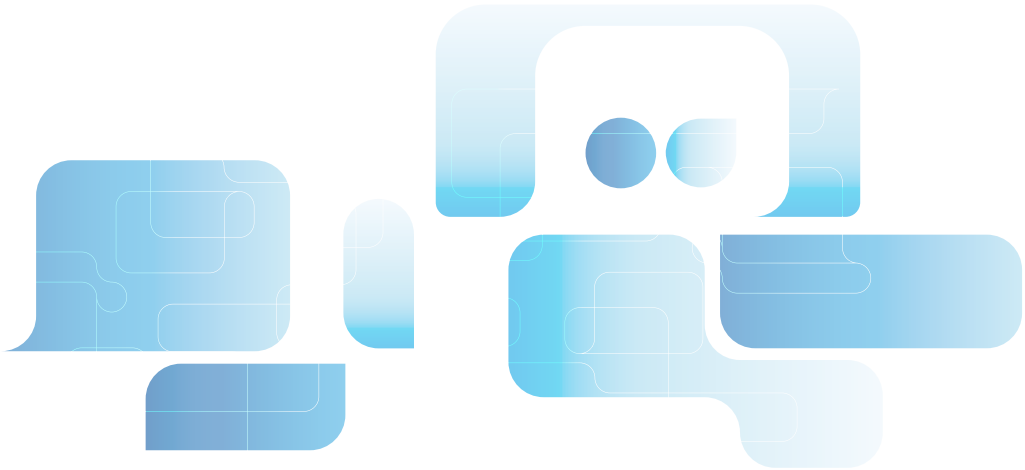
ENVIRONMENTAL MONITORING PRODUCT COLLECTION



The GVS Group

In over 45 years of history, GVS has evolved from a supplier of components for the healthcare sector to a global group that produces highly technological diversified filtration solutions.

Wide range of products and custom design expertise

GVS produces a wide range of filter materials, filters and off-the-shelf components in all its divisions, enabling its customers to reduce the design time for new product launches.
All the GVS divisions work in highly regulated environments and the Group therefore operates with extremely high-quality standards. Thanks to its research and development centres located all over the world, GVS is also able to offer an extremely efficient and personalized service to meet its customers'needs: from product conception and design to testing and mass production.

Dynamic and flexible structure

GVS has developed a streamlined, dynamic and technologically advanced structure that has made it possible to achieve constant and balanced growth. The Group currently employs a total of 4869 people who work in automated assembly departments, in lines for the production and processing of filter membranes and in class 10,000 and 100,000 cleanrooms.

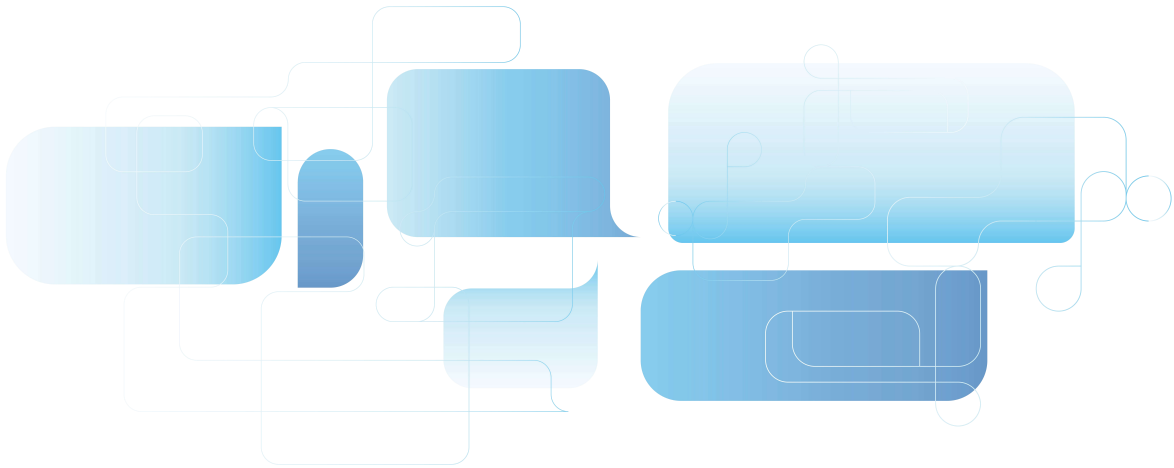
Global growth

The GVS Group has always paid great attention to research, development and innovation of its products and processes and has shown a strong trend towards development in global markets since its foundation.
In addition to the corporate headquarters in Bologna, GVS currently has 19 plants in Italy, United Kingdom, Brazil, United States, China, Mexico, Romania e Puerto Rico, and 29 commercial offices located all over the world. GVS has always adopted a "glocal" approach: it operates locally in contact with its customers, but relies on the strength of a global network.

For more information, visit www.gvs.com

Environmental Monitoring

Index



Membrane
Application Guideline

Environmental analysis

Waste products

Target application

- Analysis of waste products in the disposal of industrial waste and laboratory waste
- Particle separation and clarification before further measurements
- Sample preparation and washing out of samples for characterisation of toxic substances

Process	Technique	Type of Filter	Filter grade
Characterisation of dangerous substances	Filtration	PES/cellulose acetate/ cellulose nitrate membranes 0.2 µm	PES 0,2 NC 0,2 CA 0,2
Characterisation of toxic substances[1]	Pressure filtration	Glass microfibre filter	DMEFC
Analysis of contaminated soil [2]	Extraction by water	PES/cellulose acetate/ cellulose nitrate membranes 0.45 µm	PES 0,2 NC 0,2 CA 0,2
Filtration of biosolids/sludge from wastewater	Continuous filtration by filterbelt	Fast, very high wet strength	DFA54
Protection of apparatus and surfaces	Absorption	Absorbent paper with polyethylene layer	AB1505

1) EPA 1311 TCLP
2) DIN 38414-4

Environmental analysis

Emission Control

Target application

- Monitoring of anthropogenic atmospheric emissions (oil refineries, power stations, burning of liquid and solid fuels, cement factories, mining industries, incinerators, iron foundries, grinderies, asphalt plants, glassmakers, ceramic factories) and at stationary sources
- Measurement of dust release in workplace and production processes, exhaust fumes from private houses, and newly developed engines (for cars and other vehicles)

Process	Apparatus	Technique	Type of Filter	Filter grade
Measurement of nitrogen (gravimetry) [1] [2] [3] [4]	Isokinetic probe with rear filter-holder (up to 500°C)	Filtration, weighing	Glass microfibre filter Glass fibre thimbles	DFAFA
	Isokinetic probe with front filter-holder (up to 900°C)		Quartz microfibre filter Glass fibre thimbles	D0QF2
Measurement of inorganic lead [5]	Isokinetic probe with rear filter-holder (up to 500°C)	Atom absorption spectroscopy	Glass microfibre filter Glass fibre thimbles	DFAFA
Measurement of metals [6]	Isokinetic probe with rear filter-holder (up to 500°C)		Glass microfibre filter Glass fibre thimbles	DFAFA
	Isokinetic probe with front filter-holder (up to 900°C)		Quartz microfibre filter Glass fibre thimbles	D0QF2
Deposition of radioactive aerosols	Filtering instrument	Filtration, Scintillation	Glass microfibre filter, retention capability < 1µm	DFAAH
Monitoring the combustion air	Filtering instrument	Filtration, weighing	Glass microfibre filter	DAM07 DAM30
Emission test/engine development [7]	Automatic air filter units, air analysers with filter rolls	Filtration + optical evaluation	Medium-fast filter paper, small particle retention, white	DME07

1) EPA 5
2) EPA 17
3) UNE ISO 9096
4) EN 13284
5) EPA 12
6) EPA 29
7) Stationary emissions sources. Optical on-site analysis

Environmental analysis

Air pollution

Target application

- Ambient air monitoring
- Determination of suspended particles (SPM: suspended particular matter) and total suspended particles (TSP: total suspended particular matter)
- Detection of PM10 and lead (Pb)
- Monitoring the presence of pollutants in the air at different measuring points

Process	Apparatus	Technique	Type of Filter	Filter grade
Sampling of total suspended particulate matter TSP (Ø >30µm) [1]	High volume capturer	Gravimetry		DFAFA
	Low volume capturer			
	Cascade impactor			
Sampling and analysis of PM10 (Ø > 10µm) [1][2][3]	High volume capturer		Quartz microfibre filter, in line with US EPA and DIN EN ISO 23210	D0QF2
	Low volume capturer			
	Cascade impactor			
Sampling and analysis of PM2.5 (Ø >2.5µm) [1]	High volume capturer		Quartz microfibre filter, in line with US EPA and DIN EN ISO 23210 PTFE	D0QF2 or PM2.5 PTFE
Sampling and analysis of lead [4]	High volume capturer	Atomic absorption spectroscopy	Quartz microfibre filter, in line with US EPA and DIN EN ISO 23210	D0QF2
	Low volume capturer			
	Cascade impactor			

1) Reference methods in '40CFR50 Appx B, J, L, and G' in the 'Federal Register of the US EPA'
2) Air quality in accordance with EN12341
3) Directive 2008/50/EC, in European standard EN12341.
4) Ambient air quality in accordance with EN 14902:2005

Environmental Monitoring

GVS Filter Technology is a fully integrated producer and supplier of membrane based solutions for the environmental monitoring community.

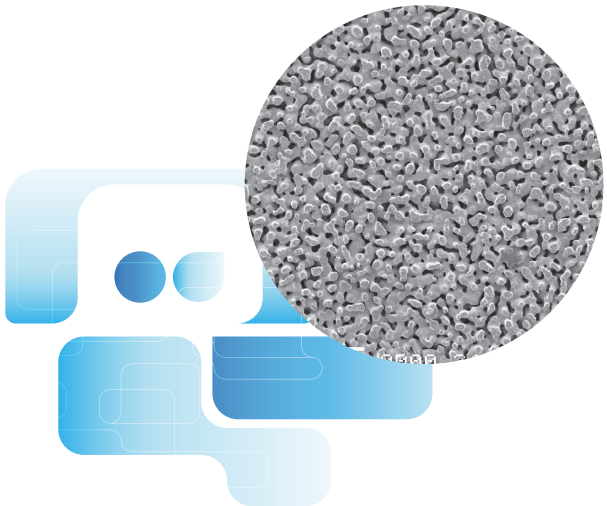
Poor Air and Water Quality around the world is a severe health risk for the population. Particulates impact the quality of the air we breathe, the water we drink and the space we live in everyday.

Standards and regulations for air and water particulate monitoring have been established by global environmental agencies to define, measure and mitigate issues. Regulations provide established methods for the analysis and definition of air and water quality. Global Standards have been established to define best practices for environmental monitoring using the most accurate procedures and test methods.

GVS supports the need for environmental monitoring and controls and offers a comprehensive suite of products developed for the air and water monitoring market. These include membranes and filters for air particulate monitoring, water quality, chemical, soil and asbestos analysis. GVS products are designed to be used in environmental testing and meet the Global Regulation Standards for air and water quality monitoring and analysis. All GVS membranes and filters are manufactured in ISO certified facilities to ensure reliable performance each and every time.

GVS products for environmental testing include applications and testing for:

- Environmental air monitoring
- Air pollution monitoring from stacks, flues and aerosols
- Industrial and home air monitoring
- Solutions for particulate matter testing
- Chemical analysis
- Asbestos analysis
- Oil monitoring
- Water testing
- Heavy metal testing
- Smoke number measurement
- Emission testing
- Gas monitoring
- Exhaust gas control
- Gravimetric analysis
- Preparation for qualitative analysis



Environmental Monitoring

- Environmental monitoring describes the processes and activities that need to take place to characterize and monitor the quality of the environment.

- Environmental monitoring is used in the preparation of environmental impact assessments, as well as in many circumstances in which human activities carry a risk of harmful effects on the natural environment.

- All monitoring strategies and programes have reasons and justifications which are often designed to establish the current status of an environment or to establish trends in environmental parameters.

- In all cases the results of monitoring will be reviewed, analyzed statistically and published.

- Air pollutants are atmospheric substances which may potentially have a negative impact on the environment and organism health.

- With the evolution of new chemicals and industrial processes has come the introduction or elevation of pollutants in the atmosphere, as well as environmental research and regulations, increasing the demand for air quality monitoring

Besides gaseous pollutants, the atmosphere can also be polluted by particles. These particles (either in suspension, fluid or in solid state), have a divergent composition and size and are sometimes called aerosols. They are often catalogued as 'floating dust', but are best known as particulate matter (PM).

This floating dust is most often categorized based on their aerodynamic diameter. The aerodynamic diameter of a dust particle is the diameter of a sphere-shaped particle that shows the same behavior in the atmosphere as a dust particle (which does not necessarily have a sphere shape). In the framework of air quality problems, particulate matter is the most important.

Particulate matter such as PM10, PM2.5, PM1 and PM0.1 is defined as the fraction of particles with an aerodynamic diameter smaller than respectively 10, 2.5, 1 and 0.1 µm (for your information: 1 µm = 1 millionth of a meter or 1 thousandth of a millimeter). In comparison, the average diameter of a human hair equals 50-70 µm (see figure below)

Membranes Selection Guide

Ambient air monitoring methods for the analysis and definition of particulates and chemicals present in the air.

The tables below provide guidance in the selection of the appropriate filters for air monitoring and match relevant specifications to the regional regulatory body.

Country	Regulation
U.S.A.	EPA 40 CFR 50, 40 CFR 53 EPA 600/R-94-038b
EU	Directive 2015/1480/EC EN12341-2014 for PM2.5/ PM10
CHINA	GB 3095-2012 HJ 656-2013 for PM2.5 HJ618-2011 FOR PM2.5/PM10
BRAZIL	CONAMA Resolution 003/90
SOUTH KOREA	Clean Air Conservation Act
JAPAN	Fifth Basic Environment Plan
INDIA	Revised National Ambient Air Quality Standards
MEXICO	Air Quality Mexican Official Standards
AUSTRALIA	Air NEPM

***** As of December 2018.

Verify for your specific local and country requirements.

Analysis	Recommended Membranes
PM 2.5 PARTICULATE	PM 2.5 PTFE
PM 10 PARTICULATE	QUARTZ FIBER GLASS FIBER PTFE MEMBRANE
PARTICULATE MONITORING	PM 2.5 PTFE GLASS FIBER QUARTZ FIBER SILVER MEMBRANE
ASBESTOS	POLYCARBONATE MCE SILVER MEMBRANE
HEAVY METAL	QUARTZ FIBER SILVER MEMBRANE
CHEMICAL ANALYSIS	QUARTZ FIBER GLASS FIBER PTFE MEMBRANE SILVER MEMBRANE

PM 2.5 PTFE Membrane

Product Characteristics

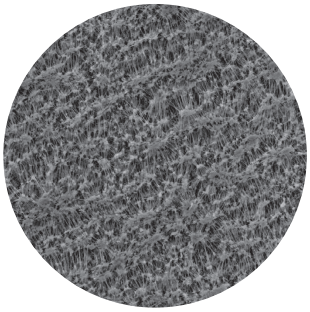
Filter thickness	30-40 µm
Filter diameter	46.2 mm
Filter pore size	2.0 µm
Support ring material	Polypropylene
Total support ring thickness	0.38 mm
Support ring width	3.68 mm
Particle retention (0.3µm)	99.7 %
Pressure drop (0.3µm) @16.67 l/min clean air	30 cm water
Alkalinity	<25 µeq/g of filter
Temperature weight loss stability	<20 µg
Drop test weight loss stability	<20 µg
Moisture weight gain stability	<10 µg

GVS Life Sciences PM 2.5 PTFE Membrane is a high-purity, thin membrane for PM 2.5 ambient air monitoring. Each membrane is sequentially numbered with a chemically resistant polypropylene support ring. The low tare mass allows for accurate gravimetric determinations. No glues or adhesives are used in making the membranes and its stable design eliminates curling, keeping the membrane flat allowing for robot use.

Ordering information

Product Code	Description	Pore Size (µm)	Quantity
759310	PM 2.5 PTFE Membrane Disk, EPA Conforming	2.0	50 /pk

Polytetrafluoroethylene (PTFE) Membrane



PTFE Sep PTFE Membrane

PTFE (fine powder resin) is expanded into a 3-dimensional web-like structure called PTFE which creates billions of microscopic pores. This structure utilizes the inherent hydrophobic (water-resistant) and non-stick nature of PTFE to allow removal of particulate captured on the membrane surface. This allows air to pass easily through the membrane while collecting particulate as small as 0.1 micron on its surface. GVS PTFE disc are membranes used for general applications in the environmental monitoring.

Product Characteristics

Pore Size (µm)	Bubble Point (EtOH) (kPa)	Flow Time (MeOH) (sec)	Thickness (µm)
0,22	107.9 -152.0	80 -140	100 -180
0,45	63.7-103.0	40 - 75	100 -180

Ordering information

Dimensions Packaging	13 mm 100/pk	25 mm 100/pk	47 mm 100/pk
Pore sizes 0.22 µm	1215485	1215486	1215487
0.45 µm	1215491	1215492	1215493
0.5 µm			1215501

Glass Microfiber Filter

GVS Filter Technology offers a wide range of glass microfiber filters made of 100% borosilicate glass fibers without binders. The depth structure of the filter with its large surface area provides an outstanding impurity retention capacity combined with a low filter resistance. Glass fiber filters adsorb the finest particles down to 1 µm from liquids and < 1 µm in air and gases, as the electrostatic interaction between the glass fibers and gases is better than between glass fibers and liquids. Temperature resistant up to 500° C (with organic binders up to 180° C).

Glass Microfiber without Binder GF 1.6 µm

Features and Benefits

- Very small particles retention
- Resistance to aggressive substances
- Temperatures up to 500 °C
- Fine retention with fast flow
- -100% borosilicate glass fibers without binders

Product Characteristics

Basis Weight	52 g/m²
Thickness	260 µm
Retention range	1.6 µm
Binders	Binder-free
Retention DOP	99,998 %

Ordering information

Product Code	Diameter	Quantity
FP025DFAFAGLFC01	25 mm	100/pk
FP037DFAFAGLFC01	37 mm	100/pk
FP047DFAFAGLFC01	47 mm	100/pk
FP050DFAFAGLFC01	50 mm	100/pk
FP090DFAFAGLFC01	90 mm	100/pk
FP203RFAFAGLFC01	203 x 254 mm	100/pk

Glass Microfiber Filter with Binder (GB10)

Features and Benefits

- 100% borosilicate glass filbers with binders
- Organic binders added for increased strength
- Hydrophobic
- Can be used in place of GF10 glass microfiber filters
- Penetration <0.05% (0.3um at 15 cm/s)

Applications

- Air sampling to collect atmospheric particulates and aerosols
- Particle filtration of gases

Product Characteristics

Basis Weight	64 g/m²
Thickness	< 270 µm
Binders	With binders
Maximum Temperature	180°C

Ordering information

Product Code	Diameter	Quantity
FP025DAM64GLFC01	25 mm	100/pk
FP037DAM64GLFC01	37 mm	100/pk
FP047DAM64GLFC01	47 mm	100/pk
FP050DAM64GLFC01	50 mm	100/pk
FP090DDAM64GLFC01	90 mm	100/pk

Quartz Microfiber Filter

GVS Quartz microfiber filters are made with 100% pure quartz microfiber with zero binders. Exhibit greater chemical resistance at high temperatures than glass microfiber. Excellent choice for use in environments with extreme temperature up to 900°C and/or aggressive chemical exposure. Retention loading and air flow permeation similar to glass microfiber filters. Use wherever filters of the highest purity are needed.

Features and Benefits

- Excellent retention of very fine particles.
- Exceptional chemical and thermal resistance.
- Excellent weight and dimensional stability with lowest trace metal content.
- High Permeation enables large volume of air to pass through.
- Higher temperature stability than glass microfiber filters; up to 900°C.
- Excellent chemical stability with practically no filter-mass loss in the presence of acid gases (HCl, SO2, SO3, H2, SO4, NO and NO3).

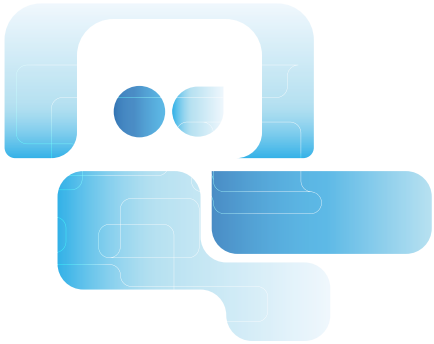
Product Characteristics

Weight	85 g/m²
Thickness	440 µm
Retention DOP	99.998 %

Ordering information

Product Code	Diameter	Quantity
FP025D0QF1QUFC01	25 mm	100/pk
FP037D0QF1QUFC01	37 mm	100/pk
FP047D0QF1QUFC01	47 mm	100/pk
FP050D0QF1QUFC01	50 mm	100/pk
FP090D0QF1QUFC01	90 mm	100/pk
FP203R0QF1QUFC01	203 x 254 mm	100/pk

Silver Membrane



Silver membranes are composed entirely of 99.97% pure metallic silver. They provide excellent chemical resistance and high temperature characteristics. Orientation of the membrane can be important. There is a distinct difference in surface characteristics with one side appearing shinier than the other. Use the Shinier side upstream for scanning electron microscopy. For all other applications and analytical work use the duller side upstream.

Features and Benefits

- 99.97% pure silver
- High temperature resistance
- High chemical resistance
- Hydrophilic
- Economical - can be cleaned and reused
- Autoclavable

Applications

- Airborne asbestos fibers by X-Ray diffraction
- Dissolved Organic Carbons (DOC)
- Analysis of airborne silica in foundries, glass plants, quarries, mines, ceramic manufacturing
- Coke oven emissions analysis
- Carbon and carbon black
- Coal tar pitch volatiles
- Fly Ash - high temperature
- Bromine and Chlorine analysis

Product Characteristics

Retention Range	0.22 to 5 µm available
Maximum Temperature	204 °C
Thickness	50 µm

Ordering information

Pore sizes	Dimensions Packaging	25 mm 50/pk	37 mm 25/pk	47 mm 25/pk
	0.45 µm	1145335	1145341	1145347
	0.8 µm	1145334	-	1145346

Glass Fiber Filters with or w/o Binder

PRESep Glass Fiber Membrane

GVS Glass Fiber membranes are biologically inert, autoclavable and highly resistant to oxidizing agents and weak acids. Glass fiber can be used to extend the life of a final filter as a prefilter or they can be used alone for low cost sample clarification. GVS Glass Fiber membranes with binders are composed of borosilicate glass fibers woven into a porous matrix and bonded by an acrylic resin. This bonding produces a filter that reduces media migration and has the strength required for high-volume aqueous filtrations. Glass Fiber membranes with a binder are usually recommended for filtrations of long duration under pressure. Glass Fiber membranes without binders are designed for solvent filtration or gravimetric analysis to avoid binder extractables. Filters without binders are recommended for analytical and gravimetric determinations.

Characteristics

- Acrylic binder
- High dirt holding capacity
- Biologically inert
- Bonding reduces media migration

Product Characteristics: Glass Fiber Filters with Binder

Max operating Temperature	165 °C
1.0 µm G20 Grade: 60 gsm	0.30 mm thick
1.0 µm G20 Grade: 203 gsm	1.14 mm thick

Product Characteristics: Glass Fiber Filters Binderless

Max operating Temperature	500 °C
0.7 µm: 60 gsm	0.44 mm thick
1.0 µm: 56 gsm	0.28 mm thick

Glass Fiber Filters with Binder Ordering information

Pore sizes	Dimensions Packaging	13 mm 100/pk	22 mm 100/pk	25 mm 100/pk	47mm 100/pk	75 mm 25/pk	90 mm 25/pk
	0.5 µm (G15)		1215543	1215544	1215548		1215550
	1.0 µm (G20)	1215557		1215559	1215562	1215563	1215564
	1.0 µm (G25)	1215571			1215577		1215579

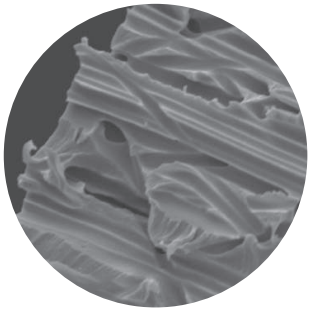
Pore sizes	Dimensions Packaging	124 mm 25/pk	142 mm 25/pk	257 mm 25/pk	293 mm 25/pk	24x24 cm 10/pk
	0.5 µm (G15)	1215551	1215553		1215555	
	1.0 µm (G20)		1215567		1215569	
	1.0 µm (G25)		1215582	1215583		1268603

Glass Fiber Filters Binderless Ordering information

Pore sizes	Dimensions Packaging	7 mm 500/pk	25 mm 100/pk	37 mm 500/pk	47 mm 100/pk	90 mm 25/pk	257 mm 100/pk
	0.7 µm	3029939	1215162		1215540	1215541	
	1.0 µm (G40)		1213325*	1215588	1215589*	1225509 1212763**	1220678

*500/pk **100/pk

Polycarbonate Track Etched (PCTE) Membrane



PORETICS
PCTE Membrane

Features and Benefits

- Smooth, thin, glass-like surface is suitable for optical analysis applications
- PVP treated for hydrophilic wetting.
- Resists chemical staining to ease microscopy visualization

Polycarbonate Track Etched (PCTE) Membrane is recommended for TEM and SEM microscopic testing for Asbestos Monitoring.

GVS Polycarbonate Track Etched (PCTE) Membrane is made from a thin polycarbonate film with precisely defined pores. The proprietary manufacturing process provides increased control over pore size and density for absolute size separation. This unique process ensures the physical properties of each membrane precisely fit specification.

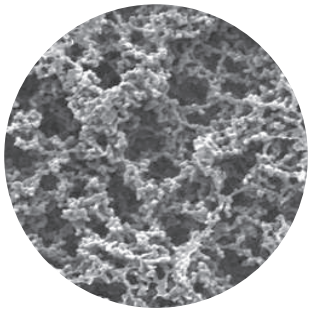
Product Characteristics

Thickness	8 - 11 µm
Optical Properties	Semi-translucent
Maximum Operating Temperature	284°F (140°C)
Residual Ash Weight Average	0.92 µg/cm²
Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
Autoclavable	Yes
Wetting Characteristics	Hydrophilic

PCTE Hydrophilic Membrane - Disks
Ordering information

Pore sizes	Dimensions Packaging	25 mm 100/pk	37 mm 100/pk	47 mm 100/pk
	0.2 µm	1215611		1215612
	0.4 µm	1215614	1215615	1215617
	0.8 µm	1215622	1215623	1215624
	1 µm	1215627	1221302	1215628

Mixed Cellulose Esters (MCE) Membrane



MICRON NC (MCE) Membrane Sep

Features and Benefits

- High loading capacity and flow rate
- Hydrophilic wetting
- Unsupported

Recommended for PCM and TEM microscopic testing for Asbestos Monitoring.

GVS Mixed Cellulose Esters (MCE) Membrane provides high flow rate and fast filtration with uniform pore structure for consistent flow and high throughput.

Product Characteristics

Sterilization	Gamma Irradiation or Ethylene Oxide (EtO)
USP Class VI testing	Passed
Thickness	100 - 190 µm
Sealing Compatibility	Ultrasonic, Heat, Radio Frequency and Insert Molding
Pore Size Range	0.22 to 0.8 µm

Ordering information

Pore sizes	Dimensions Packaging	25 mm 100/pk	37 mm 100/pk	47 mm 100/pk	90 mm 25/pk
	Color	**white**	**white**	**white**	**white**
0.22 µm		1214898		1214909	1214941
0.45 µm		1215263	1215272	1215281	1215305
0.8 µm		1215425	1215426	1215428	1215431

BAM Filter Paper

for continuous particulate monitoring

- BAM Filter Paper is a roll type glass fiber filter specially designed for BAM (Beta-ray Attenuation Monitoring) instruments. Its length of 21m is designed to last 60 days and 31m is designed to last 90 days.
- BAM Filter Paper is reliable and has been used for beta-ray attenuation monitoring for over 30 years around the world.

Specifications

Product Code	FA021RFAFAGLFC01	FA031RFAFAGLFC01
Weight	49 ± 7 g/m2	49 ± 7 g/m2
Thickness	0.14 ± 0.03 mm	0.14 ± 0.03 mm
Pressure Drop	≦ 20.0 kPa	≦ 20.0 kPa
Collection Efficiency (0.3μm DOP)	≧ 99.9 %	≧ 99.9 %
Tension	≧ 7.8 N	≧ 7.8 N
Repellency	≧ 4.9 kPa	≧ 4.9 kPa
Loss on Heat	10.0 ± 2.0 %	10.0 ± 2.0 %
Filter Size	30 mm × 21 m	30 mm × 31 m
Size Margin	Length: 21 m + 2 m, Width: 30 mm ± 0.5 mm	Length: 31 m + 2 m, Width: 30 mm ± 0.5 mm
Core Diameter	φ40.5 mm ± 0.5 mm	φ40.5 mm ± 0.5 mm
Origin	Made in Italy	Made in Italy

Specifications, and appearance described in this document are based on information as of May, 2019. They are subject to change without notice for improvement of the product. The color of actual products may differ to that of color in this data sheet.

Extraction thimbles

GVS extraction thimbles are manufactured in three versions:

- High purity cellulose
- Pure borosilicate glass microfiber
- High purity quartz microfiber

The extraction thimbles are suitable for Soxhlet type, Tecator type or similar devices.
They are located in the extractor body, used to accommodate a sample of solid material to extract certain components out, with the addition of an appropriate solvent.

1. Cellulose extraction thimbles

GVS high-quality cellulose extraction thimbles are made from high-alpha cellulose cotton linters with rounded bottom.

Features

Manufactured in high-alpha cellulose cotton linters

Strong mechanical structure and retentivity

Maximum working temperature 120°C

Tolerances according to DIN 12449:

· Internal diameter +0/-3mm

· Thimble height ±1mm

· Wall thickness ±0.5mm

· Ash content <0.1%

Applications

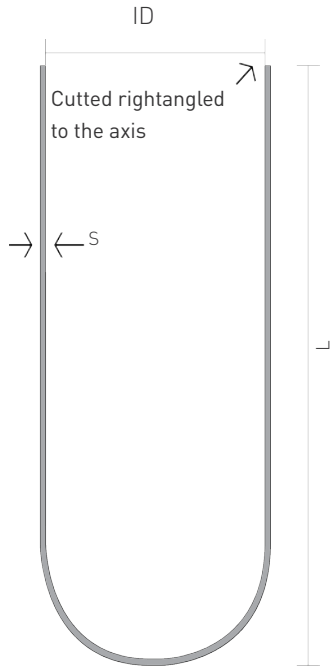
Fat extraction in foodstuffs, paints and varnishes

Extraction of polymers

Determination of environmental pollutants

They are usually used in extractors of the "Soxhlet", "Tecator" or similar types, in order to collect solid material from which components must be separated out by dissolving in a suitable solvent

The thimbles size selection should be done carefully to fit extractors correctly. The references sizes are internal diameter and the length in mm (an extra allowance for wall thickness should be added when selecting external diameters)



DIMENSIONS OF AN EXTRACTION THIMBLE:
ID = Inner diameter in mm
L = Length in mm
S = Wall thickness in mm
Standard thickness:
CC0Q0 S=1.5 mm
Double thickness:
DC0Q0 2<S<2.5 mm

Ordering information.Standard Thickness (1-1.5 mm)

(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code
25 Thimlbes/Box		25 Thimlbes/Box		25 Thimlbes/Box	
16x100	ET16100CC0Q00	27x80	-	35x100	-
19x90	ET19090CC0Q00	27x100	-	35x150	ET35150CC0Q00
20x80	ET20080CC0Q00	28x22	ET28022CC0Q00	40x100	-
22x60	ET22060CC0Q00	28x100	ET28100CC0Q00	40x123	-
22x65	-	30x77	-	43x123	ET43123CC0Q00
22x80*	ET22080CC0Q00	30x80	ET30080CC0Q00	48x125	-
22x90	-	30x100	ET30100CC0Q00	50x160	ET50160CC0Q00
22x100	-	33x80	ET33080CC0Q00	52x180	-
25x60	ET25060CC0Q00	33x94	ET33094CC0Q00	53x145	-
25x80	ET25080CC0Q00	33x100	ET33100CC0Q00	58x180	-
25x100	ET25100CC0Q00	33x118	ET33118CC0Q00	60x80	-
26x60	ET26060CC0Q00	35x50	-	60x120	-

(*) Other sizes available under request.

Ordering information. Double Thickness (2-2.5 mm)

(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code
25 Thimlbes/Box		25 Thimlbes/Box	
19x90	ET19090DC0Q00	33x94	ET33094DC0Q00
22x65	-	33x100	ET33100DC0Q00
22x80	ET22080DC0Q00	35x100	ET35100DC0Q00
22x90	-	60x80	ET60080DC0Q00
25x100	ET25100DC0Q00	60x120	ET60120DC0Q00
28x100	ET28100DC0Q00	68x250	-
30x100	ET30100DC0Q00	75x160	ET75160DC0Q00
33x80	ET33080DC0Q00	90x180	ET90180DC0Q00

(*) Other sizes available under request.

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
CC0Q0	2800	603	MN 645	Grade 30
DC0Q0	2810	-	MN 645 F	-

2. Glass microfiber thimbles

GVS high-quality glass microfiber thimbles are made from 100% pure borosilicate fibers. They have special advantages since no binders of any kind are used in their manufacture process.
They are particularly suitable when solvents that are incompatible with cellulose thimbles are present.

Features

- Manufactured in 100% pure borosilicate fibers without binders
- High loading capacity
- High retention of very small particles
- High air permeability
- Good stability in high temperature. Maximum working temperature 500ºC
- Tolerances for GF0Q0 glass microfiber thimbles:
  - · Internal diameter +1/-3mm
  - · Thimble height ±1mm
  - · Wall thickness 2 ±0.5mm

Applications

- Extraction of solvents which are not compatible with cellulose cotton linter
- Gas emission controls for industrial chimneys
- Gravimetric testing for dust in hot gases

Technical Specifications

Grade	Retention Dop (*) (%)	Maximum Temperature (ºC)	Binder
GF0Q0	99.998	500	NO

Ordering information

(*) Size (mm) Int x Length	Product Code	(*) Size (mm) Int x Length	Product Code
25 Thimlbes/Box		25 Thimlbes/Box	
19x90	ET19090GF0Q00	33x80	ET33080GF0Q00
22x80	ET22080GF0Q00	33x94	ET33094GF0Q00
25x100	ET25100GF0Q00	35x150	ET35150GF0Q00
26x60	-	43x123	ET43123GF0Q00
30x100	ET30100GF0Q00	58x180	-

(*) Other sizes available under request.

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 3	Equivalent 4
Grade	603g	603g	649	Grade 40

3. Quartz microfiber thimbles

GVS quartz microfiber thimbles are made from high purity quartz microfiber. These thimbles are able to withstand high temperatures (up to 900°C), and meet the highest requirements for purity, specially because of their low heavy metal content.

Features

Manufactured in high-purity quartz microfiber filters (SiO2) free of binding elements or additives

High loading capacity

High retention of very small particles

High air permeability

Good stability in high temperature. Maximum working temperature 900ºC

Tolerances for QZ0Q0 micro-quartz thimbles:

- Internal diameter +0/-3mm
- Thimble height ±1mm
- Wall thickness 2 ±0.5mm

Applications

Gas emission controls for industrial chimneys

Gravimetric testing for dust in hot gases

Determination of environmental pollutants

Extraction in highly concentrated acid or alkaline solutions

Technical Specifications

Grade	Retention Dop (*) (%)	Maximum Temperature (ºC)	Binder
QZ0Q0	99.998	900	NO

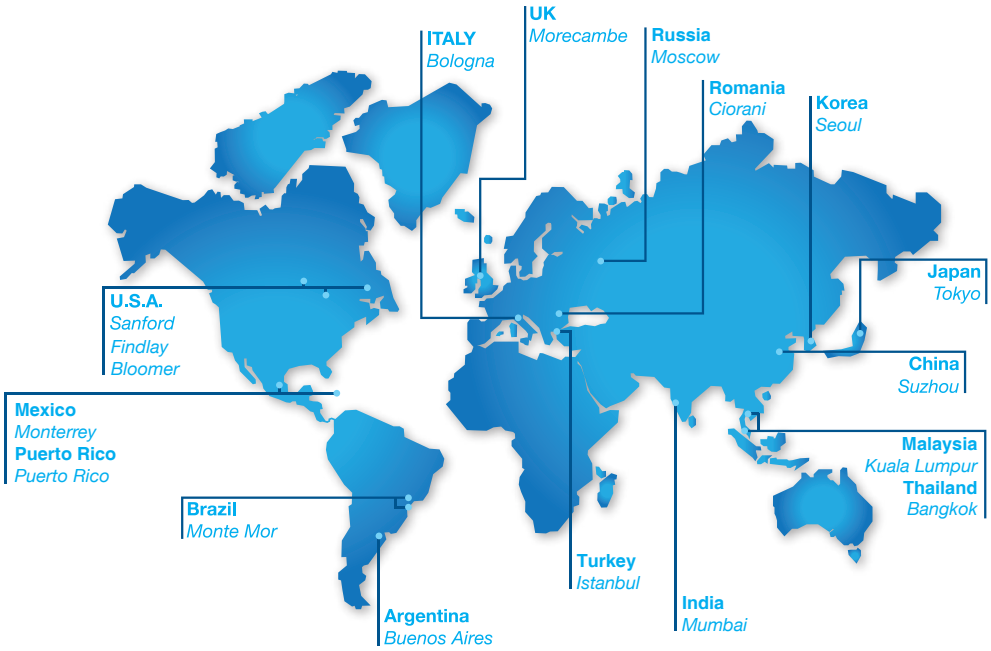
Ordering information

(*) Size (mm) Int x Length	Product Code
	25 Thimlbes/Box
25x100	ET25100QZ0Q00
30x100	ET30100QZ0Q00
35x150	-
43x123	ET43123QZ0Q00

(*) Other sizes available under request.

Equivalence Table

GVS	Equivalent 1	Equivalent 2	Equivalent 4
QZ0Q0	603q	603q	MK 360



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PRODUCT COLLECTION
Environmental Monitoring

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