Magnifiers)

• Harvested leaves may need to be stored for a period of time (Trays)

• Leaves are moved into vessels for sample preparation and extraction (Scoops)

FOLDING MAGNIFIERS

Folding magnifiers in plastic cases. Glass lenses are 25mm in diameter with 5x magnification. Single magnifier includes one lens. Double magnifier includes two lenses for 10x magnification. Triple magnifier includes three lenses for 15x magnification.

Magnifiers help check leaf quality and determine harvest times

Item No.	Description
MPS010	Single Folding Magnifier, 5x
MPD010	Double Folding Magnifier, 10x
M1539	Triple Folding Magnifier, 15x

POCKET LOUPE

Compact pocket loupe, in a sturdy folding metal case. 10x magnification.

Item No.	Description
M12910	Magnifier, Pocket Loupe, 10x

LABORATORY TRAYS, LARGE, PP

Large polypropylene molded laboratory tray is steam autoclavable and can be used for sterilizing and drying labware. The 5" depth makes this tray ideal for storage of labware.

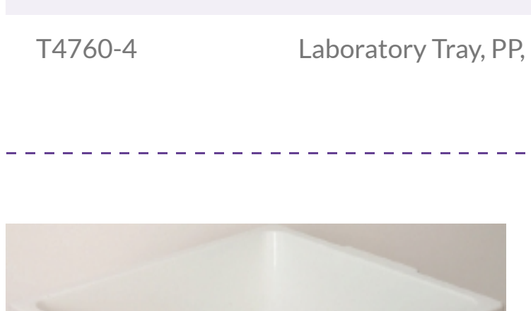
Item No.	Capacity (ml)	Quantity per pack
81722	Laboratory Tray, Large , PP, 20" x 17" x 5"	6

LABORATORY TRAYS, PP

Multi-purpose polypropylene molded trays can be used for sterilizing, drying glassware, porcelainware, and other laboratory supplies. These steam autoclavable trays have tapered walls designed for nesting.

Trays can be used to store cut leaves before and after the extraction process

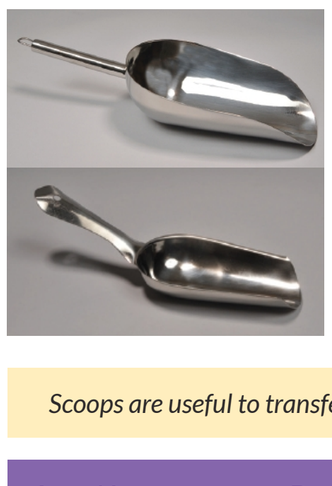
Item No.	Capacity (ml)	Quantity per pack
T4760-6	Laboratory Tray, PP, 18" x 14" x 3"	10
T4760-4	Laboratory Tray, PP, 15" x 12" x 3"	10



UTILITY TRAYS, PP

Polypropylene molded utility tray is steam autoclavable and can be used for sterilizing and drying labware. The 5" depth makes this tray ideal for storage of labware.

Item No.	Description	Quantity per pack
T4772-3	Utility Tray, PP, 15" x 14" x 5"	6



LABORATORY SCOOPS WITH HANDLES, STAINLESS STEEL

These laboratory scoops are made from high quality stainless steel and are available in two sizes: 5 oz. and 52 oz.

Scoops are useful to transfer cut leaves before and after the extraction process

Item No.	Description
SCPSM05	Laboratory Scoop with Handle, Stainless Steel, 5 oz.
SCPLG52	Laboratory Scoop with Handle, Stainless Steel, 52 oz.

LABORATORY SCOOPS, PP

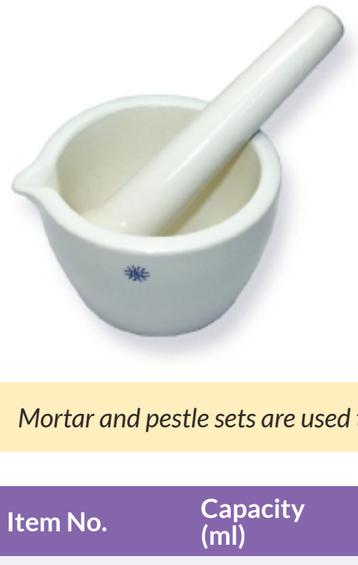
These sturdy polypropylene scoops are available in a variety of sizes and as a complete set of seven scoops. Capacities are molded into the top of each scoop for easy reference. The PP material is autoclavable and will not rust or corrode.

Item No.	Capacity (ml)	Quantity per pack
81253	10	12
81254	25	12
81255	50	12
81256	100	12
81257	250	12
81258	500	6
81259	1000	6
81260	Set of 7 Scoops (one of each size)	

MORTAR & PESTLE SETS, AGATE STONE

Octagonal mortar and pestle sets feature highly polished grinding surfaces. Made of naturally hard agate stone (6.5 on Moh's Scale). For use in laboratories demanding contamination-free results. Physical dimensions have a tolerance of +/- 3mm. Note that the natural agate material causes surface pattern variations in finished mortars and pestles.

Item No.	Mortar Top O.D. (mm)	Capacity (ml)	Mortar Height (mm)	Pestle Length (mm)	Quantity per pack
MPA015	38	5	25	38	1
MPA020	65	10	28	50	1
MPA030	76	25	34	76	1
MPA035	89	50	38	88	1
MPA040	102	75	41	101	1
MPA060	152	250	65	152	1



MORTAR AND PESTLE SETS, DEEP FORM, PORCELAIN

Deep form mortars with lips are glazed on the outside (except for the bottom) and unglazed inside. Oversized pestles are glazed to grinding surface.

Mortar and pestle sets are used to pulverize dried leaves for quality assurance testing

Item No.	Capacity (ml)	Mortar Height (mm)	Pestle Length (mm)	Quantity per pack
JMD050	50	47	95	1
JMD070	70	52	115	1
JMD150	150	70	135	1
JMD275	275	70	160	1
JMD400	400	80	185	1
JMD750	750	110	200	1
JMD1900	1900	130	222	1

Sample Preparation

ABOUT SAMPLE PREPARATION

• Sample preparation is the method used to treat product prior to analysis. Typically this step of the process is done in a laboratory setting after harvesting is complete

• Preparation includes evaluating quality and purity, and making physical changes to the product so that it is suitable for the next processing steps

HOW UNITED (PRODUCTS) CAN HELP

• Pulverize leaves for quality and potency testing and to place in edibles (Centrifuge Tubes, Mortars and Pestles)

• Transfer chemicals accurately for use in laboratory analysis protocols (Pipettes)

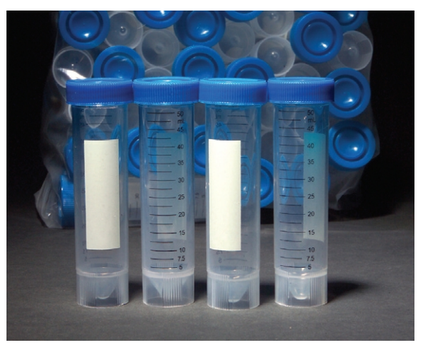
• Storage for a wide variety of chemicals and for finished product (Reagent Bottles)

PIPETTES, SEROLOGICAL, CLASS A, BATCH CERTIFIED

These Type 3 serological pipettes are made from borosilicate glass and comply with USP standards. Color-coded. Batch certified. Calibrated to deliver. Printed with durable amber markings.

Pipettes transfer chemicals for testing purity and pesticide levels

Item No.	Capacity (ml)	Graduation Interval (ml)	Tolerance (ml)	Color Code	Quantity per pack
PS7079-A	0.1	0.01	± 0.006	White	5
PS7079-B	0.2	0.01	± 0.006	Black	5
PS7079-D	1	0.10	± 0.010	Red	5
PS7079-F	2	0.10	± 0.010	Green	5
PS7079-H	5	0.10	± 0.020	Blue	5
PS7079-I	10	0.10	± 0.030	Orange	5
PS7079-J	25	0.10	± 0.050	White	5



CENTRIFUGE TUBES, SELF-STANDING, PP/HDPE

Polypropylene tubes feature a convenient flat bottom so they stand on their own. Include blue HDPE leak-proof screw caps, silk-screen black graduations and a large white marking spot. Tubes are graduated from 5 to 50ml with graduation intervals of 2.5ml. Autoclavable at 121°C and freezable to -45°C. Steam sterilized. Maximum RCF 9000.

Centrifuge tubes pulverize leaves. Also pulverize finished product to place in edibles

Item No.	Capacity (ml)	O.D. x Height (mm)	Quantity per pack	Quantity per case
T5299-50- S	50 (Sterile)	29.2 x 117.3	50	500

REAGENT BOTTLES, WIDE MOUTH, HDPE

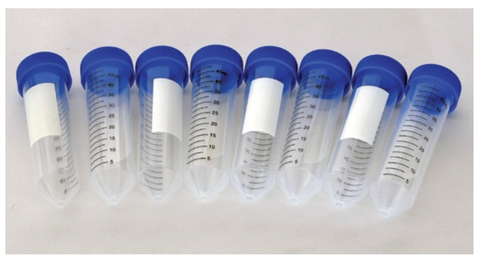
These high density polyethylene wide mouth bottles are translucent, pliable and have excellent strength. Include polypropylene caps.

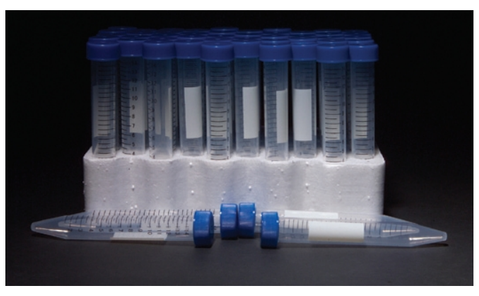
Item No.	Capacity (ml/oz)	Height (mm)	Neck I.D (mm)	Cap Size (mm)	Qty per pack	Qty per case
33406	60 / 2	86	21	28	12	500
B6449U-04	125 / 4	100	28	38	12	500
33408	250 / 8	131	33	43	12	250
33409	500 / 16	176	43	53	12	125
B6449U-32	1000 / 32	200	53	63	6	50

REAGENT BOTTLES, NARROW MOUTH, HDPE

These high density polyethylene narrow mouth bottles are translucent, pliable and have excellent strength. Include polypropylene caps.

Item No.	Capacity (ml/oz)	Height (mm)	Neck I.D (mm)	Cap Size (mm)	Qty per pack	Qty per case
33401	60 / 2	85	14	20	12	500
33402	125 / 4	101	18	24	12	500
33403	250 / 8	133	18	24	12	250
33404	500 / 16	170	21	28	12	125
33405	1000 / 32	216	21	28	6	50





CENTRIFUGE TUBES, CONICAL BOTTOM, PP/HDPE

Polypropylene tubes include blue HDPE leak-proof screw caps, silk-screen black graduations and a large white marking spot. Available in 15ml capacity (racked) or 50ml capacity (bulk in a poly bag). 15ml tubes are graduated from 2 to 14ml with graduation intervals of 0.5ml. 50ml tubes are graduated from 5 to 47.5ml with graduation intervals of 2.5ml. Autoclavable at 121°C and freezable to -45°C. Steam sterilized. Maximum RCF 9000.

Item No.	Capacity (ml)	O.D. x Height (mm)	Quantity per pack	Quantity per case
T5299	15 (Sterile)	16.5 x 117.8	50	500
D1001	50 (Sterile)	29.2 x 114.3	50	500

CENTRIFUGE TUBES, CONICAL BOTTOM, PP/HDPE

Polypropylene tubes include blue HDPE leak-proof screw caps. The tubes and caps feature specially-designed flat threads for vacuum-type closure that is leak-free at a pressure of >700mm Hg. Highly smooth hydrophobic internal surfaces minimize wall effect. Silk-screen graduations and a frosted surface make writing easier. Autoclavable at 121°C and 15 psi for 30 minutes. Radiation sterilized. DNase, RNase, Pyrogen and latex-free. Maximum RCF 14000. Amber colored tubes are suitable for light sensitive applications because they do not allow any light to pass through the samples.

Item No.	Capacity (ml)	Cap Color	O.D. x Height (mm)	Quantity per pack
P10402	15 (Sterile)	Blue	16.5 x 117.8	500
T5299-15-A	15 (Sterile Amber)	Blue	16.5 x 117.8	500
P10404	50 (Sterile)	Blue	29.2 x 114.3	500
T5299-50- A	50 (Sterile Amber)	Blue	29.2 x 114.3	500

REAGENT BOTTLES, WIDE MOUTH, PP

These autoclavable wide mouth polypropylene bottles are rigid, translucent and have excellent contact clarity. Include polypropylene caps.

Item No.	Capacity (ml/oz)	Height (mm)	Neck I.D (mm)	Cap Size (mm)	Qty per pack	Qty per case
33311	30 / 1	63	21	28	12	1000
33306	60 / 2	86	21	28	12	500
33307	125 / 4	100	28	38	12	500
33308	250 / 8	131	33	43	12	250
33309	500 / 16	170	43	53	12	125
33310	1000 / 32	200	53	63	6	50

Autoclavable PP reagent bottles can be used to store chemicals for purity and pesticide testing. HDPE and PP bottles can be used to store finished product

REAGENT BOTTLES, NARROW MOUTH, PP

These autoclavable narrow mouth polypropylene bottles are rigid, translucent and have excellent contact clarity. Include polypropylene caps.

Item No.	Capacity (ml/oz)	Height (mm)	Neck I.D (mm)	Cap Size (mm)	Qty per pack	Qty per case
33253	15 / 0.5	58	14	20	12	1000
33254	30 / 1	62	14	20	12	1000
33301	60 / 2	85	14	20	12	500
33302	125 / 4	101	18	24	12	500
33303	250 / 8	133	18	24	12	250
33304	500 / 16	170	21	28	12	125
33305	1000 / 32	216	21	28	6	50

Extraction

ABOUT EXTRACTION

• Extraction uses chemicals or physical conditions (e.g. temperature, pressure) to separate desired compounds from the plant material. CO2 or ethanol extraction are currently the two most common methods.

HOW UNITED (PRODUCTS) CAN HELP

• Hold solutions in between various parts of the process. Screw caps allow product to off gas if needed (Wide Mouth Bottles)

• Add solvents or collect the extraction (Beakers, Burettes, Volumetric Flasks)

• Store finished product (Stainless Steel Utility Tanks, Storage Bottles)

BEAKERS, LOW FORM, BOROSILICATE GLASS

Our beakers are made from low-expansion borosilicate glass. Beakers feature heavy and uniform wall thickness, spouts designed for easy pouring, beaded tops, and white printed graduations. The 20ml and larger sizes also have a double graduated metric scale and a marking area. Tolerance for beakers is approximately +/- 5%.

Item No.	Capacity (ml)	Grad. Range (ml)	Grad. Interval (ml)	Qty per pack	Qty per case
B4266-0005	5	NA	NA	12	48
B4266-0010	10	NA	NA	12	48
BG1000-20	20	5-15	10	12	48
B4266-0025	25	10-20	10	12	48
BG1000-30	30	5-25	10	12	48
B4266-0050	50	10-40	10	12	48
B4266-0100	100	20-80	10	12	48
B4266-0150	150	20-140	20	12	48
B4266-0250	250	25-200	25	12	48
B4266-0400	400	50-300	25	12	48
BG1000-500	500	100-400	50	6	36
B4266-0600	600	100-500	50	6	36
B4266-0800	800	100-750	50	6	24
B4266-1000	1000	100-900	50	6	24
BG1000-1500	1500	200-1400	200	4	16
B4266-2000	2000	200-1800	200	1	8
B4266-3000	3000	250-2500	250	1	4
B4266-4000	4000	500-3500	500	1	6
B4266-5000	5000	1000-4000	500	1	4
B4266-10L	10000	2000-8000	1000	1	1

VOLUMETRIC FLASKS, CLASS B, WITH GLASS STOPPER

Durable, machine-blown body. Heavy beaded tubing neck. Flasks feature a sharp graduation line and large white block letters. A ground glass stopper is included.

Item No.	Capacity (ml)	Tolerance (± ml)	Stopper Size	Qty per pack
FG5641-5	5	0.04	9	12
FG5641-10	10	0.04	9	12
F6225-0025	25	0.06	9	12
F6225-0050	50	0.10	9	12
FG5641-100	100	0.16	13	12
FG5641-200	200	0.20	16	12
FG5641-250	250	0.24	16	12
F6225-0500	500	0.40	19	12
FG5641-1000	1000	0.60	22	6
FG5641-2000	2000	1.00	27	4

BURETTES, CLASS B, WITH PTFE DETACHABLE STOPCOCKS

Burettes are made from the highest quality accurate bore tubing to provide a high degree of accuracy, reliability, and durability. Accuracy as per Class B. PTFE stopcock and tip detaches from the body of the burette for easy cleaning and convenient replacement of broken tips.

Use burettes to measure out a precise amount of solvent or testing chemical

Item No.	Capacity (ml)	Graduation Interval (ml)	Tolerance (± ml)	Qty per pack
BR2116-10	10	0.05	0.04	1
BR2116-25	25	0.10	0.06	1
BR2116-50	50	0.10	0.10	1

MEDIA / STORAGE BOTTLES, WIDE MOUTH, SQUARE, BOROSILICATE GLASS

Our wide mouth, square-shaped, media bottles have large openings that enable the easy storage and transfer of substances. Every bottle is autoclavable and comes with easy to read imprinted graduations. GL80 Polypropylene screw caps are included.

Glass bottles are ideal for holding extraction solutions. Screw caps enable easy off-gassing

Item No.	Capacity (ml)	O.D. x Height (mm)	Qty per pack
BSWM500	500	94 x 139	10
BSWM1000	1000	105 x 185	10
BSWM2000	2000	115 x 258	6
BSWM5000	5000	160 x 357	1

MEDIA / STORAGE BOTTLES, AMBER, BOROSILICATE GLASS

Designed for storing and transporting light sensitive materials, amber media / solutions bottles are autoclavable with permanent white imprinted graduations and marking spots. The supplied GL 45 cap is liner-less and both the cap and drip-free ring are polypropylene and autoclavable to 140°C. Maximum use temperature of bottles is 450°C.

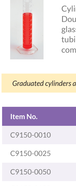
Item No.	Capacity (ml)	Graduation Range (ml)	O.D. x Height (mm)	Qty per pack
BMA0100	100	40-80	56 x 105	10
BMA0250	250	50-200	70 x 143	10
BMA0500	500	100-400	86 x 182	10
BMA1000	1000	100-900	101 x 203	10

GRADUATED CYLINDERS, GLASS, CLASS A, BATCH CERTIFIED

Cylinders comply with ASTM E1272, Class A standards, batch certified. Double metric scale, calibrated to contain. Borosilicate glass cylinders with pour spouts feature heavy uniform wall tubing and strong, stable, hexagonal bases. All cylinders come with bumper guards.

Each cylinder includes a batch calibration certificate

Item No.	Capacity (ml)	Graduation Interval (ml)	Tolerance (± ml)	Qty per pack
CY3021-10	10	0.2	0.10	1
CY3021-25	25	0.5	0.17	1
CY3021-50	50	1.0	0.25	1
CY3021-100	100	1.0	0.50	1
CY3021-250	250	2.0	1.0	1
CY3021-500	500	5.0	2.0	1
CY3021-1000	1000	10.0	3.0	1
CY3021-2000	2000	20.0	6.0	1



GRADUATED CYLINDERS, CLASS B, BOROSILICATE GLASS

Cylinders comply with ASTM E1272, Class B standards. Double metric scale, calibrated to contain. Borosilicate glass cylinders with pour spouts feature heavy uniform wall tubing and attached glass hexagonal bases. All cylinders come with bumper guards.

Graduated cylinders are useful to add solvents during the extraction process

Item No.	Capacity (ml)	Graduation Interval (ml)	Tolerance (± ml)	Qty per pack
CY150-0010	10	0.2	0.2	24
CY150-0025	25	0.5	0.34	18
CY150-0050	50	1.0	0.5	18
CY150-0100	100	1.0	1.0	12
CY150-0250	250	2.0	2.0	12
CY150-0500	500	5.0	4.0	8
CY150-1000	1000	10.0	6.0	1
CY150-2000	2000	20.0	12.0	1

BEAKERS, LOW FORM, HEAVY DUTY, BOROSILICATE GLASS

Heavy duty beakers are ideal for tough handling conditions including mechanized washing. Beakers feature a white double graduated metric scale and a marking area. Tolerance is approximately ± 5%.

Item No.	Capacity (ml)	Grad. Range (ml)	Grad. Interval (ml)	Qty per pack	Qty per case
BG1003-100	100	20-80	10	12	48
BG1003-150	150	20-140	20	12	48
BG1003-250	250	25-200	25	12	48
BG1003-400	400	50-300	25	12	48
BG1003-600	600	100-500	50	6	36
BG1003-1000	1000	100-900	50	1	24
BG1003-2000	2000	200-1800	200	1	8
BG1003-4000	4000	500-3500	500	1	6

GLASS STIRRING RODS WITH RUBBER POLICEMAN

Rubber policeman attached to glass rod facilitates scraping and mixing. Stirring rods are made of soft flint glass, with both ends fire-polished and rounded. Policemen are made of natural rubber. Pre-assembled.

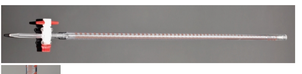
Item No.	Length / Diameter	Qty per pack
GRPL05	5" / 3mm	12
GRPL06	6" / 5mm	12
GRPL08	8" / 5mm	12
GRPL10	10" / 6mm	12
GRPL12	12" / 10mm	12

VOLUMETRIC FLASKS, CLASS A, WITH GLASS STOPPER, BATCH CERTIFIED, QR

Durable, machine-blown body. Heavy beaded tubing neck. Flasks feature a sharp graduation line and large white block letters. A ground glass stopper is included. Meets Class A specifications per ASTM E288. Batch certified. Our volumetric flasks feature QR code integration to facilitate quick and easy access to certificates of calibration, certificates of conformity, and user manuals where applicable.

Each flask includes a QR code that can be scanned to quickly obtain a copy of the certificate of calibration, certificate of conformity, and user manual

Item No.	Capacity (ml)	Tolerance (± ml)	Stopper Size	Qty per pack
FG5640-5QR	5	0.02	9	1
FG5640-10QR	10	0.02	9	1
FG5640-20QR	20	0.03	9	1
FG5640-25QR	25	0.03	9	1
FG5640-50QR	50	0.05	9	1
FG5640-100QR	100	0.08	13	1
FG5640-200QR	200	0.10	16	1
FG5640-250QR	250	0.12	16	1
FG5640-500QR	500	0.20	19	1
FG5640-1000QR	1000	0.30	22	1
FG5640-2000QR	2000	0.50	27	1



BURETTES, CLASS A, WITH STRAIGHT BORE PTFE KEY STOPCOCK, BATCH CERTIFIED

Class A, ASTM E287, meets USP standards, batch certified. Waiting time of 30 seconds. Manufactured from precision bore tubing and calibrated To Deliver (TD, Ex) on computer-controlled machines. Includes PTFE straight bore stopcock.

Each burette includes a batch calibration certificate

Item No.	Capacity (ml)	Graduation Interval (ml)	Tolerance (± ml)	Qty per pack
BR2129-10	10	0.05	0.02	1
BR2129-25	25	0.10	0.03	1
BR2129-50	50	0.10	0.05	1

MEDIA / STORAGE BOTTLES, BOROSILICATE GLASS

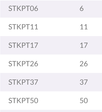
These borosilicate glass general purpose media bottles are autoclavable with permanent white imprinted graduations and marking spots. The screw thread opening has an I.D. of approximately 30mm. The supplied GL 45 cap is liner-less and both the cap and drip-free ring are polypropylene and autoclavable to 140°C. Maximum use temperature of bottles is 450°C.

Item No.	Capacity (ml)	Graduation Range (ml)	O.D. x Height (mm)	Qty per pack
B6560-0100	100	20-80	56 x 100	10
B6560-0250	250	50-200	70 x 138	10
B6560-0500	500	100-400	86 x 175	10
B6560-1000	1000	100-900	101 x 225	10
B6560-2000	2000	400-1800	136 x 262	4

MEDIA / STORAGE BOTTLES, SQUARE, BOROSILICATE GLASS

Space-saving, square-shaped borosilicate glass general purpose media bottles are autoclavable with permanent white imprinted graduations and marking spots. The screw thread opening has an I.D. of approximately 30mm. The supplied GL 45 cap is liner-less and both the cap and drip-free ring are polypropylene and autoclavable to 140°C. Maximum use temperature of bottles is 450°C.

Item No.	Capacity (ml)	Graduation Range (ml)	O.D. x Height (mm)	Qty per pack
BMS0250	250	50-200	64 x 143	10
BMS0500	500	100-400	78 x 181	10
BMS1000	1000	100-900	94 x 222	10

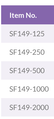


UTILITY TANKS WITH LID (STOCK POT), STAINLESS STEEL

Utility tanks (stock pots) are constructed from unsealed, medium gauge 304 stainless steel. Exceptional for use with gas, electric, or even induction style stoves. Tank features heat-resistant handles, and encapsulated aluminum bottom with three layers for even heat distribution and less energy consumption. Cover is included.

Sturdy stainless steel keeps valuable extracts safe

Item No.	Capacity (L)	Diameter (cm)	Height (cm)
STKPT06	6	20	19
STKPT11	11	24	24
STKPT17	17	28	28
STKPT26	26	32	32
STKPT37	37	36	36
STKPT50	50	40	40
STKPT71	71	45	45
STKPT98	98	50	50
STKPT169	169	60	60



SEPARATORY FUNNELS, BOROSILICATE GLASS

These pear-shaped borosilicate glass funnels include a PTFE stopcock and a plastic stopper. Feature a marking spot and large white block letters for easy identification of capacity, as per ASTM E1096. PTFE stopcocks are compliant with ASTM standard E675.

Item No.	Capacity (ml)	Stopper Size	Qty per pack	Qty per case
SF149-125	125	22	2	20
SF149-250	250	22	2	20
SF149-500	500	27	2	20
SF149-1000	1000	27	1	10
SF149-2000	2000	38	1	10

Winterization

ABOUT WINTERIZATION

• Winterization is the process of filtering out unwanted waxy plant particles after extraction. The extract and a solution are combined and placed in a freezer overnight. The waxy particles resulting from the freezing procedure are removed using vacuum filtration. This process works best when low temperatures are maintained.

HOW UNITED (PRODUCTS) CAN HELP

• Large capacity labware enables economical batch runs (Filtering Flasks/Bottles)

• Porcelain components can withstand temperature changes between a freezer and a laboratory setting (Buchner Funnels)

• Components are pre-selected for compatibility and offered as kits (Winterization Kits)

WINTERIZATION LABWARE KITS

Each convenient package includes a filtering flask, buchner funnel, filter adapter set, and medium flow filter paper. Filtering flasks are from our FG5340 series. They are constructed using heavy wall borosilicate and include a thick rim and hose barb. The 10,000ml set includes our FFB5340 series heavy wall borosilicate filtering bottle with hose barb. Porcelain buchner funnels are from our JBF series. All kits include our FASN07 filter adapter set. Filter paper is from our FPR series and has medium porosity and flow rate. Circular filters are packaged 100 per box.

WNTK2 2000ml Winterization Labware Kit Contents:

1. Filtering Flask, Borosilicate Glass, 2000ml (FG5340-2000)	1
2. Buchner Funnel, Porcelain, 2000ml (JBF2000)	1
3. Filter Adapter Set of 7, Synthetic Rubber (FASN07)	1
4. Filter Paper, Medium Porosity/Flow, 18cm circle, pk/100 (FPR180)	1

WNTK5 5000ml Winterization Labware Kit Contents:

1. Filtering Flask, Borosilicate Glass, 5000ml (FG5340-5000)	1
2. Buchner Funnel, Porcelain, 4800ml (JBF4800)	1
3. Filter Adapter Set of 7, Synthetic Rubber (FASN07)	1
4. Filter Paper, Medium Porosity/Flow, 24cm circle, pk/100 (FPR240)	1

WNTK10 10000ml Winterization Labware Kit Contents:

1. Filtering Bottle, Borosilicate Glass, 10000ml (FFB5340-10000)	1
2. Buchner Funnel, Porcelain, 4800ml (JBF4800)	1
3. Filter Adapter Set of 7, Synthetic Rubber (FASN07)	1
4. Filter Paper, Medium Porosity/Flow, 24cm circle, pk/100 (FPR240)	1

Item No.	Description
WNTK2	Winterization Labware Kit, 2000ml
WNTK5	Winterization Labware Kit, 5000ml
WNTK10	Winterization Labware Kit, 10000ml

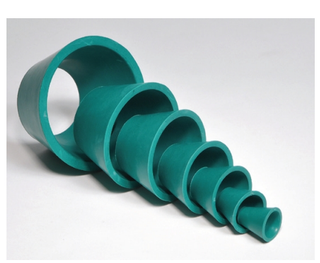
WINTERIZATION LABWARE KITS

Porcelain Buchner funnels include fixed perforated plates. Funnels are glazed on inner and outer surfaces except for the rims.

Autoclavable. Withstand temperatures to 1150°C. To prevent thermal stress cracks, we strongly recommend a heating/cooling rate not exceeding 200°C per hour. United porcelain buchner funnels offer excellent resistance to acids and alkalies except for hydrofluoric acid.

Porcelain buchner funnels can be placed in the freezer overnight to help maintain low temperatures during winterization

Item No.	Approx. Capacity (ml)	Top Dia. x Height (mm)	For Filter Paper Size (cm)	Qty per pack
JBF003	3	20 x 66	1.3	1
JBF035	35	50 x 91	4	1
JBF100	100	65 x 103	5.5	1
JBF200	200	86 x 140	7	1
F8590-6	350	105 x 162	9	1
F8590-7	600	127 x 194	11	1
F8590-8	800	143 x 200	12.5	1
JBF1150	1150	172 x 220	15	1
F8591-2000	2000	210 x 272	18	1
F8591-4800	4800	270 x 352	24	1



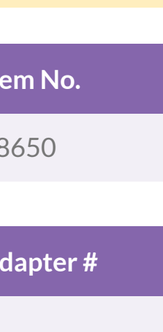
FILTER ADAPTER SET OF 7, SYNTHETIC RUBBER

Set of seven synthetic rubber adapter cones designed to fit Buchner and fritted glass funnels, porcelain filters without headpieces, and for reverse flow cleaning of filter crucibles. Adapters can be used to support funnels, Gooch crucibles, filter tubes, and other apparatus in filtration assemblies. These adapters are functional even if not tightly fitted around the funnel stem. Can be used individually or nested with adjacent sizes. Provide an excellent alternative to boring special size holes in rubber stoppers. Autoclavable.

Filter adapter set is used to make an air-tight seal between a buchner funnel and a filtering flask

Item No.	Description
F8650	Filter Adapter Set of 7, Synthetic Rubber

Adapter #	Top OD (mm)	Bottom OD (mm)	Top ID (mm)	Bottom ID (mm)
1	21	10	17	6
2	27	16	20	10
3	36	21	30	15
4	45	27	39	21
5	57	37	50	29
6	70	45	62	35
7	90	55	80	46



FILTERING BOTTLE, 10000ML, BOROSILICATE GLASS

With its thick glass walls and sturdy construction, this 10L bottle/flask is perfect for filtering large volumes of liquid. The thick walls and design enables this flask to withstand vacuum filtration without imploding. Graduated in 1000ml increments on a scale from 2000ml to 8000ml with an accuracy of +/- 5%. Neck size fits a #13 rubber stopper. The hose barb has an O.D. of 1/2".

Item No.	Description
FFB5340-10000	Filtering Bottle, 10000ml, Borosilicate Glass

FILTERING FLASKS, BOROSILICATE GLASS

Heavy wall borosilicate filtering flask includes a heavy-duty rim and a bolt neck with tubulation. Graduations are printed in durable white enamel.

Item No.	Capacity (ml)	Approx. O.D. x Height(mm)	Qty per pack	Qty per case
F4990-0050	50	52 x 85	6	24
F4990-0100	100	64 x 108	6	24
F4990-0250	250	86 x 160	1	18
F4990-0500	500	108 x 190	1	18
F4990-1000	1000	138 x 245	1	12
F4990-2000	2000	170 x 305	1	12
F4990-5000	5000	237 x 390	1	1

FILTER PAPERS, CIRCULAR, GRADE 1

The most widely used qualitative filter paper for routine applications. Medium porosity and flow rate. 100 circles packed in a cardboard box.

Item No.	Diameter (cm)	Qty per pack
FPR007	7	100
FPR009	9	100
FPR011	11	100
FPR125	12.5	100
FPR150	15	100
FPR180	18	100
F3400-240	24	100
F3400-320	32	100

Distillation

ABOUT DISTILLATION

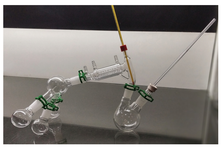
• Distillation is the process of separating the compounds of a solution according to their boiling points. Short path distillation uses a very small condenser and low pressure to isolate desired compounds. The compounds are collected in recovery flasks.

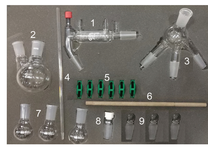
HOW UNITED (PRODUCTS) CAN HELP

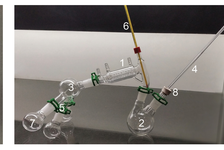
• Components are pre-selected for compatibility and offered as kits (Short Path Distillation Kits)

• Heating and stirring equipment is available in a variety of capacities and configurations (Heating Mantles)

• All glass components are made of high-quality borosilicate 3.3 glass (Condensers, Flasks, Distillation Head)







SHORT PATH DISTILLATION KIT, 250ML

This kit contains essential components for short path distillation. All glass parts are manufactured from high quality 3.3 borosilicate glass.

Short Path Distillation Head with 24/40 flask joints and 10/30 thermometer port features a condenser coil and three ¼" hose nozzles, two for condenser and one for vacuum.

The cow-type Distillation Receiver has one 24/40 outer joint and three 24/40 inner joints that can be used to attach up to three (included) 50ml Single Neck round bottom flasks.

The 250ml round bottom 2-Neck flask includes 24/40 outer joints to accept the Distillation Head and the Rubber Inlet Adapter. The Rubber Inlet Adapter holds the tapered Glass Inlet Tube.

The Thermometer, with a range of -10° to 50° C and filled with a petroleumbased solution with red dyes, connects to the Distillation Head through the 10/30 port.

Plastic Clamps (six included in the kit), size 24, are used to secure glassware connections.

Penny Head Glass Stoppers (three included in the kit) are used to cap the 50ml Single Neck round bottom flasks after distillate is collected.

Contents:

1. Short Path Distillation Head, Vacuum Jacketed, 24/40	1
2. Flask, Round Bottom, 2-Neck 250ml	1
3. Distillation Receiver, Cow-Type, 1-to-3, 24/40	1
4. Glass Inlet Tube, with Tapered End, 11"	1
5. Clamp for Jointed Glassware, Plastic, size 24	6
6. Thermometer, Red Spirit, -10° to 50° C, 12"	1
7. Flask, Round Bottom, Single Neck, 50ml, 24/40	3
8. Inlet Adapter, Rubber, with Glass Connector, 24/40	1
9. Stopper, Glass, Penny Head, 24/40	3

Item No.	Description
SPDK01	Short Path Distillation Kit, 250ml

SHORT PATH DISTILLATION KIT, 10L

This kit contains essential components for short path distillation. All glass parts are manufactured from high quality 3.3 borosilicate glass.

Short Path Distillation Head (two included in the kit) with 24/40 flask joints features a condenser coil and three ¼" hose nozzles, two for condenser and one for vacuum.

The cow-type Distillation Receiver (two included in the kit) has one 24/40 outer joint and three 24/40 inner joints that can be used to attach up to three 2000ml Single Neck round bottom evaporating flasks (six included in the kit).

The 10000ml round bottom 3-Neck flask includes 24/40 outer joints to accept the two included Distillation Heads. The center 24/40 joint holds the included Thermometer Inlet Adapter using a 10/30 port.

Penny Head Glass Stoppers (four included in the kit) are used to cap the 2000ml Single Neck round bottom flasks after distillate is collected.

PLEASE NOTE: Lab Jacks, Support Stands, Flask Stands, and Extension Clamps with Bosshead are not included in this kit.

Contents:

1. Short Path Distillation Head, Vacuum Jacketed, 24/40, 34/45	2
2. Flask, Round Bottom, 3-Neck 10000ml 24/40, 34/45	1
3. Distillation Receiver, Cow-Type, 250ml, 1-to-3, 24/40	2
4. Clamp for Jointed Glassware, Plastic, size 24	8
5. Clamp for Jointed Glassware, Plastic, size 34	2
6. Adapter Inlet, Thermometer, 24/40	1
7. Flask, Evaporating, Single Neck, 2000ml, 24/40	6
8. Stopper, Glass, Penny Head, 24/40 (not shown in photo)	4

Item No.	Description
SPD102	Short Path Distillation Kit, 10L

Short path distillation kits include pre-selected matched components to enable quick setup of labs

SHORT PATH DISTILLATION HEAD

Short path Distillation Head with 24/40 flask joints and 10/30 thermometer port. Distillation head is manufactured from high quality 3.3 borosilicate glass and features a condenser coil and three ¼" hose nozzles, two for condenser and one for vacuum.

Most popular head for short path distillation

Item No.	Description
D5001	Short Path Distillation Head

HEATING MANTLES WITH STIRRER

HMS1500 series Mantles feature stirring capability (50 – 750 RPM). Heating and stirring functions are independently controlled by 2 separate knobs. Each unit is supplied with a magnetic stir bar.

Mantles with stirrer feature polyurethane coated aluminum exteriors and a high quality knitted mantle with glass fiber underlay for uniform distribution of heat. Maximum operating temperature is 400°C. Mantles can be used in a wide range of ambient temperatures, from about 45°F to 100°F, and relative humidity up to 80%. The units are not waterproof, and are rated as IP code 10 equipment.

Power (from 0 – 100%) and stir speed (50 – 750 RPM) are controlled from 2 separate knobs that are built-into the unit. No need for a separate external control unit! Mantles are designed to securely hold flasks so that the top half of the flask is easily visible during operation. Elements can be replaced easily. An outlet tube is built-in for draining any spilled liquids. A 4-foot long grounded cord is included. Each unit features a fuse that can be easily replaced.

Heating mantles are used with a boiling flask and condenser to extract desired chemicals

Item No.	Mantle Capacity (ml)	Wattage (W)
HMS1500-100	100	150
HMS1500-250	250	150
HMS1500-500	500	200
HMS1500-1000	1000	300
HMS1500-2000	2000	470

BOILING FLASKS, FLAT BOTTOM, BOROSILICATE GLASS

Our boiling flasks are made from low-expansion borosilicate glass. Feature uniform wall thickness for superior mechanical strength and shock resistance.

Item No.	Capacity (ml)	Approx. O.D. x Height (mm)	Qty per pack	Qty per case
FG4060-50	50	51 x 90	6	24
FG4060-100	100	64 x 105	6	24
FG4060-150	150	74 x 112	6	24
FG4060-250	250	85 x 138	6	24
FG4060-300	300	88 x 143	6	24
FG4060-500	500	105 x 163	6	24
FG4060-1000	1000	131 x 190	1	6
FG4060-2000	2000	166 x 230	1	6
FG4060-3000	3000	185 x 250	1	1
FG4060-5000	5000	223 x 290	1	1

RECOVERY FLASKS, PEAR SHAPED, BOROSILICATE GLASS

Heavy wall recovery flasks are ideal for use with rotary evaporators. Flasks feature a square bead and a single neck with ground glass 24/40 joint. Opening at top is designed for easy recovery of reaction products using a spatula. Flask bottom fits standard heating mantles. Recovery flasks can be special ordered with custom joint sizes and capacities.

Item No.	Capacity (ml)	Approx. O.D. x Height (mm)	Joint Size	Qty per pack	Qty per case
FGR0050	50	48 x 85	24/40	6	24
FGR0100	100	60 x 105	24/40	6	24
FGR0250	250	80 x 140	24/40	6	24
FGR0500	500	100 x 175	24/40	6	24
FGR1000	1000	120 x 210	24/40	6	24
FGR2000	2000	160 x 250	24/40	1	8

LABORATORY JACKS

Laboratory support jacks are constructed of painted aluminum and stainless steel. The scissor jack design enables height adjustment with a simple turn of the knob.

LBJK44 has a 4" x 4" platform that can be vertically adjusted from a closed position of 2.5" up to 6". Maximum load capacity is 10kg.

LBJK66 has a 6" x 6" platform that can be vertically adjusted from a closed position of 3" up to 10.5". Maximum load capacity is 20kg.

LBJK88 has a 8" x 8" platform that can be vertically adjusted from a closed position of 2.5" up to 11.75". Maximum load capacity is 25kg.

Item No.	Description
L9095	Laboratory Jack, 4" x 4" Platform
LBJK66	Laboratory Jack, 6" x 6" Platform
L9095-3	Laboratory Jack, 8" x 8" Platform

HEATING MANTLES

These heating mantles are designed for use with round bottom flasks. Features include polyurethane coated aluminum exteriors and a high quality knitted mantle with glass fiber underlay for uniform distribution of heat. Maximum operating temperature is 400°C. Mantles can be used in a wide range of ambient temperatures, from about 45°F to 100°F, and relative humidity up to 80%. The units are not waterproof, and are rated as IP code 10 equipment.

Power is controlled (from 0 – 100%) by a knob that is built into the unit - no need for a separate external power control unit. Mantles are designed to securely hold flasks so that the top half of the flask is easily visible during operation. Elements can be replaced easily. An outlet tube is built-in for draining any spilled liquids. A 4-foot long grounded cord is included. Each unit features a fuse that can be easily replaced.

Item No.	Mantle Capacity (ml)	Wattage (W)
HM1000-100	100	150
HM1000-250	250	150
HM1000-500	500	200
HM1000-1000	1000	300

FLASK STANDS, CORK

Made of fine particle compressed cork, these rings are designed to support round bottom flasks, beakers, dishes and more. Cork is naturally elastic with very low thermal and electrical conductivity properties.
Small cork stand has a diameter of 100mm and holds 250ml to 2000ml round bottom flasks. Large cork stand has a diameter of 120mm and holds 500ml to 3000mL round bottom flasks.

Item No.	Description
FSC100	Cork Stand, 100mm diameter
FSC120	Cork Stand, 120mm diameter

CONDENSERS, GRAHAM, 24/40 JOINT

Graham condenser is designed for use in distillation applications. Constructed of borosilicate glass, this condenser has a coiled inner tube to provide additional surface area for highly efficient cooling. Socket is 24/40 with a screw thread connector.

Item No.	Description
CNG200	Condenser, Graham, 200mm, 24/40 Joint
CNG300	Condenser, Graham, 300mm, 24/40 Joint
CNG400	Condenser, Graham, 400mm, 24/40 Joint
CNG500	Condenser, Graham, 500mm, 24/40 Joint

CONDENSERS, LIEBIG, 24/40 JOINT

Liebig condensers are used to cool and condense hot vapor as part of a distilling apparatus. This condenser has a straight inner tube that the condensing vapor passes through, and a larger outer jacket that cooling water passes through. Socket is 24/40 with a screw thread connector.

Item No.	Description
CNL200	Condenser, Liebig, 200mm, 24/40 Joint
CNL300	Condenser, Liebig, 300mm, 24/40 Joint
CNL400	Condenser, Liebig, 400mm, 24/40 Joint
CNL500	Condenser, Liebig, 500mm, 24/40 Joint