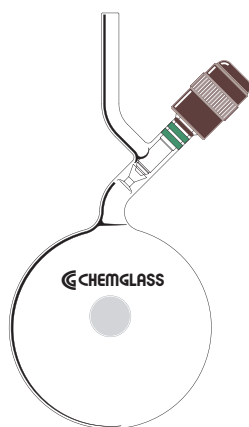


GAS SAMPLING



CG-1800

CG-1800 GAS BALLOON, THREADED VALVE

Gas balloon with a Chem-Vac® Chem-Cap® 0-4mm High Vacuum valve.

Part Number	Capacity (mL)
CG-1800-01	100
CG-1800-02	250
CG-1800-03	500
CG-1800-04	1000

Part Number	Description
CG-961-01	0-4mm Plug and Control Knob



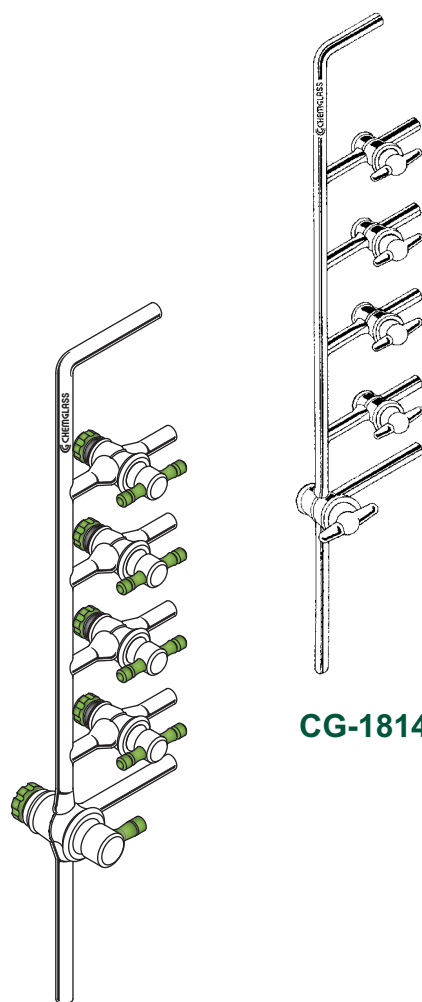
CG-1808

CG-1808 GAS SAMPLING TUBE, TEFLON STOPCOCKS, SAMPLING PORT

Tube is designed for the collection and storage of gas samples. The syringe sampling port is for use with a CG-3022-05 or CG-3022-22 sleeve type septum stopper. Supplied complete with one CG-3022-05 red septum stopper.

Part Number	Capacity (mL)	Stopcock Size	Approx Overall Length (mm)
CG-1808-01	125	2mm	290
CG-1808-02	250	4mm	320
CG-1808-03	500	4mm	345

Part Number	Description
CG-424-77	2mm Teflon Plug Only
CG-424-75	4mm Teflon Plug Only



CG-1816

CG-1814

CG-1814 GAS MANIFOLD, 4-PLACE, GLASS STOPCOCKS

Four port manifold with 2mm bore glass stopcocks on the ports. A T-bore stopcock is located 100mm from the end of the manifold and 40mm from the first port. The distance between the other 3 ports is 50mm with the last port being 75mm from the opposite end of the manifold. The entire manifold is constructed of capillary tubing having an OD of 8mm and an ID of 2mm.

Part Number	Approx Overall Length (mm)
CG-1814-01	365

Part Number	Description
CG-400-98	2mm Glass Plug Only
CG-410-90	2mm T-Bore Glass Plug Only

CG-1816 GAS MANIFOLD, 4-PLACE, TEFLON STOPCOCKS

Similar to CG-1814 but supplied with all Teflon stopcocks.

Part Number	Approx Overall Length (mm)
CG-1816-01	365

Part Number	Description
CG-424-77	2mm Teflon Plug Only
CG-436-67	2mm T-Bore Teflon Plug Only

CG-1818 GAS EVOLUTION MEASUREMENT APPARATUS

Apparatus provides a convenient and accurate method for the determination of the concentration or purity of active metals and metal hydrides. Metals and metal hydrides that can be analyzed in this manner include borane-methyl sulfide complexes, borane tetrahydrofuran, sodium and lithium as dispersions in mineral oil, lithium aluminum hydride. These active metals and metal hydrides react rapidly and quantitatively with suitable hydrolytic solvents to produce hydrogen gas. Available in three capacities: 50mL, 250mL and 1000mL. All complete units supplied with a buret, a CG-3503-12, -10 to 250°C thermometer, a CG-1046-01 24/40 thermometer adapter and a leveling bulb with a 24/40 top outer and a lower detachable hose connection. The leveling bulb capacity varies with the capacity of the buret and has a hose connection of 8mm OD. Flexible tubing is not supplied with the apparatus.

Specifications:

Capacity (mL)	Subdivisions (mL)	Approx Height (mm)	Leveling Bulb Capacity (mL)
50	1.0	400	500
250	2.0	400	1000
1000	10.0	640	3000

COMPLETE APPARATUS:

Part Number	Capacity (mL)
CG-1818-01	50
CG-1818-02	250
CG-1818-03	1000

BURET ONLY:

Part Number	Capacity (mL)
CG-1818-20	50
CG-1818-21	250
CG-1818-23	1000

LEVELING BULB ONLY:

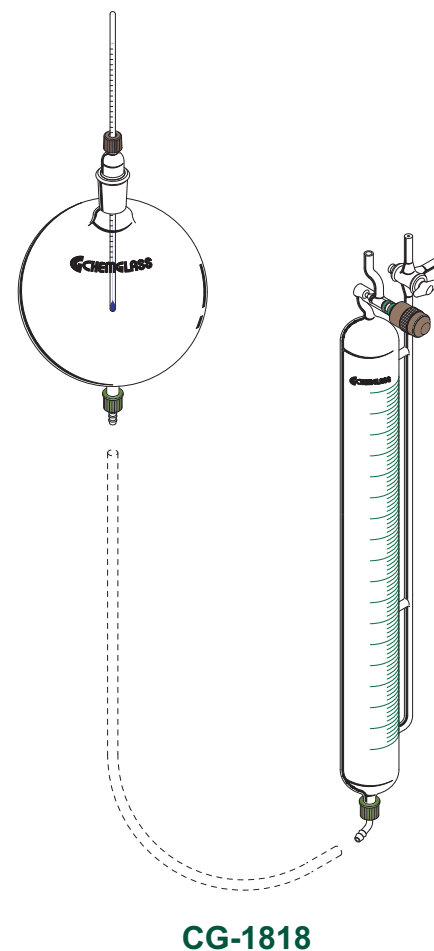
Part Number	Capacity (mL)
CG-1818-30	500
CG-1818-32	1000
CG-1818-33	3000

Replacement Components:

CG-1046-01	Thermometer Adapter Only, 24/40
CG-3503-12	Thermometer Only, -10 to 250°C
CG-198-02	Replacement Plastic Hose Connection, Straight
CG-198-01	Replacement Plastic Hose Connection, Bent

To operate: Attach tubing from T-Bore stopcock to reaction. With both the T-Bore stopcock and upper valve open to the atmosphere, the leveling bulb is adjusted to give a zero reading for the level of distilled water in the gas buret. After the above process is complete, the T-Bore stopcock and the upper valve are turned so that the reaction and buret form a closed system. When the hydrolysis is complete, the water level in the capillary side tube will be at a level considerably below the water level in the buret. To obtain an accurate reading, the level in the buret must be equal to that in the capillary side tube. This is accomplished by rapidly lowering the leveling bulb to a point below the connection to the reaction and raising the bulb to its original position. This process is repeated until the level of water in the buret, leveling bulb and side tube are all equal. A final reading can now be taken from the calibrations on the buret.

Design Suggested By:
Dr. Ron Najafi
NovaCal Pharmaceuticals
Emeryville, CA



CG-1818

GAS SAMPLING, IMPINGERS

CG-1820 MIDGET IMPINGER, GRADUATED

Micro impinger designed for sampling of small volumes of air at low jet velocity, as per EPA Method 6. Impinger bottle is graduated from 5 to 30mL in 5mL subdivisions. Both the bottle and stopper have 24/40 standard taper joints. The orifice at the impinger tip is 1mm, passing 0.09 to 0.11 CFM of air at 12" H₂O vacuum. Available with 12/5 or plain tubulations.

Complete Impinger:

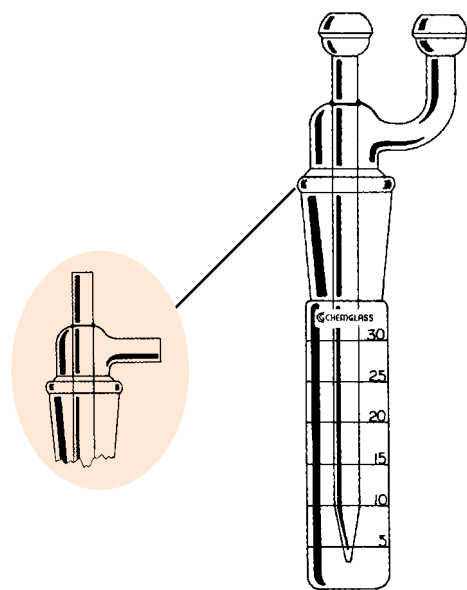
Part Number	Joint Size
CG-1820-01	Plain
CG-1820-02	12/5

Stopper Only:

Part Number	Joint Size
CG-1820-04	Plain
CG-1820-05	12/5

Bottle Only:

Part Number	Joint Size
CG-1820-10	24/40



CG-1820

CG-1821 MIDGET BUBBLER, GRADUATED

Similar to CG-1820, but with the nozzle being replaced with an extra coarse fritted gas dispersion tube which enhances absorption by trapping the liquid. Available with 12/5 or plain tubulations.

Complete Bubbler:

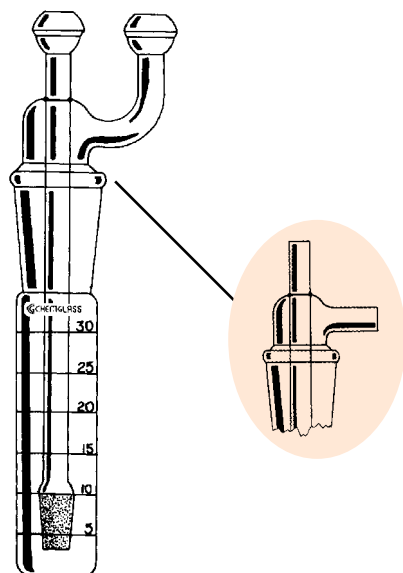
Part Number	Joint Size
CG-1821-01	Plain
CG-1821-02	12/5

Stopper Only:

Part Number	Joint Size
CG-1821-04	Plain
CG-1821-05	12/5

Bottle Only:

Part Number	Joint Size
CG-1820-10	24/40



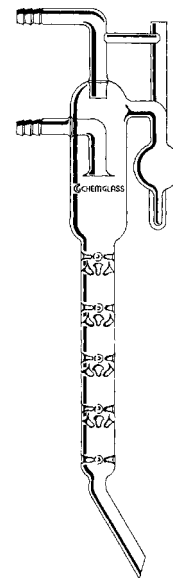
CG-1821

GAS SAMPLING, IMPINGERS

CG-1819 GAS SCRUBBER

Gas scrubber designed for use with water-soluble gases such as sulfur dioxide, ammonia and hydrogen bromide. Gas vapors are scrubbed in the Vigreux section and then drained. The column has an OD of 25mm and is 270mm long. Overall height is approximately ~610mm with the width ~160mm.

Part
Number
CG-1819-01



CG-1819

CG-1822 IMPINGER, GREENBERG-SMITH, 45/50

High velocity impinger used in the determination of dust concentration in air or other non-condensable gases, as per EPA Method 5. Both the bottle and stopper have 45/50 standard taper joints. Stoppers are available with either 28/15 ball joints or plain tubulations. The bottle capacity is 500mL.

Complete Impinger with Plain Tip:

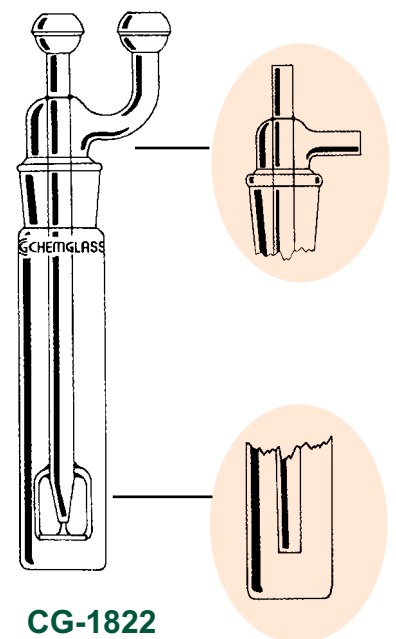
Part Number	Joint Size
CG-1822-01	Plain
CG-1822-03	28/15

Stopper Only with Plain Tip:

Part Number	Joint Size
CG-1822-07	Plain
CG-1822-09	28/15

Bottle Only:

Part Number	Joint Size
CG-1822-13	45/50



CG-1822

GAS DISPERSION TUBES

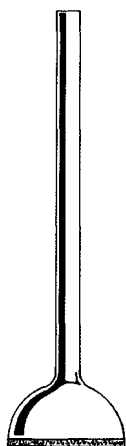


CG-203

CG-203 GAS DISPERSION TUBE, FRITTED

Hollow fritted cylinder at the end of an 8mm OD tube. Cylinder is approximately 12mm OD x 20mm long. Overall length is approximately 10".

Part Number	Porosity
CG-203-01	F
CG-203-02	M
CG-203-03	C
CG-203-04	XC



CG-204

CG-204 GAS DISPERSION TUBE, FRITTED

Fritted gas dispersion tube has stem diameter and length as indicated.

Part Number	Disc OD (mm)	Porosity	Stem OD x Length (mm)
CG-204-01	10	F	6 x 110
CG-204-02	10	M	6 x 110
CG-204-03	10	C	6 x 110
CG-204-04	10	XC	6 x 110
CG-204-05	20	F	8 x 115
CG-204-06	20	M	8 x 115
CG-204-07	20	C	8 x 115
CG-204-08	20	XC	8 x 115
CG-204-09	30	F	8 x 190
CG-204-10	30	M	8 x 190
CG-204-11	30	C	8 x 190
CG-204-12	30	XC	8 x 190
CG-204-13	40	F	8 x 180
CG-204-14	40	M	8 x 180
CG-204-15	40	C	8 x 180
CG-204-16	40	XC	8 x 180



CG-205

CG-205 GAS DISPERSION TUBE, FRITTED, 15° ANGLE

The 15° angle permits tube to be inserted into vessels where a large opening is not available. Stem is 8mm OD x ~150mm long.

Part Number	Disc OD (mm)	Porosity	Required Opening (mm)
CG-205-01	10	F	18
CG-205-02	10	M	18
CG-205-03	10	C	18
CG-205-04	10	XC	18
CG-205-05	20	F	25
CG-205-06	20	M	25
CG-205-07	20	C	25
CG-205-08	20	XC	25
CG-205-09	30	F	37
CG-205-10	30	M	37
CG-205-11	30	C	37
CG-205-12	30	XC	37
CG-205-13	40	F	50
CG-205-14	40	M	50
CG-205-15	40	C	50
CG-205-16	40	XC	50

GAS DISPERSION TUBES

CG-206 GAS DISPERSION TUBE, FRITTED, 90° ANGLE

The 90° angle permits bubbles to be spread over a large area. Stem is 8mm OD x ~150mm long.

Part Number	Disc OD (mm)	Porosity	Required Opening (mm)
CG-206-05	20	F	35
CG-206-06	20	M	35
CG-206-07	20	C	35
CG-206-08	20	XC	35
CG-206-09	30	F	47
CG-206-10	30	M	47
CG-206-11	30	C	47
CG-206-12	30	XC	47
CG-206-13	40	F	60
CG-206-14	40	M	60
CG-206-15	40	C	60
CG-206-16	40	XC	60



CG-206

CG-207 GAS DISPERSION TUBE, MICRO, FITTED

Micro size gas dispersion tube having a frit 7mm OD x 12mm. Stem is 6mm OD x 100mm long.

Part Number	Porosity
CG-207-01	F
CG-207-02	M
CG-207-03	C
CG-207-04	XC



CG-207

CG-220 GAS DISPERSION TUBE, LARGE CAPACITY, FRITTED

Large capacity gas dispersion tube having a frit 25mm OD x 70mm long. Stem is 16mm OD x 200mm above the frit. Overall length is approximately 280mm.

Part Number	Porosity
CG-220-01	C
CG-220-02	XC



CG-220