

Air sampling

Consumables solutions



dust



heat



noise



gas



vibration



light





Air sampling

Consumables solutions

With over 200 years of history, Casella Measurement is today a reputable leader in the development, manufacture and supply of industrial hygiene, occupational health and environmental monitoring instrumentation. As a global company with offices and distributors worldwide, Casella CEL ensure quality service worldwide.

The range of air sampling consumables within this catalogue compliment the market leading air sampling pumps that Casella CEL is renowned for - For all your air sampling needs, think Casella CEL.



How To Guide	3
Air Sampling Pumps	6
Personal Air Sampling Pumps (TUFF)	6
Air Sampling Kits	7
Air Sampling Accessories	8
Sampling Heads	8
Asbestos Sampling Media	9
Gas & Vapour Sampling	9
Blank Sampling Cassette Housings	10
Pre-Loaded Cassette Housings	10
Pre-Weighed Filter Cassettes	11
Match Weighed Cassettes	11
Cassette Accessories	11
Impingers and Bubblers	12
Tedlar and Teflon bags	12
Calibration Devices and Adaptors	13
Filters	14
GFA	14
MCE	14
PVC	15
PTFE	15
Polycarbonate	16
Quartz	16
Silver	17
Support Pads	17
Sorbent Tubes	18
Charcoal	19
Silica	19
Chromosorb	19
Porapak	20
Tenax	20
XAD	20
Colorimetric Tubes	21
Sampling Pumps for Tubes	22
Notes	23



Introduction to Air Sampling

The basis for air sampling is to sample a volume of air through a suitable sampling medium, usually paper or solid filter media for particulates and fumes and through sorbent materials for gases and vapours. Another is via impingers and bubblers or a grab sample taken into a gas sampling bag.

The volume of air is measured and calculated as a concentration expressed as mg/m³ or parts per million (ppm).

Sampling for particulates, dusts and fumes

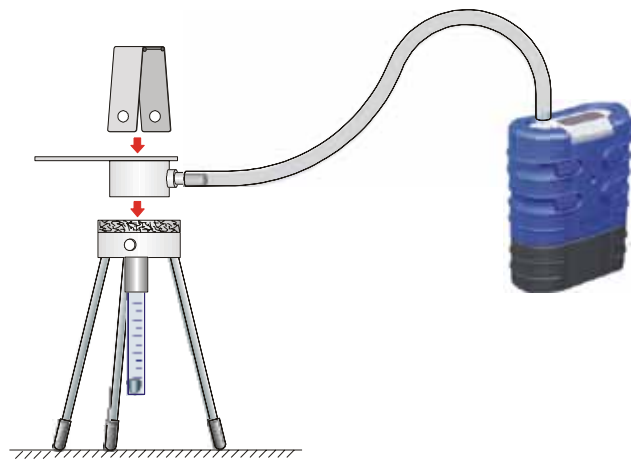
A complete range of sampling media is available. These filters are used in conjunction with sampling heads or as integral sampling cassettes.

Always refer to the relevant sampling guidance and methodologies (eg. MDHS, OSHA or NIOSH) to ensure selection of the correct sampling media for the analyte to be sampled.

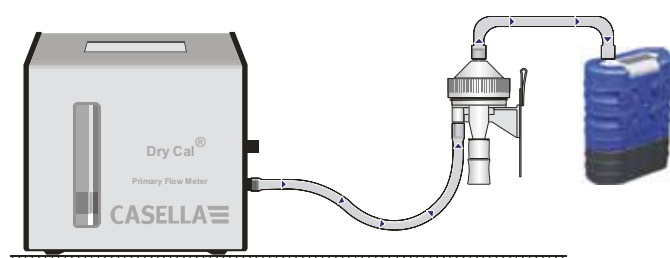
Sampling Train

A typical sampling train includes a sampling head (or cassette) complete with filter inserted, connected via a length of tubing to the air sampling pump. Each sampling head requires a specific flow rate and this is set via a calibrator prior to and after sampling. These may be via a simple rotameter or digital flowmeter:

Example of an inhalable head with rotameter



Example of a respirable head with digital flow meter



The sampling head should then be mounted on the individual to be sampled, within 30 cms of the breathing zone.

Sampling Heads and Cassettes

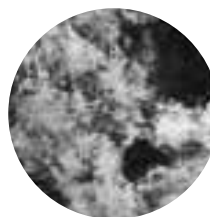
A variety of sampling heads and cassettes are available for asbestos, total inhalable, respirable and other dust fractions. Please refer to the relevant section of the catalogue for further details.



Sampling Filter Media

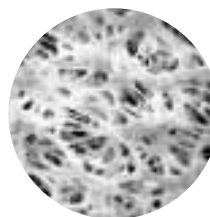
PTFE Filter Membrane

- Used for post sampling chemical analysis
- Strong, chemically resistant membranes for air monitoring and sampling in aggressive environments



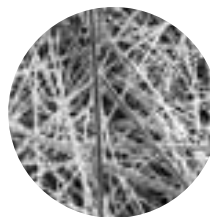
PVC Membrane Filter

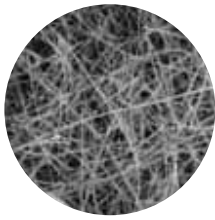
- For sampling airborne metals, silica, and dust
- Post sampling chemical analysis
- Assures gravimetric stability. Low moisture pick-up and low tare weight
- Low ash. Provides interference-free silica determinations



Glass Microfibre Filter (GFA)

- Fastest flow rate and high load capacity
- Retention of particles to sub-micron size
- Temperature range up to 500°C
- Most commonly used media for gravimetric dust samples
- Inert fibre composition
- Free of binders or additives

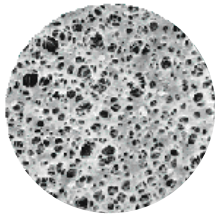




Quartz filter

Suitable for a broad range of air monitoring applications

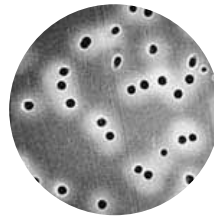
- Heat treated for reduction of trace organics and superior chemical purity
- High temperature use for analysis of acidic gases and stack sampling aerosols
- High flow rate and filtration efficiency



MCE filter

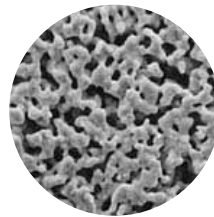
Developed from a mixture of cellulose acetate and cellulose nitrate, MCE membrane filters are one of the most widely used filters in both air monitoring and analytical applications. Not subject to moisture issues and an economical membrane for air monitoring applications

- Suitable for air monitoring applications
- Dissolves completely using standard digestion procedures



Polycarbonate Membrane Filter

- Smooth glass-like surface with cylindrical pores for maximum particulate capture
- Precise pore sizes and pore distribution for absolute filtration and separation
- Very low extractables
- Biologically inert
- Excellent chemical resistance and thermal stability
- Superior strength



Silver Membrane Filters

- 99.97% pure silver
- High temperature resistance
- High chemical resistance
- Economical – can be cleaned & reused
- Smooth surface for particle capture and easy observation

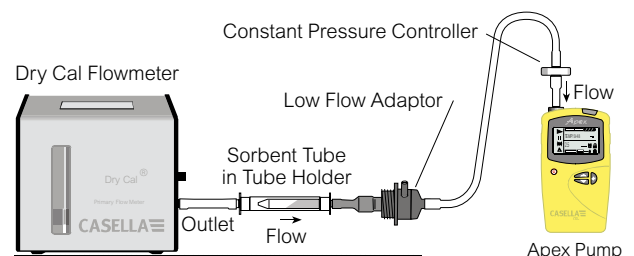
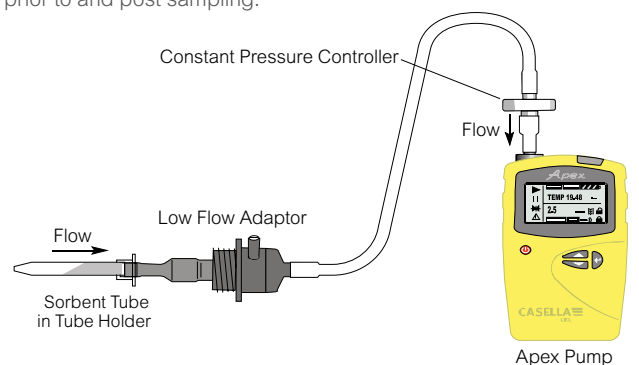
Material	Main Properties	Air Sampling Applications
MCE	<ul style="list-style-type: none"> • Readily soluble for atomic absorption analysis • Readily rendered transparent for transmitted light microscopy • Dissolve and clear easily 	<ul style="list-style-type: none"> • Metal dust analysis • Asbestos & man-made fibers • Air Quality
PVC	<ul style="list-style-type: none"> • Low moisture pick up. • Non-oxidizing surface • Silica-free • Low ash membrane • Low tare weight for gravimetric analysis 	<ul style="list-style-type: none"> • Gravimetric analysis • Hexavalent chromium • Silica
PTFE	<ul style="list-style-type: none"> • Hydrophobic • Inert to solvents, acids & bases • Aggressive environments 	<ul style="list-style-type: none"> • Alkaline dusts • PAH's • Pesticides • Isocyanates • Ambient Air quality
Poly-carbonate	<ul style="list-style-type: none"> • Hydrophobic • Microscopically smooth surface • Precise pore sizes • Inert • Strong 	<ul style="list-style-type: none"> • Scanning electron microscopy • Asbestos fibers
Silver	<ul style="list-style-type: none"> • Wide solvent compatibility • Higher temperature tolerance • Autoclavable • Uniform porosity and thickness 	<ul style="list-style-type: none"> • Bromine • Asbestos by TEM • Silica by x-ray diffraction
Glass Fibre	<ul style="list-style-type: none"> • Up to C500 degree range • Inert composition • High particulate retention 	<ul style="list-style-type: none"> • General gravimetric • Isocyanates • Ethylene glycol • Air Quality Fractions
Quartz	<ul style="list-style-type: none"> • Heat treated • Low level metals content • High temperature 300°C • Autoclavable • High filtration efficiency 	<ul style="list-style-type: none"> • General air sampling • High temperature applications • Stack sampling • Diesel particulates • Acidic gases

Sampling for solvents and vapours

Solvents, gases and vapours are sampled actively using air sampling pumps and sorbent tubes, into bubblers, gas bags, direct reading tubes or passively using diffusive sampling badges.

Sampling Train

Typical sampling train for gas and vapour adsorbent tube sampling requires a tube with ends broken off inserted into a tube holder and connected to a pump. The pump may be a specific low flow pump or a medium flow pump (Tuff or Apex) with a Constant Pressure Controller (CPC) and low flow adaptor assembly connected. (as shown below). Flow rate (typically 10-120ml/min) needs to be set prior to and post sampling.





Solid Sorbent Sampling Tubes

Sorbent materials are used which adsorb the vapour or gas onto their surface during sampling and this is then desorbed from the material (via other chemicals or thermally) and subjected to further chemical analysis typically via a gas chromatograph.

Organic vapours and gases can be collected using several different sampling media including charcoal sampling tubes in conjunction with Casella CEL low-flow sampling pumps. For each analyte, a suitable reference work or methodology is consulted. You can refer to Casella Air Sampling Solutions (www.airsamplingsolutions.com) or the relevant MDHS, NIOSH or other in territory sampling methodologies for specific details on required sampling media, sampling rates, and sampling times for specific chemicals.

Flow rates vary but generally have to be slow enough for the vapours to be absorbed and are in the range 20–100ml/min. There are generally two sizes of tubes, small and large. For most routine sampling the small size will suffice but in suspected high concentration areas the larger size may be more appropriate to avoid saturation of the tubes. Always refer to the sampling methodologies for the media and the required sample volume and flow rate.

Typical sorbent sampling tube.



Various adsorbent materials are used including Charcoal, Chromopak, Tenax and others. Silica gel is also used as the adsorbent material for polar hydrocarbons, low molecular weight mercaptans, methanol, amines and inorganic acids. Some specially reagent treated tubes are also used eg 2,4-dinitrophenylhydrazine for aldehyde sampling, sulphuric acid treated for ammonia.

Most tubes have several layers of material, where the smaller layer is the back up layer and should be closest to the sampling pump inlet (If printed arrows are present, point arrow towards pump).

Both ends of the tube are broken off, the sample taken with the tube in an approximately vertical position on the body and the tube sealed with the cap ends and sealing tape and sent off for analysis.

The two layers will be analysed separately, and if the back up layer is more than 10% of the main layer the tube is deemed as saturated, and the sample will be discarded.

Charcoal tubes are the most common type of tube for organic vapour sampling, but are not always suitable.

Bubblers and Impingers

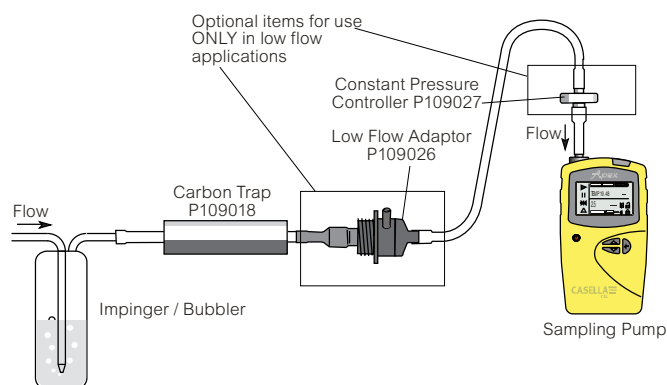
These are used for adsorption of particles acids, alkalis, vapours and gases via a liquid sorbent. The detection is by dissolution or by chemical reaction.

Impingers have a tapered outlet which allows particulate matter to exit at high velocity, hit the flask bottom and be captured into the solution, whilst bubblers are open or fritted to increase surface area so the gases can be absorbed into solution, these are generally the preferred solution for gas and vapour sampling.

Impingers and bubblers can be positioned in an area, held or worn in a holster.



Typical sampling train for bubblers:



Diffusive (Passive) Sampling

Diffusive or passive samplers are also used for background sampling. Badges are opened for sampling, worn on the person, sealed and sent off for analysis where the substances are desorbed via another solvent and subjected to gas chromatography.



Gas Sampling Bags

These are constructed from a range of materials. The bags are used with a sampling pump and can be used for grab sampling or for longer term sampling at lower flow rates. A range of capacities is available.

Direct Reading Colour Detection Tubes

These are glass vials, filled with chemical reagents that react to a specific chemical or family of chemicals. A known volume sample is drawn through the tube via a hand syringe for a set number of pulls (indicated on the tube).

If the targeted chemical is present, the reagent in the tube changes colour, with the length of the colour read against a concentration scale on the tube. Select the appropriate tube for the required hazard.





Personal Sampling Pumps

How to guide

Air Sampling Pumps

Air Sampling Accessories

Filters

Sorbent Tubes

Colourimetric Tubes



TUFF™ Air Sampling Pump

The TUFF range of personal air sampling pumps offer the user an extremely robust, rubber over-moulded unit designed specifically for use in harsh monitoring environments. With the range offering a wide flow rate from 5 ml/ min* to 4.5 l/min.

TUFF pumps are ideally suited to a wide range of occupational health sampling applications from simple abatement sampling of lead and asbestos, to more specialised industrial hygiene monitoring of dusts, fumes and vapours. The units offer excellent functionality at a competitive price.

TUFF has been ergonomically designed for user comfort with easy to read display and high intensity alarm LED's for fault indication.

The TUFF range meet EN1232 and NIOSH 0600 requirements for personalised sampling pumps in workplace environments.

Key Features

- Robust and reliable design for harsh environments (IP54)
- Rubber over-moulded sealed case
- Outstanding operational duration
- Exceptional flow control
- Convenient drop in charging/storage system
- Intelligent battery management
 - Fast battery charge <3 hrs (5hrs on 3way)
 - Removable NiMH battery pack (1.7 or 2.7 Ah)
 - Remaining run time "fuel gauge" (Pro variants)
- Visible replaceable inlet filter
- Diagnostic monitoring of pump and battery service life
- Intuitive user interface and menu
- High intensity status/alarm LED's
- IEC Ex, ATEX, ANZEx & FM listed intrinsically safe models available
- Intrinsically safe models available for mining applications (M1 certified)
- Advanced programming capabilities (Pro variants)
- High or low flow capabilities*

TUFF Pump Range / Functionality

TUFF pumps are available with either 3 or 4.5 l/ min maximum flow rate capability. Standard, Plus and Pro models then provide different levels of functionality and programmability:

TUFF Standard Models:

Entry level pumps for abatement and general sampling applications. With simple single point flow setting, elapsed run time counter and run mode only. Simple battery life indication. Drop in fast charger.

TUFF Plus Models:

Offer additional functionality including: Display of flow set point, real time flow rate, accumulated sample time and volume. Programmable Run Duration mode. Upgradeable to Pro.

Intrinsically Safe (I.S.) Models:

I.S. models are used where hazardous atmospheres can be present from flammable gases or dusts. In this situation, I.S. models should be used. Additional models are available which satisfy the stringent requirements of mining applications that are rated to 'M1', the only pump in the world to have this level of certification.

TUFF Pro Models:

Offers advanced program functionality and download capabilities suited to the most demanding occupational and industrial hygiene applications. Offers all functionality of the Plus model with the addition of:- Intelligent Hours Remaining Battery 'Fuel Gauge', Time Weighted Average (TWA) sampling mode, 2 user defined timer programmes (9 on / off times) and onboard data logging for up to 100 runs with download capability to Casella Insight Data Management Software (see separate data sheet).

*with low flow adaptor



Personal Sampling Pumps

Specification

Technical:		Intrinsic Safety Approvals:	
Flow Range:	5 ml /min* to 4.5l /min (3l /min on Tuff 3 variant)	<div> <div>Ex</div> <div>I M1</div> <div>Ex Ia I Ma</div> <div>Ta = -200°C to +410°C</div> </div>	<div> <div>Ex</div> <div>II 1G</div> <div>Ex Ia IIB T3 Ga</div> <div>Ta = -200°C to +410°C</div> </div>
Flow Control Accuracy:	Control typical < ±3% at calibrated point	Environmental:	
Inlet Pulsation Ratio:	<10% @ 2l /min	In storage:	Temperature: -10 to +50°C Humidity: 30-95% RH (non condensing)
Runs Stored:	100 (Pro Versions Only)	In operation:	Temperature: 0 to 45°C Humidity: 30-95% RH (non condensing)
Display:	100 x 32 Graphics LCD	Operation Duration:	@2.0L /min via 25mm GFA filter: >30hrs 2.7Ah / >20hrs 1.7Ah
Typical Charge Time:	<5hrs from discharge		
Size mm:	133 x 87 x 47mm		
Weight gm:	480g		
Service Interval:	Recommended 2500 hrs		
IP Ratings:	Gasket Sealed Case IP54		

*with low flow adaptor

Ordering Information:

Pumps are configured when ordered via a selection matrix. All part numbers start with the letter 'P', then select if intrinsic safety is required, then select the pump variant you require – either 3 or 4.5 l/min flow range, standard, Plus or Pro variant and select the appropriate prefix. Then select the battery you require – standard (1.7Ah) or high capacity (2.7Ah). Finally select if charger is required. The corresponding 'P' number is the part number used for ordering.

Product:	Battery:	Charger:
30 Non-I.S.	No Battery 0	None 0
31 I.S.	Standard 1	1way 1
32 M1 Certified I.S. for Mining	High Capacity 2	

Pump Variants:
Tuff 3 31
Tuff 3 + 32
Tuff 3 Pro 33
Tuff 4 41
Tuff 4 + 42
Tuff 4 Pro 43

Pumps can be configured to application by completing the matrix:

P	Product	Variant	Battery	Charger
	3	x	x x	x

Example. TUFF 4 with high capacity battery and single way charger will be:

P	3	0	4	1	2	1
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Air Sampling Kits

Once the relevant TUFF pump is selected, select the relevant kit below as a starter to begin sampling.

Particulate Sampling

P104153

Tuff Dust Sampling Starter Kit including:

Plastic carry case with accessories box, 0.3 to 3 l/m flowmeter, flowmeter stand, Total Inhalable sampling head and cassette (1off) & Filter tweezers.

Vapour and Gas Sampling

P104154

Tuff Sorbent Tube Sampling Starter Kit including:

Plastic carry case with accessories box, low flow adaptor (includes CPC), dry flow meter and tube cutter

Add other sampling heads as required as well as selecting the correct sampling media.



Air Sampling Accessories

How to guide

Air Sampling Pumps

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Filters

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Colourimetric Tubes



P109009A

All the sampling heads are designed for use with a controlled rate of air provided via a personal air sampling pump. Sampling media are placed inside the heads directly, or via cassettes and the sample analysed or weighed gravimetrically afterwards. Inhalable sampling heads collect a particle size distribution of 100 micron and smaller.



116000B

Respirable fraction sampling heads are specifically designed to separate out the smaller dust fractions, which travel further into the human airways, and are generally more harmful. The collection efficiency curve meet the ACGIH/ISO/CEN standards for a respirable curve with a median 50% cut point of 4µ. The cyclones work by physical separation of particles, whilst the Conical inhalable head operates by utilising size selective foams which can also give the PM fractions of particulates.

Sampling Heads

Inhalable Fraction

Cat No.	Description	Quantity Unit / Pack Size
P109009A	Inhalable dust sampling head with plastic cassette	1
P101008	Inhalable sampling head complete with metal cassette	1
P109010	Plastic cassette for inhalable sampling head, with transport clip	1
P109056	Metal cassette for inhalable sampling head, with transport clip	1
P109015	PUF respirable filters (foam inserts for inhalable sampling head)	1
P101009	Bioaerosol Button Sampler (for sampling inhalable dust including bioaerosols for viable/ non viable analysis)	1

Respirable Dust Fraction

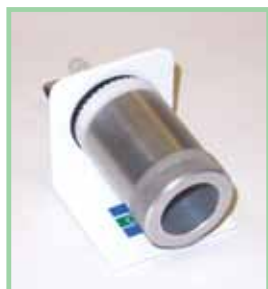
Cat No.	Description	Diameter (mm)	Quantity Unit / Pack Size
116000B	Plastic cyclone (Higgins-Dewell)	25mm	1
P104044	Pack of plastic cassette (25mm) for plastic cyclone	25mm	1
P104096	Pack of plastic cassettes (37mm) for plastic cyclone	37mm	1
P101010	Dorr Oliver Cyclone assembly. Consists of a two-stage cyclone and lightweight aluminum frame, which mounts a standard 2 or 3 piece 37mm filter cassette.	37mm	1
P101011	Nylon Respirable Cyclone (10mm) Dorr Oliver Style	10mm	1
P101012	Aluminum Cyclone for Respirable Dust- (for use with 37mm cassettes)	37mm	1
P101013	Zefon Aluminum Cyclone for Respirable Dust with Holder	37mm	1
P101014	Universal Cassette and Cyclone Holder		1
P101015	Aluminum Cyclone Calibration Chamber		1
P101016	Calibration Jar for Dorr Oliver cyclones		1
P101017	Replacement Grit Pots for Aluminium cyclone,(pk 25)		Pack of 25
P101018	Replacement O rings for Aluminium cyclone		1
P118200	Conical Inhalable Sampler (CIS)		1
P108201	Plastic cassette for CIS (Conical Inhalable Sampler)		1
P118204	PUF PM2.5 filters (foam inserts) for CIS		1
P118203	PM2.5 Cassette for CIS		1
P118208	PUF respirable filter (foam inserts) for CIS		1
P118207	Respirable cassette for CIS		1
P118206	PUF PM10 filters (foam inserts) for CIS (PK10))		Pack of 10
P118205	PM10 cassette for CIS (All PUF are supplied in packs of 10)		Pack of 10

Other Heads

B8254/Z	Total Inhalable sampler (7 Hole or MMMF head)	25mm
B8255/Z	25mm Nylon open faced filter holder	25mm
B7632/Z	37mm Nylon open faced filter holder	37mm
B8221/Z	Filter head for lead sampling (single hole)	
AB8299/Z	Filter head for welding fumes	
P109049	Swinnex sampling head for Rosin / Welding fumes with tubing	13mm



Air Sampling Accessories



Sampling for asbestos involves specifically designed sampling heads and cowls together with special gridded filters which are later inspected visually or via Scanning Electron Microscope.

Asbestos Sampling Media

Cat No.	Description	Diameter (mm)	Pore Size (µm)	Quantity Unit / Pack Size
P110004	Aluminium asbestos sampling cowl	25mm		1

Blank Asbestos Cassettes

P101019	Asbestos Style w/50mm Static Conductive Cowl	25mm		Pack of 50
P101020	Asbestos Style w/50mm Clear Styrene Cowl	25mm		Pack of 50
P118202	Asbestos style housing, 2pc, Clear Styrene	25mm		Pack of 50
P101021	Asbestos Style Housing, 3pc, Clear Styrene, w/1/2" Spacer Ring	25mm		Pack of 50



Preloaded Asbestos Cassettes

P101007	Asbestos PCM Cassette with 0.8µm MCE membrane Gridded Filter (EU)	25mm	0.8µm	Pack of 50
P101022	Asbestos PCM Cassette with 0.8µm MCE membrane	25mm	0.8µm	Pack of 50
P101023	Asbestos TEM Cassette with 0.45µm MCE membrane	25mm	0.45µm	Pack of 50

Other Asbestos Sampling Accessories

171006B	Asbestos sampling head support mast			1
P109048	Asbestos Corer			1
P112041	Acetone Vaporiser			1
P109095	Transport cassettes for asbestos samples. Clip & cap.			Pack of 5



Gas and Vapour Sampling

25mm

Cat No.	Description	Quantity Unit / Pack Size
P109032	Low flow adaptor assembly (including tube holder, CPC, and tubing)	1
P109023	Charcoal tube holder small	1
P109024	Charcoal tube holder large	1
P109025	Sorbent Tube Breaker Kit	1

For gas and vapour sampling, a volume of air is adsorbed onto a sampling medium held in glass sampling tubes. To enable a high flow sampling pump to operate at low flow rates required (2-200ml/min) a low flow adaptor assembly is used which acts as a throttle to slow the sampling rate down on a standard air sampling pump. (For range of tubes refer to separate section of the catalogue.)

How to guide

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How to guide

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Sampling cassettes are a convenient way of taking air samples as the filter media are protected and the cassette also doubles up as a transportation device when the sample is sent to the laboratory. Some are provided pre-loaded with filters.

Blank Sampling Cassette Housings

25mm

Cat No.	Description	Diameter (mm)	Type	Quantity Unit / Pack Size
P101024	25mm- 2 piece Housing Cassette, Clear Styrene with plugs	25mm	2 piece	Pack of 50
P101025	25mm- 3 piece Housing Cassette, Clear Styrene with plugs	25mm	3 piece	Pack of 50

37mm

P101026	37mm 2 piece Housing Cassette, Clear Styrene with plugs	37mm	2 piece	Pack of 50
P101027	37mm 3 piece Housing Cassette, Clear Styrene with plugs	37mm	3 piece	Pack of 50
P101028	37mm 2 piece Housing Cassette Solvent Resistant Polypropylene	37mm	2piece	Pack of 50
P101029	37mm 3 piece Housing Cassette Solvent Resistant Polypropylene	37mm	3 piece	Pack of 50
P101030	37mm 2 piece Conductive Carbon Filled Polycarbonate Cassette	37mm	2 piece	Pack of 50
P101031	37mm 3 piece Conductive Carbon Filled Polycarbonate Cassette	37mm	3 piece	Pack of 50
P101032	37mm Cassette, Standard Opaque Colored Styrene	37mm	3 piece	Pack of 50

Pre Loaded Cassette Housings

25mm

Cat No.	Description	Diameter (mm)	Type	Pore Size (µm)	Quantity Unit / Pack Size
P101033	25mm 2 piece Cassette w/ 0.8µm MCE Filter	25mm	2 piece	0.8	Pack of 50
P101034	25mm 3 piece Cassette w/ 0.8µm MCE Filter	25mm	3 piece	0.8	Pack of 50
P101035	25mm 2 piece Cassette w/ 5.0µm PVC Filter	25mm	2 piece	5	Pack of 50
P101036	25mm 3 piece Cassette w/ 5.0µm PVC Filter	25mm	3 piece	5	Pack of 50

37mm

P101037	37mm 2 piece Cassette w/ Glass Fibre Filter	37mm	2 piece	1.0µm	Pack of 50
P101038	37mm 3 piece Cassette w/ Glass Fibre Filter	37mm	3 piece	1.0µm	Pack of 50
P101039	37mm 2 piece Cassette w/ MCE Filter	37mm	2 piece	0.8µm	Pack of 50
P101040	37mm 3 piece Cassette w/ MCE Filter	37mm	3 piece	0.8µm	Pack of 50
P101041	37mm 3 piece Conductive Cassette w/MCE Filter	37mm	3 piece	.45µm	Pack of 50
P101042	37mm 2 piece Cassette w/ PVC Filter	37mm	2 piece	5.0µm	Pack of 50
P101043	37mm 3 piece Cassette w/ PVC Filter	37mm	3 piece	5.0µm	Pack of 50
P101044	37mm 3 piece Cassette w/ unsupported PTFE Filter	37mm	3 piece	5.0µm	Pack of 50
P101045	37mm Cassette w/ PTFE Filters with polypropylene support (type TF)	37mm	3 piece	.45µm	Pack of 50
P101046	37mm 3 piece Cassette w/ Polycarbonate Filter	37mm	3 piece	0.8µm	Pack of 50



Air Sampling Accessories

Pre-Weighed Filter Cassettes

Pre-weighed cassettes eliminate the user's inconvenience of pre-weighing filters for gravimetric analysis. Each 37mm cassette is preloaded with a PVC filter weighed to within 10µg. The weight and serial number is posted on the cassette label.

Cat No.	Description	Diameter (mm)	Type	Pore Size (µm)	Quantity Unit / Pack Size
P101047	37mm 2 piece Cassette w/ PVC Pre weighed filter	37mm	2 piece	5.0µm	Pack of 50
P101048	37mm 3 piece Cassette w/ PVC Pre weighed filter	37mm	3 piece	5.0µm	Pack of 50

Match Weighed Cassettes (For full compliance to OSHA directives)

Each cassette contains 2 filters which are matched in weight. After sampling, the user will weigh both filters. The difference in weight of the two filters will determine the sample amount.

Cat No.	Description	Diameter (mm)	Type	Pore Size (µm)	Quantity Unit / Pack Size
P101049	Gravimetric Match Weighed Cassettes MCE Filters matched within 50µg	37mm	2 piece	0.8µm	Pack of 50
P101050	Gravimetric Match Weighed Cassettes MCE Filters matched within 50µg	37mm	3 piece	0.8µm	Pack of 50
P101051	Gravimetric Match Weighed Cassettes PVC Filters matched within 20µg	37mm	3 piece	5.0µm	Pack of 50
P101052	Gravimetric Match Weighed Cassettes PVC Filters matched within 20µg	37mm	2 piece	5.0µm	Pack of 50

Cassette Accessories

Cat No.	Description	Diameter (mm)	Quantity Unit / Pack Size
P102110	Cellulose Filter Support Pads	25mm	Pack of 100
P102111	Cellulose Filter Support Pads	37mm	Pack of 100
P102112	Porous Plastic Filter Support Pads	25mm	Pack of 100
P102113	Porous Plastic Filter Support Pads	37mm	Pack of 100
P101053	25mm Clear Cellulose Shrink Bands	25mm	Pack of 100
P101054	37mm Clear Cellulose Shrink Bands	37mm	Pack of 100
P101055	Cassette Opener		Pack of 10
P101056	Cassette Tubing Spigot Adaptors (to connect cassettes to 1/4 tubing)		Pack of 10
P101057	Cassette Sample ID Labels		Pack of 100



Air Sampling Accessories

How to guide

Air Sampling Pumps

Air Sampling Accessories

Filters

Sorbent Tubes

Colourimetric Tubes



Impingers are special glass tubes designed to collect airborne contaminants by bubbling the sampled air at a high flow rate through a method specific absorbing liquid inside. The liquid used can then be analyzed to determine airborne contaminate levels.

Impingers & Bubblers

Cat No. **Description**

P109053	Standard Midget Glass, 5mL increments
P109054	Fritted Midget (Bubbler) Glass 5mL Increments
P100011	Arnold bubbler (impinger equivalent)
P109018	Activated carbon filter (Carbon Trap)
P109050	Threaded Midget - impinger
P109051	Threaded Midget - bubbler
P109052	Spill Resistant midget impinger
P101058	PFA Midget Impinger 60mL capacity
P109055	Holder (Holster)



Gas or grab sampling bags for sampling gases and vapours feature a choice of a single polypropylene fittings or stainless steel fitting. They are chemically inert Tedlar film construction and are re-useable if purged with nitrogen. Ideal for easy storage and sample handling. Involves retrospective analysis.

Tedlar & Teflon Bags

Cat No.	Description	Litres (Ltr)
P101060	0.5L Tedlar Bag w/ Stainless Steel Fitting	0.5 Ltr
P101061	0.5L Tedlar Bag w/ Polypropylene Fitting	0.5 Ltr
P109033	1L Tedlar Bag w/ Polypropylene Fitting	1 Ltr
P109037	1L Tedlar Bag w/ Stainless Steel Fitting	1 Ltr
P101005	3L Tedlar Bag w/ Polypropylene Fitting	3 Ltr
P101059	3L Tedlar Bag w/ Stainless Steel Fitting	3 Ltr
P101062	10L Tedlar bag with polypropylene fitting	10 Ltr
P101063	10L Tedlar bag with Stainless Steel Fitting	10 Ltr
P101064	25L Tedlar bag with Polypropylene Fitting	25 Ltr
P101065	25L Tedlar bag with Stainless Steel Fitting	25 Ltr



Air Sampling Accessories



Range of manual or electronic flow meters used to calibrate personal sampling pumps. It is recommended that all pumps are calibrated pre and post sample.

Calibration Devices & Adaptors

Field Rotameters

Cat No.	Description	Litres (Ltr)
CM344	Flowmeter, 0-4.0 litres/min	0.5-5 Ltr
P111014	Flowmeter, 0.6-5.0 litres/min	0.6-5 Ltr
182088A	Flowmeter, 0.3-3.0 litres/min	0.3-3 Ltr
P112046	Dry-flo flowmeter (for flows 0-200ml/min sampling)	
P101066	Bioaerosol button sampler calibration adaptor	
P109028	Inhalable sampling head Calibration Adaptor. (Allows sampling head to be connected to a range of calibration devices).	



Digital Flow Calibrators

Cat No.	Description	ml/min
P112107	Dry-Cal flowmeter 510-L	(5-500ml/min)
P112108	Dry-Cal flowmeter 510-M	(50-5000ml/min)
P112109	Dry-Cal flowmeter 510-H	(300-30,000ml/min)
P112110	Dry-Cal flowmeter 520-L with pressure/temp sensor	(5-500ml/min)
P112111	Dry-Cal flowmeter 520-M with pressure/temp sensor	(50-5000ml/min)
P112112	Dry-Cal flowmeter 520-H with pressure/temp sensor	(300-30,000ml/min)

Other Accessories

Cat No.	Description
FB1/4	Tweezers
TU105	Tubing - Tygon R-3603 1/4" ID x 50 ft Long
TU104	Tubing - Tygon R-3603, 1/4" ID x 3 ft Long
TU103	Tubing - PVC, 1/4" ID x 1m Long
TU123	Tubing - Tygon tubing 1/2"ID, 5/8"OD x 1m Long
D8147/Z	Harness for pump and sampling head

How to guide

Air Sampling Pumps

Air Sampling Accessories

Filters

Sorbent Tubes

Colourimetric Tubes



Membrane Filters

How to guide

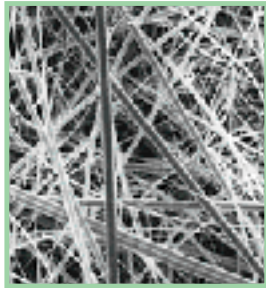
Air Sampling Pumps

Air Sampling Accessories

Filters

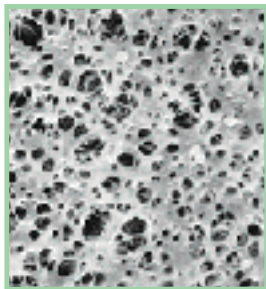
Sorbent Tubes

Colourimetric Tubes



Often referred to as depth filters, these ideal for general gravimetric air sampling and analysis. Available unweighed or pre-weighed. Use for dusts when no further analysis other than weighing is required.

- Low cost
- Low pressure drop
- No electrostatic problems
- Fastest Flow Rate
- High Load Capacity
- Retention of particles to sub-micron size
- Temperature range up to 500°C
- Inert fibre composition
- Free of binders or additives



Suitable for further analysis other than gravimetric. Primarily used for air sampling of metals and fibres (e.g. Asbestos). MCE is stronger than GFA so ideal when further post analysis is required other than weighing.

- Very low in contaminants
- Available in a range of pour sizes
- Hydrophilic
- Economical membrane for air monitoring applications
- Dissolves completely using standard digestion procedures.
- Clears completely giving minimal interference in fibre counting.

Filters: GFA

Glass Fibre Filters (GFA)

Part No.	Description	Diameter	Quantity Unit / Pack Size
P102050	Glass Fibre Filter - Grade A - Binderless	25mm	Pack of 100
P102051	Glass Fibre Filter - Grade A - Binderless	37mm	Pack of 100
P102052	Glass Fibre Filter - Grade A - Binderless	47mm	Pack of 100
P102053	Glass Fibre Filter - Grade A - Binderless	55mm	Pack of 100
P102054	Glass Fibre Filter - Grade A - Binderless	70mm	Pack of 100
P102055	Glass Fibre Filter - Grade A - Binderless	90mm	Pack of 100
P102056	Glass Fibre Filter - Grade A - Binderless	8x10"	Pack of 100

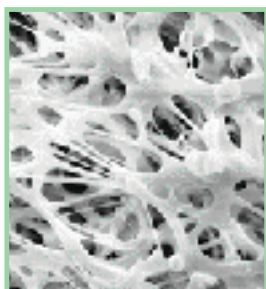
Filters: MCE

Mixed Cellulose Ester (MCE)

Part No.	Description	Diameter (mm)	Pore Size (µm)	Quantity Unit / Pack Size
P102063	Mixed Cellulose Esters (MCE) Filters, Plain White	25mm	0.45µm	Pack of 100
P102064	Mixed Cellulose Esters (MCE) Filters, Plain White	25mm	0.8µm	Pack of 100
P102065	Mixed Cellulose Esters (MCE) Filters, Plain White	25mm	1.2µm	Pack of 100
P102066	Mixed Cellulose Esters (MCE) Filters, Plain White	37mm	0.45µm	Pack of 100
P102067	Mixed Cellulose Esters (MCE) Filters, Plain White	37mm	0.8µm	Pack of 100
P102068	Mixed Cellulose Esters (MCE) Filters, Plain White	47mm	0.45µm	Pack of 100
P102069	Mixed Cellulose Esters (MCE) Filters, Plain White	47mm	5.0µm	Pack of 100
P102070	Mixed Cellulose Esters (MCE) Filters, Plain White	47mm	0.8µm	Pack of 100
P102071	Mixed Cellulose Esters (MCE) Filters, Gridded Black	25mm	0.45µm	Pack of 100
P102072	Mixed Cellulose Esters (MCE) Filters, Gridded Black	25mm	0.8µm	Pack of 100
P102073	Mixed Cellulose Esters (MCE) Filters, Gridded Black	37mm	0.45µm	Pack of 100
P102074	Mixed Cellulose Esters (MCE) Filters, Gridded Black	47mm	0.45µm	Pack of 100
P102075	Mixed Cellulose Esters (MCE) Filters, Gridded Black	37mm	0.8µm	Pack of 100
P102076	Mixed Cellulose Esters (MCE) Filters, Gridded Black	47mm	0.8µm	Pack of 100
P102077	Mixed Cellulose Esters (MCE) Filters, Gridded Black	25mm	0.8µm	Pack of 100



Membrane Filters



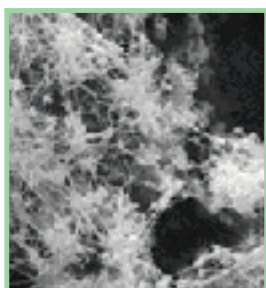
Top quality filter for measuring dust, silica and chromium. There is a low tare weight so a lower sample weight is required and they have a low moisture absorption.

- Pure homopolymer PVC
- Low moisture pick-up and low tare weight giving good gravimetric stability
- Low ash. Provides interference-free silica determinations.

Filters: PVC Filters-Plain White

Poly Vinyl Chloride (PVC)

Part No.	Description	Diameter (mm)	Pore Size (µm)	Quantity Unit / Pack Size
P102078	PVC Membrane Filter	25mm	5.0µm	Pack of 100
P102079	PVC Membrane Filter	37mm	5.0µm	Pack of 100
P102080	PVC Membrane Filter	47mm	5.0µm	Pack of 100



These filters are free of impurities and resistant to corrosive substances such as acids, so can be used in these types of environment.

- Strong, chemically resistant membranes for air monitoring and sampling in aggressive environments.
- Low chemical background permits highly sensitive, interference-free determinations.
- Low tare mass for accurate gravimetric determinations
- Ideal for filtration of gas and/or organic solvents.

Filters: PTFE filters

Poly Tetra Floro Ethylene (PTFE)

Part No.	Description	Diameter (mm)	Pore Size (µm)	Quantity Unit / Pack Size
P102081	PTFE Filter, PTFE Support Layer	25mm	0.5µm	Pack of 100
P102082	PTFE Filter, PTFE Support Layer	25mm	1.0µm	Pack of 100
P102083	PTFE Filter, PMP Support	25mm	3.0µm	Pack of 50
P102084	PTFE Filter, Unlaminated	25mm	5.0µm	Pack of 50
P102085	PTFE Filter, PP Support	37mm	0.45µm	Pack of 100
P102086	PTFE Filter, PTFE Support	37mm	1.0µm	Pack of 50
P102087	PTFE Filter, PP Support	37mm	1.0µm	Pack of 100
P102088	PTFE Filter, PTFE Support	37mm	2.0µm	Pack of 50
P102089	PTFE Filter, Unlaminated	37mm	5.0µm	Pack of 50
P102090	PTFE Filter, PTFE Support	47mm	0.5µm	Pack of 50
P102091	PTFE Filter, PTFE Support	47mm	1.0µm	Pack of 50
P102092	PTFE Filter, PMP Support	47mm	2.0µm	Pack of 50
P102094	PTFE Filter, Unlaminated	47mm	5.0µm	Pack of 50
P102095	PTFE Filter, PTFE Support	47mm	2.0µm	Pack of 50

How to guide

Air Sampling Pumps

Air Sampling Accessories

Filters

Sorbent Tubes

Colourimetric Tubes



Membrane Filters

How to guide

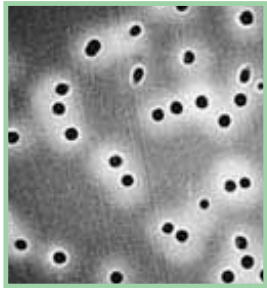
Air Sampling Pumps

Air Sampling Accessories

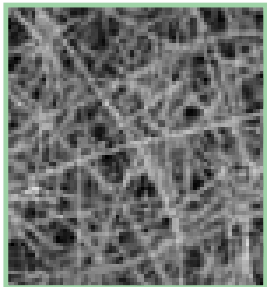
Filters

Sorbent Tubes

Colourimetric Tubes



- Smooth glass-like surface with cylindrical pores for maximum particulate capture
- Suitable for air monitoring
- Lowest, non-specific binding membrane
- Precise pore sizes and pore distribution for absolute filtration and separation
- Non-staining, providing an exceptional background for sample observations.
- Very low extractables
- PCTE membranes pass all USP Class VI tests
- Biologically inert.
- Optically transparent in most pore sizes.
- Excellent chemical resistance and thermal stability.



These quartz filters are heat treated for improved chemical purity giving superior quality for trace level comparison.

- High temperature use for analysis of acidic gases and stack sampling aerosols
- High flow rate and filtration efficiency
- Ultra-pure soft water processing to reduce residual ion content.
- Can be used for high temperature and hot gas air monitoring applications.
- Ideal for diesel and other emissions testing required by environmental regulatory agencies.
- Binder free
- Superior quality for trace level comparison

Filters: Polycarbonate Filters – Plain White

Polycarbonate Filters

Part No.	Description	Diameter (mm)	Pore Size (µm)	Quantity Unit / Pack Size
P102096	Polycarbonate Filter	25mm	0.2µm	Pack of 100
P102097	Polycarbonate Filter	25mm	0.4µm	Pack of 100
P102098	Polycarbonate Filter	25mm	0.8µm	Pack of 100
P102099	Polycarbonate Filter	37mm	0.2µm	Pack of 100
P102100	Polycarbonate Filter	37mm	0.4µm	Pack of 100
P102101	Polycarbonate Filter	37mm	0.8µm	Pack of 100
P102102	Polycarbonate Filter	47mm	0.4µm	Pack of 100

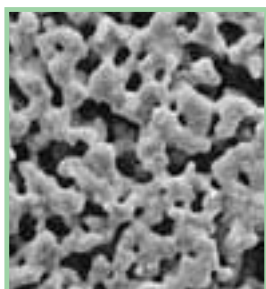
Filters: Quartz & TissueQuartz Filters

Quartz

Part No.	Description	Diameter	Quantity Unit / Pack Size
P102103	Quartz Filter, Tissuquartz	25mm	Pack of 100
P102104	Quartz Filter, Tissuquartz	37mm	Pack of 25
P102105	Quartz Filter, Tissuquartz	47mm	Pack of 25
P102106	Quartz Filter, Tissuquartz	8"x10"	Pack of 25



Membrane Filters



Made from almost pure silver these filters can be cleaned and reused for economical air sampling.

- 99.97% pure silver
- High temperature resistance
- High chemical resistance
- Smooth surface for particle capture and easy observation

Filters: Silver Filters

Silver

Part No.	Description	Diameter (mm)	Pore Size (µm)	Quantity Unit / Pack Size
P102107	Silver Membrane Filters	25mm	0.45µm	Pack of 50
P102108	Silver Membrane Filters	25mm	0.8µm	Pack of 25
P102109	Silver Membrane Filters	37mm	0.8µm	Pack of 25



Filter Support Pads made from pure cellulose or porous plastic. Available in 25mm or 37mm Discs. For use as a membrane filter support in filter holders and cassettes.

Filter Support Pad

Support Pads

Part No.	Description	Diameter (mm)	Quantity Unit / Pack Size
P102110	Cellulose Filter Support Pads	25mm	Pack of 100
P102111	Cellulose Filter Support Pads	37mm	Pack of 100
P102112	Porous Plastic Filter Support Pads	25mm	Pack of 100
P102113	Porous Plastic Filter Support Pads	37mm	Pack of 100

How to guide

Air Sampling Pumps

Air Sampling Accessories

Filters

Sorbent Tubes

Colourimetric Tubes



Sorbent Tubes

How to guide

Air Sampling Pumps

Air Sampling Accessories

Filters

Sorbent Tubes

Colourimetric Tubes



Sorbent Tubes

A sealed glass tube with 2 sections of adsorbant (charcoal, silica etc), the solvent condenses onto the surface of the material during sampling. The ends of the tube are broken before use using a cutter (part number P109025) and resealed using plastic caps after sampling has been completed.

Typical flow rates are between 20-100ml/min. after sampling the tube is sent to a laboratory for desorption either by solvent or thermal methods. The resultant gas or vapour is then injected into an analytical instrument such as a Gas Chromatograph (GC).

A blank tube should always be kept back from the actual sampling but sent to the laboratory to verify that no contamination has occurred before or after sampling.

Always verify what type of sorbent material you require via your local methodology (e.g. NIOSH, MDHS).

Charcoal

The standard NIOSH Charcoal tube is the standard method used generally for organic vapours. Suitable for most general aromatic hydrocarbons and alcohols. Not suitable for aldehydes, nitro compounds or carboxylic acids.

Silica Gel

These tubes are generally used for substances not captured by charcoal. Silica gel is most commonly used for methanol, amines and inorganic acids as well as C2- C5 hydrocarbons and low molecular weight mercaptans (thiols). The desorption material used by the laboratory is either water or methanol.

Some tubes are specifically pre-treated e.g. with sodium hydroxide for sampling specific e.g. ammonia and hydrazoic acid.



Other types

A range of other porous polymer sorbents are available such as Chromosorb, Tenax and XAD for more complex compound sampling.



Sorbent Tubes

Charcoal Tubes

Part No.	Description	Size (mm)	Sections	Sorbent (mg)	Ends	Separators	Unit / Pack Size
P109150	Coconut Charcoal	6X70	2	50/100	GS	FFW	50
P109151	Coconut Charcoal	6x70	2	50/100	GS	FFW	10
P109152	Coconut Charcoal	6x70	2	50/100	GS	FFW	1000
P109153	Coconut Charcoal	6x70	2	50/100	GS	WWW	50
P109154	Coconut Charcoal	6x70	2	50/100	GO	FFW	50
P109155	Coconut Charcoal	8x110	2	200/400	GS	FWW	50
P109156	Coconut Charcoal	8x110	2	200/400	GS	FWW	1000
P109157	Coconut Charcoal	8x110	2	200/400	GO	FWW	50
P109158	Coconut Charcoal	10X110	2	200/800	GS	FWW	50
P109159	Coconut Charcoal	10x110	2	200/800	GO	FWW	50
P109160	Coconut Charcoal	8x110	1/1	200/400	GS	WW/WW	50
P109161	Coconut Charcoal	8x150	3	350/350/350	GS	WW/WW	50
P109162	Coconut Charcoal	10x160	2	200/1800	GS	FFW	50
P109163	Coconut Charcoal (2 tubes)	8x110	1	200/400	GS	FW	50

Silica Tubes

P109212	Silica Gel	6X70	2	75/150	GS	FWW	50
P109164	Silica Gel/Charcoal (Sodium Hydroxide)	10X210	3	250/1250/750	GS	Multiple separators	50
P109165	Silica Gel	8X110	2	260/520	GS	FWW	50
P109166	Silica Gel Sorbent Tube	8x110	2	260/520	GS	WWW	50
P109167	Silica Gel	8x110	2	150/300	GS	WWW	50
P109168	Silica Gel	10x110	2	260/1040	GS	FWW	50
P109169	Silica Gel (Specially cleaned)	6x70	2	75/150	GS	WWW	50
P109170	Silica Gel (Specially cleaned)	8x110	2	260/520	GS	WWW	50
P109171	Silica Gel (Specially cleaned)	7.2x110	2	200/400	GS	WWGW	50
P109172	Silica Gel (Specially cleaned)	10x110	2	200/800	GS	FWW	50
P109173	Silica Gel (2,4-Dinitrophenylhydrazine)	6x110	2	150/300	GS	WWW	20
P109174	Silica Gel (2,4-Dinitrophenylhydrazine)	6x110	2	150/300	GS	WWW	100
P109175	Silica Gel (Sulphuric Acid)	6x70	2	100/200	GO	WWW	50
P109176	Silica Gel (Sulphuric Acid)	6x110	2	100/200	GO	WWW	50
P109177	Silica Gel (Sulphuric Acid)	8x110	2	200/200	GS	WWW	50
P109178	Silica Gel (Sulphuric Acid)	6x70	2	75/150	GS	WWW	50
P109179	Silica Gel	6X70	2	100/50	GS	FWW	50

Chromosorb Tubes

P109180	Chromosorb-102	6x70	2	33/66	GS	WWW	50
P109181	Chromosorb-102	6x70	1	50/100	GS	WW	50
P109182	Chromosorb-102	8x110	2	200/100	GS	WWW	20
P109183	Chromosorb-102	8x110	2	50/100	GS	WWW	50
P109185	Chromosorb-106	6x70	2	75/37	GS	WWW	50
P109186	Chromosorb-106	7.2x70	2	50/100	GS	WWW	50
P109187	Chromosorb-106	10x150	2	300/600	GS	WWW	10
P109188	Chromosorb-108	6x70	2	75/37	GS	WWW	50
P109189	Chromosorb-108- Anasorb 708	10x110	2	400/200	GS	WWW	50

Key:
GS= Glass Sealed
GO= Glass Open

Key:
W=Wool
F=Foam
G=Gauze



Sorbent Tubes

Porapak Tubes

Part No.	Description	Size (mm)	Sections	Sorbent (mg)	Ends	Separators	Unit / Pack Size
P109190	Porapak-N	6x70	2	88/44	GS	WWW	50
P109191	Porapak-P	6x110	2	50/100	GS	WWW	50
P109192	Porapak-Q	6x70	2	78/39	GS	WWW	50
P109193	Porapak-Q	6x110	2	75/150	GS	WWW	50
P109194	Porapak-R	6x70	2	35/70	GS	WWW	50
P109195	Porapak-T (2 tubes)	6x40	1 1	25 75	GO GO	WW	10 sets

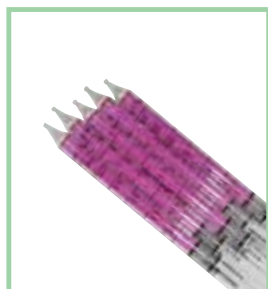
Tenax Tubes

P109195	Tenax	6x70	2	20/40	GS	FFW	50
P109196	Tenax	6x70	2	10/20	GS	WWW	50
P109197	Tenax	6x130	1	17 35	GS GS	WW WW	50
P109198	Tenax	8x110	2	50/100	GS	WWW	50
P109199	Tenax	8x110	2	50/100	GS	WWW	10

XAD Tubes

P109200	XAD-2	8X110	2	200/400	GS	WWW	50
P109201	XAD-2	7x70	2	40/80	GS	WWW	50
P109202	XAD-2	8x110	2	30/100	GS	WWW	50
P109203	XAD-2	8X110	2	50/100	GS	WWW	50
P109204	XAD-2	8x110	2	75/150	GS	WWW	50
P109205	XAD-2 (2 Hydroxymethyl Piperidine)	6X110	2	150/75	GS	WWW	20
P109206	XAD-2 (2-Hydroxymethyl Piperidine)	6X110	2	60/120	GS	WWW	20
P109207	XAD-2 (2-Hydroxymethyl Piperidine),	8x110	2	225/450	GS	WWW	20
P109208	XAD-2 (2-Hydroxymethyl Piperidine),	6x70	2	23/45	GS	WWW	20
P109209	XAD-2 (Octanoic Acid)	6x70	2	50/100	GS	WWW	50
P109210	XAD-7	6x70	2	30/60	GS	WWW	50
P109211	XAD-7	6X110	2	100/50	GS	WWW	50

Colour Detection Tubes



Often know as Colorimetric Tubes, these are generally used for screening and initial site or field surveys. They provide a quick way of establishing if there is a problem with chemical exposure. Validated methods such as using an air sampling pump with a sorbent tube or filter should be used for monitoring compliant with legislation. They can also be used for indoor air quality surveys.

The tubes contain speciality treated chemical or reagents which change colour depending on the concentration they are exposed to. A hand pump (P126101 or P126102) is used to draw an exact volume of air through the tubes. Different tubes require different number of pump strokes as detailed in the table below.



Colour Detection Tubes

Part No.	Description	Reaction Principle	Nominal Range: mg/m ³	Nominal Range: ppm	Number of strokes (x 100 ³)	mg/m ³ in ppm	ppm in mg/m ³
P126000	Acetic acid	pH indicator	5-80	2-30	10	0.40	2.50
P126001	Acetone - 200-A	Hydrazon + pH indicator	200-2500	80-1000	10	0.41	2.41
P126002	Alcohol ethyl (5 determinations)	Cr(VI) Cr(III) + H ₂ SO ₄	200-5000	100-2600	3	0.52	1.92
P126003	Alcohol n-butyl (5 determinations)	Cr(VI) Cr(III) + H ₂ SO ₄	100-2000	33-660	5	0.33	3.08
P126004	Alcohol n-propyl (5 determinations)	Cr(VI) Cr(III) + H ₂ SO ₄	100-1000	40-400	5	0.40	2.50
P126005	Benzene 20-A	Iodate + oleum (SO ₃)	20-1200	6-400	10	0.31	3.25
P126006	Butyl acetate	Cr(VI) Cr(III) + H ₂ SO ₄	400-15000	100-3200	10	0.21	4.83
P126007	Carbon dioxide 0,1%	pH indicator	1830-45750	0,1-2,5 % v/v	5	0.55	1.83
P126008	Carbon dioxide 0,5%	pH indicator	9150-128100	0,5-7% v/v	1	0.55	1.83
P126009	Carbon dioxide 1%	pH indicator	18300-274500	1-15% v/v	1	0.55	1.83
P126010	Carbon disulphide 1-A	Iodate + oleum (non specific)	2-500	0,5-160	10	0.32	3.16
P126011	Carbon monoxide 10-A	Iodate + oleum (SO ₃)	10-600	8.6-520	10	0.86	1.16
P126012	Carbon monoxide 200-B	Iodate + oleum (SO ₃)	200-500	150-4300	1	0.86	1.16
P126013	Chlorine 0,5 -A	Aromatic amine	1-25	0.5 - 10	10	0.34	2.95
P126014	Chlorine 5-B	KBr+Fluoresceine	5-80	1-30	5	0.34	2.95
P126015	Chlorine 10-C	KBr+Fluoresceine	10-500	3-170	2	0.34	2.95
P126016	Diethyl ether	Cr(VI) Cr(III) + H ₂ SO ₄	150-200	50-650	10	0.33	3.08
P126017	Ethyl acetate	Cr(VI) Cr(III) + H ₂ SO ₄	400-1000	100-2700	10	0.27	3.66
P126018	Ex - Test (Test for explosivity of gas mixtures)	Cr(VI) Cr(III) + H ₂ SO ₄	350-9500	80-2000	3	0.21	4.75
P126019	Formic acid	pH indicator	5-60	2.5 -30	10	0.52	1.91
P126020	Gasoline 100 (iodate basis) (As n-Octane)	Iodate + oleum (SO ₃)	100-3000 100-2000	20-630 20-400	3 5	0.21	4.75
P126021	Gassoline 300 (chromate basis) (As n-Octane)	Cr(VI) Cr(III) + H ₂ SO ₄	300-4000	50-850	10	0.21	4.75
P126022	Gasoline hydrocarbons KW (Multipurpose tube for the vapours of all pure substances)	Cr(VI) Cr(III) + H ₂ SO ₄					
	Toluene		15-1500	4-400	10	0.26	3.83
	O-Xylene		100-5500	23-1265	10	0.23	4.41
	m-Hexane		30-2300	8-645	5	0.28	3.58
	n- Heptane		280- 5600	67-1345	1	0.24	4.16
	n-Octane		50- 9200	10-1930	3	0.21	4.75
P126023	n-Hexane	Cr(VI) Cr(III) + H ₂ SO ₄	150-4550	42-1275	3	0.28	3.52
			50-1500 100- 2000	14-420 28-560	10 5	0.28	3.58
P126024	Hydrogen chloride 1-B	pH indicator	2-70 5-120	1.3-45 3.3-80	10 5	0.66	1.52
P126025	Mercury vapours	CuJ complex	0.01-1.5	0.01-0.18	1-100	0.12	8.34
P126026	Mineral turpentine (White spirit-SKDN)	Cr(VI) Cr(III) + H ₂ SO ₄	300-3500		10	0.12	8.34
P126027	n-Octane	Cr(VI) Cr(III) + H ₂ SO ₄	50-10000	10-2100	3	0.21	4.75
P126028	Phenol 5-A		5-100 10-200	1-25 2-50	10 5	0.26	3.91
P126029	Propane-Butane (as a mix)	Cr(VI) Cr(III) + H ₂ SO ₄	2000-24000	0.1-1.2 % v/v (or 1000- 12000 ppm)		0.5	2.0
	(as n-Propane)		1830-2200		10	0.55	1.83
	(as n-Butane)		2420-29040			0.41	2.42
P126030	Sulphur dioxide 2-A	Zn nitroprusside	2-60 6-180	0.7 -22 2.2- 67	10 5	0.37	2.66
P126031	Sulphur dioxide 10-B	pH indicator	10-150	4-60	10	0.37	2.66
P126032	Sulphur dioxide 50-C	pH indicator	50-500	20-200	2	0.37	2.66
P126033	Toluene 20-A	Cr(VI) Cr(III) + H ₂ SO ₄	50-1 500	13-400	10	0.26	3.83
P126034	Xylene 25-A (specific for xylene)	Oxydation with Ce(IV)	25-700	5-160	10	0.23	4.41
P126035	Xylene 50-B (all aromatics)	Cr(VI) Cr(III) + H ₂ SO ₄	50-1000	10-250	20	0.23	4.41

*Conversion factors at 20°C, 101.3kPa



Colour Detection Tubes



Sampling Pumps (For Colorimetric Tubes)

Piston Sampling Pump

Cat No.	Description
P126101	Piston Sampling Pump (100cm ³) for Colorimetric Tubes



Bellows Sampling Pump

P126102	Bellows Sampling Pump (100cm ³) for Colorimetric Tubes
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Other

P109025	Sorbent tube breaker kit
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Notes

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