Gilian®

Complete Solutions for Air Sampling for Over 35 Years

AIR SAMPLING PRODUCTS

Precision Products for All of Your Air Sampling Needs

SENSIDYNE®

Industrial Health & Safety Instrumentation

Sensidyne® and Gilian®: The Highest Standard in Air Sampling

Sensidyne manufactures and distributes air sampling instruments, gas detection instruments, and gas detection tubes throughout the United States and around the world since 1983. In 1995 Sensidyne acquired the Gilian Instrument Company to expand the existing line of personal air sampling pumps. The Gilian® brand has flourished under the Sensidyne banner and continues to be the most recognized brand globally for high performance vapor and particulate monitoring equipment. Sensidyne is also a technology leader in fixed gas detection with products such as the SensAlert® ASI, SensAlert Plus®, and SensAir® point gas detectors.

In April 2008, Sensidyne, LP became part of the Schauenburg Electronic Technologies Group of Schauenburg International GmbH. Schauenburg is a family-owned group of companies that specialize in safety instrumentation, communication technologies, plastic processing, machining and equipment, and engineering products. Schauenburg provides Sensidyne with the support and autonomy to serve their core markets and nurtures Sensidyne's core competencies of product development, manufacturing, distribution, and service.

Sensidyne's commitment to quality, dependability, and accuracy has established the company and the Gilian brand as the gold standard in air sampling. Sensidyne is focused on continuous improvement, customer service, and innovations that deliver desirable, intuitive, and dependable products and services that Safety Professionals desire.

Sensidyne is dedicated to providing the highest reliability, latest technology, and expert customer and technical support. We also provide detailed technical information and assistance for a wide variety of applications across our entire product offering. Sensidyne is an ISO 9001:2015 Certified organization, along with ISO 17025:2017 accreditation.

For detailed information on products and services, please visit our website at www.sensidyne.com or call us at (International) +1 (727) 530-3602.

Gilian®

Table of Contents

Determine Your Air Sampling System

Directions: Follow the numbered boxes to determine the right air sampling system for your application

STEP 1

Why are you sampling?

- Regulatory – 8 Hr. TWA[1]
- Validation of Engineering Controls.[2]
- Task Sampling[3]
- Health Based – IDLH, STEL[4]
- Environmental[5]

STEP 2

What is the airborne substance you are sampling?[6]

STEP 3

Select Method:[7]

- Air Sampling Contaminant Reference Guide (see pages 39 – 48)
- Real-Time Direct Read (see page 31)
- Gases & Volatiles: Detector Tubes (for detector tube list go to www.sensidyne.com)

STEP 4

Determine sample configuration:

- Filter Media[8]
- Sample Flow Range[9]
- Min and Max Volume[10]
- Accessories[11]
- Split Samples[12]

STEP 5

Choose pump based on flow range:[13] (p. 16–17)

Narrow choice of pump based on backpressure:[14]

- Filter type, or
- Environmental loading on filter (Dusty or wet areas = High Back Pressure)

Narrow choice of pump based on feature:

- Constant Flow[15]
- Constant Pressure[16]
- Manual set screw for flow control (Basic Models)[17]
- Push Button flow control with digital display[18]
- Programmable[19]
- Data Logging[20]
- Calculates for STP Value[21]
- Motion Sensing[22]
- Bluetooth[23]

STEP 6

Select Calibrator:

- Calibration Flow Rate[24]
- Lab/Desk top (Primary Flow Calibrator)[25]
- Field Use Calibrator (Primary or Secondary Air Flow Calibrator)[26]

Definitions

1. **Regulatory –** In general, sampling should be conducted for 8 hours. Look at methods from your local agencies. US methods are based on OSHA or NIOSH methods. This catalog lists NIOSH Manual of Analytical Methods 4th Edition. User must check if a more relevant method is available.
2. **Validating Engineering Controls –** Typically performed by spot checking with a direct read instrument (i.e. Nephelometer page 31), Colorimetric detector tube (see page 49), or task duration sampling (see notation 3).
3. **Task Sampling –** Typically involves collecting a higher volume sample over a shorter amount of time. Consider use of higher flow rate pump and use of a higher flow rate accessory (if warranted for method).
4. **Health Based –** Immediately Dangerous to Life and Health (IDLH) involves instantaneous, peak level, or short term exposure level (STEL) measurements by a direct read instrument, colorimetric detector tube, or pump capable of collecting sample for at least 15 minutes.
5. **Environmental –** Environmental regulations and sampling methods differ than those of NIOSH and OSHA. Check for the appropriate environmental method for your country. Environmental samples may require higher flow area sampling pumps (i.e. AirCon 2 – see page 14).
6. **Airborne Material –** There may be more than one method for each airborne material. You may wish to check with a local laboratory to confirm which methods are available.
7. **Selecting the Method –** Refer to the NIOSH Manual of Analytical Methods 4th Edition (pages 39 – 48) for regulatory samples, page 49 for direct read equipment, or visit our website for list of detector tubes available.
8. **Filter Media –** Media is required with use on all pumps. The appropriate media is determined by the sampling method. It may consist of filters made of different materials, liquids, or glass tubes containing a product or compound to react or bond with the airborne material being sampled. See pages 23-25 for filter media and page 33-35 for sorbent tubes. Contact Sensidyne for assistance with defining the proper sampling media. Sample media should be analyzed by an approved industrial hygiene lab.
9. **Sample Flow Range –** Each analytical method usually lists a sample flow range. This is the flow rate that the sample pump should be set to for sampling. If shorter duration sampling will be performed, you may consider using the higher end of the flow range. If sampling in a dirty/dusty environment, you may consider sampling on the lower end of the flow range as to avoid clogging the filter.

10. **Min and Max Volume -** Each analytical method usually lists a minimum and maximum volume range. The laboratory needs a minimum volume to meet the limit of detection (LOD) for the specific method being analyzed. Make sure you can set you flow rates appropriate to meet the minimum and maximum volumes specified by the method.
11. **Accessories –** Some methods require the filter media to be held in a device, or used within a device. Glass tubes require a tube holder or a manifold with 2-4 tube holders, if multiple tubes will be sampled on the same pump at one time (see page 33-35). Cassettes or filter media may be used with a cyclone or impactor for dust and silica sampling (see page 26-30). Liquid media is generally used in an impinger/bubbler device (see pages 36-37). Sample bags may also be used to collect volumes of air that can be sent off for analysis (see page 37).
12. **Split Samples –** In many cases, multiple samples can be collected with a single Gilian pump in constant pressure mode or with a constant pressure adapter. For example, this would allow the user to sample a filter cassette side by side with an absorbent glass tube using a variable manifold kit (page 33).
13. **Flow Range –** Each pump has a unique operating range. Select the pump that has an operating range that corresponds with the analytical method for your airborne material.
14. **Backpressure –** There is typically a correlation between flow rate and back pressure, the higher the flow rate, the more back pressure is exerted from the media. Pumps will fault out if too much back pressure exists. Back pressure can accumulate if a filter becomes over loaded. Additionally, different types of media have a starting back pressure which can impact the pumps ability to operate. Smaller diameter filter pads usually have higher back pressure. Also filter pads with 0.8 µm pores have higher starting back pressures. Consider using the Power Series Pumps (see pages 8-9) for sampling at higher back pressures.
15. **Constant Flow –** Pumps should be able to maintain a constant flow within +/-5 % during the course of the sample. Pumps that have a mass flow controller can adjust the flow rate as pressure changes occur to maintain the sample at a constant flow.
16. **Constant Pressure –** Pumps with a constant pressure module or pressure mode built into the pump can maintain constant negative pressure (vacuum), through a set screw on an orifice(s), such as the ones on our multi-tube manifold (see pages 33–35).
17. **Manual Set Screw for Flow Control (Basic Models) –** Basic model pumps include our BDX, GilAir 3, GilAir 5, and LFS-113. These pumps require a small flathead screw driver to adjust the flow rates on the pump.
18. **Push Button Flow Control with Digital Display –** Gilian Power Series Pumps include the Gilian 800i, Gilian 5000, Gilian 10i, and Gilian 12. These pumps all have the same control board with four buttons to make adjustments to flow rates and programs. Additionally, the digital display will show the flow rate, time sampled, and volume of air collected.
19. **Programmable –** Our Power Series Pumps have manual programming capabilities. The GilAir Plus can be programmed either manually or through our PC interface, with the Sensidyne Gilian Connect® Software.
20. **Data Logging –** The GilAir Plus comes with an optional hardware upgrade that allows for data logging and downloading to the Gilian Connect Software. Reports can be generated from the downloaded data.
21. **Calculates for STP –** The GilAir Plus comes with an optional sensor that allows for the air volume to be corrected for standard temperature and pressure. Reference temperatures and pressures can be stored on the pump that are consistent with your local standards.
22. **Motion Sensing -** The GilAir Plus comes with an optional sensor that allows for tracking motion during the sampling event. This data can be used for validating sample integrity.
23. **Bluetooth -** The GilAir Plus comes with optional Bluetooth communication on units with motion sensing hardware. The Bluetooth allows the pump to communicate streaming data of pump metrics, such as flow rate, back pressure, volume, motion, STP and other parameters, to the supervisor's smart phone or tablet. Additionally, the phone or tablet can be used to start, pause, or end the sampling event.
24. **Calibration Flow Rate –** Calibrators also have flow ranges associated with them. You will want to select a calibrator flow cell, or system, that corresponds to the desired flow rate of your sample pump. It should be noted that several calibration flow cells have flow ranges that overlap another flow cell. If the desired pump flow rate is on the lower end of the calibrator cell's flow range it will take a longer time to calibrate. You may wish to select an additional flow cell to increase calibration efficiency.
25. **Lab/Desk Top (Primary Flow Calibrator) –** Primary flow calibrators are those that use a fixed volumetric measurement as the source of calibration. They generally come in two types, a Gilibrator-2 wet cell (see page 20), or a Gilibrator 3 dry cell (see page 18). Note – the Gilibrator 3 dry cell is conveniently packaged for easier transport into the field or between offices.
26. **Field Use Calibrator (Primary or Secondary Air Flow Calibrator) –** Field use calibrators can be either a Primary calibrator (i.e. Gilibrator 3), or a Secondary air flow calibrator. Secondary calibrators include rotameters or the Go-Cal™ air flow calibrator, which is a portable, battery-operated calibrator that is lightweight, easy to use, and accurate within 2% of reading (see page 22).

GilAir® Plus

Performance, Versatility, and Result Validation

Download the CONNECT™ Mobile App on your iOS or Android* smart phone/tablet for a full set of mobile features that assure sampling integrity!

Easily Monitor Activity with Your Mobile Device!

Quickly set up a mobile device for remote (via Bluetooth) internal sampling or run time data and motion monitoring, logging that provides improved sample integrity, in-process sample auditing, snapshots, and automatic reports of current conditions. Complete instructions are included with the GilAir® Plus.

Sample data, as well as motion monitoring is available via Bluetooth connection to Android and iOS devices running Gilian CONNECT Mobile.*

QuadMode℠ Air Sampling Technology

Wide, dynamic flow range provides high-flow constant pressure and constant flow, and low-flow constant pressure and constant flow without external adapters.

Selectable Automatic Fault Recovery

GilAir Plus pump automatically attempts restart to recover from temporary fault conditions. The selectable automatic fault recovery feature provides restart in the event the sample tubing becomes crimped or briefly blocked. This feature attempts to restart the pump up to 10 times every 3 minutes to check if the block is cleared. Fault shutdown time is not added to the accumulated and displayed sample runtime. Automatic fault recovery can be disabled for compliance with ISO 13137:2013.

SmartCal℠ Automatic Calibration

The SmartCal feature uses the dock as a communication link between calibration devices and the GilAir Plus. It automates calibration and records pre and post sample calibrations in the pump's datalog.

Advanced Data Handling

GilAir® Plus is light-weight, quiet, with a large backlit display. An optional computer interface allows uploading program information or downloading time-stamped datalogs through the docking station. An intuitive menu and keypad interface make it easy for users to make adjustments or change settings on the pump using a lockable keypad to prevent tampering once the pump is set for use.

Pump Model	Flow Rate 1 - 5000 cc/min	QuadMode Technology	Battery Options (NiMH Alkaline & DC)	Timer Program Functions	Advanced Program Functions	Data Logging	SmartCal Calibration Option	Standard Temp & Pressure Data (STP)	Bluetooth Option
Basic	√	√	√	√			√*		
Data Log	√	√	√	√	√	√	√		√
STP	√	√	√	√	√	√	√	√	√

Part Numbers	Starter Kit			Three-Unit Kit			Five-Unit Kit		
	Basic Model	Datalog Model	STP Model	Basic Model	Datalog Model	STP Model	Basic Model	Datalog Model	STP Model
US Plug	910-0901-US-R	910-0902-US-R	910-0903-US-R	910-0907-US-R	910-0908-US-R	910-0909-US-R	910-0904-US-R	910-0905-US-R	910-0906-US-R
Euro Plug	910-0901-EU-R	910-0902-EU-R	910-0903-EU-R	910-0907-EU-R	910-0908-EU-R	910-0909-EU-R	910-0904-EU-R	910-0905-EU-R	910-0906-EU-R
UK Plug	910-0901-UK-R	910-0902-UK-R	910-0903-UK-R	910-0907-UK-R	910-0908-UK-R	910-0909-UK-R	910-0904-UK-R	910-0905-UK-R	910-0906-UK-R
BT† with US Plug	NA	910-0910-US-R	910-0911-US-R	NA	910-0914-US-R	910-0915-US-R	NA	910-0912-US-R	910-0913-US-R
BT† with EU Plug	NA	910-0910-EU-R	910-0911-EU-R	NA	910-0914-EU-R	910-0915-EU-R	NA	910-0912-EU-R	910-0913-EU-R
BT† with UK Plug	NA	910-0910-UK-R	910-0911-UK-R	NA	910-0914-UK-R	910-0915-UK-R	NA	910-0912-UK-R	910-0913-UK-R

* A current list of iOS and Android devices can be found at www.sensidyne.com on the GilAir Plus product page. † BT=Bluetooth connectivity.

GilAir® PLUS

High Back Pressure Capability

GilAir® Plus delivers the reliable performance users expect from the Gilian brand. The pump has high back-pressure capability of up to 40" H_2O in high-flow and also up to 40" H_2O in low flow. An automatic self check system ensures sample accuracy by continuously monitoring pump performance and components.

Temperature & Pressure Compensation

The GilAir® Plus pump operates in selectable ambient or standard mode correcting for temperature and barometric pressure when equipped with STP option and provides automatic flow correction option for barometric pressure changes.

Docking Provides Charging & Communication Functions

GilAir® Plus docks provide charging and communication functions (Datalog and STP models) for the pump. Once docked, the Gilian CONNECT PC application allows users to review datalogs, generate sampling reports, manage sampling programs, and create pump set-up profiles that expedite deployment of large pump fleets and management of sample records.

Three and five-station docks are included when ordering multi-pump configurations.

Chargers/Docks	Part No.	Model
Multi-Station Chargers		
GilAir Plus Three-Unit Charger **Basic Models:** Provides charging-only functions **Communication Models:** Provides charging and communication functions	811-0911-US-R 811-0911-EU-R 811-0911-UK-R 811-0912-US-R 811-0912-EU-R 811-0912-UK-R	120V Basic 230V Basic Euro 230V Basic UK 120V Communication 230V Communication Euro 230V Communication UK
GilAir Plus Five-Unit Charger **Basic Models:** Provides charging-only functions **Communication Models:** Provides charging and communication functions	811-0902-US-R 811-0902-EU-R 811-0902-UK-R 811-0904-US-R 811-0904-EU-R 811-0904-UK-R	120V Basic 230V Basic Euro 230V Basic UK 120V Communication 230V Communication Euro 230V Communication UK
Single-Station Chargers		
GilAir Plus **Basic Models:** Provides charging-only functions **Communication Models:** Provides charging and communication functions	811-0901-US-R 811-0901-EU-R 811-0901-UK-R 811-0903-US-R 811-0903-EU-R 811-0903-UK-R	120V Basic 230V Basic Euro 230V Basic UK 120V Communication 230V Communication Euro 230V Communication UK

Specifications	GilAir Plus	
Total Flow Range	1-5,100 cc/min	
High Flow Range, Constant Flow	450-5,100 cc/min 0.45-5.1 LPM	
High Flow Range, Constant Pressure	450-5,100 cc/min to 30" H_2O (7.5 kPa)	
Low Flow Range, Constant Flow	20-445 cc/min No module needed	
Low Flow Range, Constant Pressure	1-445 cc/min, @ 40" ± 2.5" H_2O (10.0 ± 0.6 kPa)	
QuadMode℠ Capable	Yes	
SmartCal℠ Capable	Yes	
Max. Pressure Capability:	Fault †	8 hr. Run††
@ 0.35 LPM, Inches H_2O (kPa)	40 (10.0)	40 (10.0)
@ 0.75 LPM, Inches H_2O (kPa)	40 (10.0)	40 (10.0)
@ 1 LPM, Inches H_2O (kPa)	40 (10.0)	35 (8.7)
@ 2 LPM, Inches H_2O (kPa)	40 (10.0)	30 (7.5)
@ 2.5 LPM, Inches H_2O (kPa)	37 (9.2)	30 (7.5)
@ 3 LPM, Inches H_2O (kPa)	35 (8.7)	30 (7.5)
@ 3.5 LPM, Inches H_2O (kPa)	32 (7.9)	25 (6.2)
@ 4 LPM, Inches H_2O (kPa)	30 (7.5)	20 (5.0)
@ 5 LPM, Inches H_2O (kPa)	15 (3.7)	12 (3.0)
Data Shown In Display	Flow Rate, Sample Time, Battery Level, Run Time, Predicted Run Time, Sampling Mode, Time and Date, and Sample Volume in Actual Conditions.	
Overall Dimensions: **inches** **centimeters**	 4.3W x 2.4H x 2.4D 10.9W x 6.1H x 6.1D	
Total Pump Weight	20.5 oz. (0.58 kg)	
Rechargeable Battery	7.2V, NiMH	
Operating Temperature	32°F to113°F 0°C to 45°C	
Certifications*** EN 1232 Compliant ISO 13137:2013 Compliant Intrinsic Safety US/Canada NRTL (FM) ATEX CE Applicable Directives	 Ingress Protection: IP54 Class I, Div 1 Groups A, B, C, D, E, F, G Class II, Div 1 Zone 0 Class III, T4 Ⓔx II 1 G, Ex ia IIC T4 ATEX 94/9/EC EMC 2004/108/EC (RFI) | LVD 2006/95/EC | RoHS Compliant	
Charging Time	< 3.5 hours	

† Typical back-pressure limit before fault with fully charged battery pack.
†† Maximum back-pressure for 8-hour run without fault.
*** Consult individual specification sheets as approvals can vary based on model.

Gilian® Power Series Pumps

High Efficiency Air Sampling Pumps




The Gilian Power Series pumps are the industry leader in back-pressure performance, reliability, and ease-of-use. Thanks to several advanced features, the pumps overcome the main causes of sampling errors — saving you time and money. The back-pressure capabilities of the Gilian Power Series pumps are the highest in the industry for any personal sampling pump.

- **Highest back-pressure capability**
- **Programmable**
- **Live flow display**
- **NiMH battery**

	Gilian 800i	Gilian 5000	Gilian 10i	Gilian 12
Total Flow Range	200 - 800 cc/min	20-5,000 cc/min	4000 - 10,000 cc/min	4000 - 12,000 cc/min
High Flow Range, Constant Flow	200 - 800 cc/min 0.2-0.8LPM	800-5000 cc/min 0.8-5LPM	4000-10,000 cc/min 4-10.0 LPM	4000-12,000 cc/min 4-12.0 LPM
High Flow Range, Constant Pressure	NA	NA	NA	NA
Low Flow Range, Constant Flow	NA	NA	NA	NA
Low Flow Range, Constant Pressure	NA	20-800 cc/min, @ 15" ± 1.5" H_2O* (3.7 ± 0.4 kPa)	NA	NA
QuadMode℠ Capable	No	No	No	No
Data Shown In Display	Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery	Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery	Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery	Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery
Overall Dimensions: inches centimeters	3.2W x 5.4H x 2.3D 8.2W x 13.7H x 5.8D	3.2W x 5.4H x 2.3D 8.2W x 12.4H x 5.1D	3.2W x 5.4H x 2.3D 8.2W x 13.7H x 5.8D	3.2W x 5.4H x 2.3D 8.2W x 13.7H x 5.8D
Total Pump Weight	20.5 oz. (0.58 kg)	20.5 oz. (0.58 kg)	23.0 oz. (0.65 kg)	25.5 oz. (0.73 kg)
Rechargeable Battery	NiMH	7.2V, NiMH	7.2V, NiMH	9.6V, NiMH
Operating Temperature	32°F to 113°F 0°C to 45°C	32°F to113°F 0°C to 45°C	32°F to113°F 0°C to 45°C	32°F to113°F 0°C to 45°C
Certifications				
EN 1232 Compliant	Type G	Type P	NA	NA
Intrinsic Safety	Yes	Yes	Yes	No
US/Canada NRTL (FM)	Class I Div 1 Group A,B,C,D Class II Div 1 Group E,F,G Class III T4	Class I Div 1 Group A,B,C,D Class II Div 1 Group E,F,G Class III T4	Class I Div 1 Group A,B,C,D Class II Div 1 Group E,F,G Class III T4	NA NA NA
ATEX	Ex II 1 G, Ex ia IIC T4	Ex II 1 G, Ex ia IIC T4	Ex II 1 G, Ex ia IIC T4	NA
CE Applicable Directives	ATEX 94/9/EC EMC 2004/108/EC (RFI) | LVD 2006/95/EC	ATEX 94/9/EC EMC 2004/108/EC (RFI) | LVD 2006/95/EC	ATEX 94/9/EC EMC 2004/108/EC (RFI) | LVD 2006/95/EC	NA EN 55011:1998/ A1:1999 Group 1 Class B
Charging Time	< 4 hours	< 4 hours	< 4 hours	< 4 hours

* Requires installation of low flow constant pressure adaptor.
** Battery Life estimates based on proper battery maintenance.
† Back-pressure limit before fault with fully charged battery pack.
†† Maximum back-pressure for 8-hour run without fault.

Power = Higher flow rates & higher back-pressure

The Gilian Power Series is the industry leader in back-pressure performance, reliability, and ease-of-use. The Gilian Power Series consists of four pumps:

Gilian 800i:	Flow rates—200 to 800 cc/min	Backpressure up to 80" of H_2O @ 800 cc/min
Gilian 5000:	Flow rates—800 to 5,000 cc/min	Backpressure up to 70" of H_2O @ 1 LPM
Gilian 10i:	Flow rates—4,000 to 10,000 cc/min	Backpressure up to 45" of H_2O @ 4 LPM
Gilian 12:	Flow rates—4,000 to 12,000 cc/min	Backpressure up to 67" of H_2O @ 4 LPM

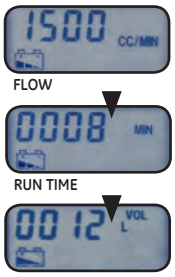
The Gilian Power Series Pumps offers significantly higher back-pressure capabilities than competitive pumps thanks to an advanced pneumatic design and powerful batteries. As a result, dense -particulate buildup on the filter, common in dusty environments, is far less likely to trigger premature pump shutdown and an incomplete sample. In addition, several advanced features on these pumps overcome the main causes of sampling errors.

They also provide automatic constant flow controls and the Gilian 5000 has an optional adapter module which can handle lower flows under constant pressure control, such as required for multi-flow sorbent sampling.

Easy to calibrate and set-up

Air flow settings and calibration of the flow rate display are done through the keypad, requiring only an air flow calibrator. This means you can set up your pump and begin sampling quickly.

The pump performs an automatic self-calibration of internal temperature and pressure measurement when initially placed in the run mode and whenever the ambient temperature changes by more than 3° C during sampling. The Power Series Pumps will hold calibration for 30 days, even with atmospheric changes.



The display auto-cycles through three screens when the unit is on.

Live flow display confirms proper pump operation

Monitoring the pump for proper operation is easy. A large digital display continuously cycles to show flow rate, sample run time and total volume sampled. You receive immediate, real-time feedback, including live flow, not just the flow setting, which quickly alerts you to any sudden changes in flow rate. The air flow display holds calibration for 30 days, even with atmospheric changes.

Pump wearers can stop the pump, such as for a break, and the display remains active. After 75 minutes, the pump automatically turns off the display if there's no activity but retains all sample data.

NiMH battery ends "memory" problems

With the Gilian® Power Series pumps there is less risk of lost samples due to battery failure. They incorporate a nickel-metal hydride (NiMH) battery which, unlike a NiCd battery, doesn't suffer from "memory" problems. So there is no hidden loss of battery capacity, no shorter-than-expected run time, and no need for special battery maintenance.

Advantages of NiMH batteries

When the display indicates a "full" battery, that's exactly what the pump delivers. Plus, the indicator more accurately displays remaining life throughout the sampling period. You receive faster charging too. The NiMH battery fully charges in just five hours. And you won't be hampered with special storage or disposal requirements, since the NiMH battery is friendly to the environment.

Programmable automatic restart when faults occur

The Gilian Power Series pumps have an intuitive automatic restart feature that will attempt to save a sample should a fault occur. If the filter becomes clogged or tubing pinches not allowing air to pass, the pump will shut down and attempt to restart every 3 minutes for up to 30 minutes. This can be disabled, if needed, for specific applications.

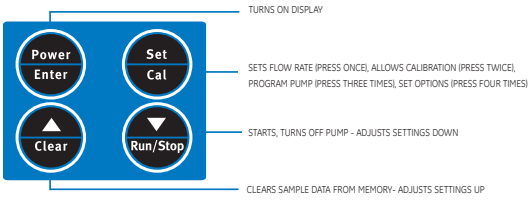
Four-button design—easy to understand and operate

The Gilian Power Series pumps are easy to understand and configure, four keys control everything. There are no codes to enter or difficult key sequences to remember. Operation is simple, intuitive, and less prone to error. To secure your settings from tampering, the pumps have a lockable keypad after setup and calibration.

Programmable

The Gilian Power Series pumps are programmable for automatic start, pause, and stop, with a pre-set flow rate. The program mode is easily accessible through the keypad. The format allows users to enter desired flow rate, a delayed start time, and up to four run times with pauses (hold times) in between. This allows, for example, an eight-hour sample that pauses for the lunch hour and coffee breaks. In the same program intermittent sampling is possible, starting the pump to sample a fraction of each hour in the day and spreading an area sample over four days. This is done by choosing a run time of five minutes, a delay of 55 minutes and setting the number of repeated cycles at 96 (i.e., 4 days x 24 hours).

Products	Gilian 800i	Gilian 5000	Gilian 10i	Gilian 12
Pump Only	810-1301-01	810-0801-01	—	—
Starter Kit, with Charger, US Cord	910-1301-US	910-0802-01	910-1501-US	910-1601-US
Starter Kit, with Charger, EU Cord	910-1301-EU	910-0802-02	910-1501-EU	910-1601-EU
Starter Kit, with Charger, UK Cord	910-1301-UK	910-0802-03	910-1501-UK	910-1601-UK
Starter Kit, with Charger, No Cord	—	910-0802-04	—	910-1601-NO
5-Pack Kit, with Power Station, US Cord	910-1305-US	910-0801-01	910-1505-US	910-1605-US
5-Pack Kit, with Power Station, EU Cord	910-1305-EU	910-0801-02	910-1505-EU	910-1605-EU
5-Pack Kit, with Power Station, UK Cord	910-1305-UK	910-0801-03	910-1505-UK	910-1605-UK
5-Pack Kit, with Power Station, No Cord	—	910-0801-04	—	910-1605-NO
Single Station Charger, US Cord	811-0802-01	811-0802-01	811-0802-01	811-0802-01
Single Station Charger, EU Cord	811-0802-02	811-0802-02	811-0802-02	811-0802-02
Single Station Charger, UK Cord	811-0802-03	811-0802-03	811-0802-03	811-0802-03
Single Station Charger, No Cord	298-0013-01	298-0013-01	298-0013-01	298-0013-01
5-Unit Power Station, US Cord	811-0801-01	811-0801-01	811-0801-01	811-0801-01
5-Unit Power Station, EU Cord	811-0801-02	811-0801-02	811-0801-02	811-0801-02
5-Unit Power Station, UK Cord	811-0801-03	811-0801-03	811-0801-03	811-0801-03
5-Unit Power Station, No Cord	811-0801-04	811-0801-04	811-0801-04	811-0801-04
Battery Pack	783-0007-01	783-0007-01	783-0007-01	783-0018-01
Battery Charger Cover	202783	202783	202783	—



GilAir®

The most recognized and relied upon air sampling pump on the market

GilAir-3 and GilAir-5 deliver dependability and performance on every sample.

Automatic constant flow – the most important feature of any sampling pump – is standard on all GilAir-3 and GilAir-5 pumps. It assures flow is maintained within ±5% of the initial set point, even with varying back-pressures from flow restrictions or buildup of material on the filter. GilAir-3 and GilAir-5 pumps are suitable not only for conventional pull-through sampling media but also for bag sampling and other pressure applications.

NiMH batteries are now standard on the GilAir-3 & GilAir-5.
The GilAir-3 and GilAir-5 are equipped with nickel-metal hydride (NiMH) batteries that virtually eliminate memory effects and lazy battery issues. NiMH batteries are environmentally friendly, recyclable, and do not pose a risk to the environment when being disposed. New NiMH battery packs are backwards compatible with GilAir-3 and GilAir-5 pumps that currently use NiCd batteries and are user replaceable by removing only two screws from the rear of the pump.

GilAir-3 and GilAir-5 pumps feature:

Basic, Clock, & Programmable Models
The GilAir-3 and 5 are available in 3 models; Basic, Clock and Programmable. The Basic model is straight-forward and easy to use. Clock models provide an elapsed-time clock display. Programmable models enable a timer which can start or stop the pump at preset time intervals or program a delayed start.

Flow Fault & Test Indicators
The fault light indicator activates when the pump flow control is outside ±5% of the required flow rate, such as from low battery, blocked tubing or filter. If fault conditions persist for 30-60 seconds, the pump automatically shuts down and freezes the timer. Models with a timer display preserve run time on the display, ensuring a valid sampling result. When the fault condition is cleared before shutdown, the pump will resume normal sampling and the fault light turns off. The GilAir-3 & 5 also have a Battery Test indicator light that illuminates when the battery is fully charged.

Chargers
Universal five-Station Chargers offer battery charging for up to five GilAir-3 and Gilair-5 battery packs. This charger features Normal/Trickle functions for full or trickle charging to preserve battery performance and prevent overcharging. A dedicated five-station LFS-113 is also available, this charger provides similar functions to the Universal five-station charger. A single station charger is also available to match individual pump models.

External Filter Housing
Clear filter housing allows an immediate visual inspection of the internal filter's condition. This feature protects the pump from dirt and debris and is externally mounted on the pump, allowing for quick inspection. Filter replacement requires the removal of just four screws. A built-in moisture trap helps prevent moisture from entering and damaging the pump chamber, such as moisture carryover from impingers.

Optional Low Flow Modules
Constant Flow module allows sampling from 20-500 cc/min. Constant Pressure (Multi-flow) Module allows sampling from 1-750 cc/min. These modules can be quickly added to pumps to adapt them to the lower flow rates required for sorbent tube sampling. The multi-flow module maintains constant pressure and allows sampling with multiple sorbent tubes, each with an independently set flow rate.

Chargers for GilAir-3 & GilAir-5	Part No.	Description
Single-Station Chargers	911-9901-US-R	USB with Power Adapter, US cord
	911-9901-Euro-R	USB with Power Adapter, Euro cord
	911-9901-UK-R	USB with Power Adapter, UK cord
	911-9901-NO-R	USB with Power Adapter, No cord
Replacement Charger	811-9922-01-R	USB Adaptor Only

GilAir-3 and GilAir-5

Proven, Robust 3 and 5 LPM Air Sampling Pumps

Worldwide, GilAir-3 & GilAir-5 have one of the largest user bases of any air sampling pump thanks to industry-leading quality, performance, and dependability. These 3 and 5 liter per minute air sampling pumps have automatic constant flow compensation, assuring sampling is maintained within ±5% of the initial set point. The easy to use interface of GilAir-3 and GilAir-5 ensures that performance and reliability are within reach.

Specifications	GilAir-5	GilAir-3
Total Flow Range	1 - 5,000 cc/min	1 - 3,000 cc/min
High Flow Range,	850-5,000 cc/min	850-3,000 cc/min
Constant Flow	0.85-5.0 LPM	0.85-3.0 LPM
High Flow Range,	—	—
Constant Pressure	—	—
Low Flow Range,	20-500 cc/min	20-500 cc/min
Constant Flow	—	—
Low Flow Range,	1-750 cc/min, @	1-750 cc/min, @
Constant Pressure	15" ± 1.5" H2O	15" ± 1.5" H2O
	(3.7 ± 0.4 kPa)*	(3.7 ± 0.4 kPa)*
QuadModeSM Capable	No	No
SmartCalSM Capable	No	No
Data Shown In Display	Elapsed Time	Elapsed Time
	(clock & timer models),	(clock & timer models),
	Low Battery, Flow Fault	Low Battery, Flow Fault
Dimensions: inches	3.6W x 4.1H x 2.0D	3.6W x 3.5H x 2.0D
centimeters	9.1W x 10.4Hx 5.1D	9.1W x 8.9H x 5.1D
Total Pump Weight	22.5 oz. (0.64 kg)	21.0 oz. (0.6 kg)
Rechargeable Battery	6.0V, NiMH	4.8V, NiMH
Operating Temperature	32°F to 113°F	32°F to 113°F
	0°C to 45°C	0°C to 45°C
Certifications/Compliance:		
Intrinsic Safety – UL	Class I, Div 1 Groups A,B,C,D Class II, E, F, G Class III	Class I, Div 1 Groups A,B,C,D Class II, E, F, G Class III
CE		
EMC: Emission Standards	See Data Sheet	See Data Sheet
EMI: Immunity Standards	See Data Sheet	See Data Sheet
Charging Time	**14-16 hours**	**14-16 hours**

* Requires installation of low flow module.

Part Numbers	GilAir-3	GilAir-5
Starter Kit, Pump w/ no Clock	*Model GilAir-**3R***	*Model GilAir-**5R***
- w/ 120V charger	800485-171-1201	800883-171-1201
- w/ 230V charger	800485-171-2301	800883-171-2301
Starter Kit, Pump w/ Clock	*Model GilAir-**3RC***	*Model GilAir-**5RC***
- w/ 120V charger	800508-171-1201	800885-171-1201
- w/ 230V charger	800508-171-2301	800885-171-2301
- ATEX, w/ 230V charger	910-0204-02	910-0104-02
Starter Kit, Programmable Pump	*Model GilAir-**3RP***	*Model GilAir-**5RP***
- w/ 120V charger	800510-171-1201	800884-171-1201
- w/ 230V charger	800510-171-2301	800884-171-2301
Five-Pack Kit, Pump w/ no Clock	*Model GilAir-**3R***	*Model GilAir-**5R***
- w/ 120V Universal charger	800485-171-1205	800883-171-1205
- w/ 230V Universal charger	800485-171-2305	800883-171-2305
Five-Pack Kit, Pump w/ Clock	*Model GilAir-**3RC***	*Model GilAir-**5RC***
- w/ 120V Universal charger	800508-171-1205	800885-171-1205
- w/ 230V Universal charger	800508-171-2305	800885-171-2305
Five-Pack Kit, Programmable Pump	*Model GilAir-**3RP***	*Model GilAir-**5RP***
- w/ 120V Universal charger	800510-171-1205	800884-171-1205
- w/ 230V Universal charger	800510-171-2305	800884-171-2305

Gilian BDX-II

Low Cost, up to 3 Liters Per Minute Pump

The Gilian BDX-II is an economical air sampling pump designed specifically for asbestos and lead abatement applications when constant flow is not required. It is a compact and rugged air sampling pump optimized for sample methods between 500 cc/min and 3000 cc/min. The BDX-II is powered by a rechargeable NiMH battery that provides up to 10 hours of operation on a single charge.

- 500-3000 cc/min
- Anti-tamper control covers
- Sealed internal components
- Rechargeable NiMH battery pack
- Easy calibration
- UL approved for operation in hazardous areas

Rugged and dependable construction of the BDX-II will withstand the toughest industrial environments. Without sacrificing accuracy and reliability, the BDX-II provides an economical alternative to higher-priced constant flow air sampling pumps.

The built-in rotameter displays flow rates over the entire flow range of 0.5 - 3.0 LPM and an electronic flow control adjustment enables parts to last longer so maintenance is minimized. The rechargeable NiMH battery provides approximately 10 hours of reliable operation on a single charge and easily detaches from the pump body for recharging and/or quick field change in non-hazardous locations. Sealed flow adjustment and on/off switch protects the BDX-II from moisture, dust and fibers.

Specifications	
Flow Range	500 - 3000 cc/min
Run Time	10 hours at 2 LPM
Temperature Ranges	
Operating Temperature	-20°C to 45°C (-4°F to 113°F)
Storage Temperature	-40°C to 45°C (-40°F to 113°F)
Charging Temperature	5°C to 45°C (41°F to 113°F)
Humidity Ranges	
Operating	5-85 %RH, non-condensing
Storage	5-98 %RH, non-condensing
Controls	Power Switch, Flow Control
Additional Features	See-through external filter housing, with filter monitoring lens; built-in belt clip
Dimensions	3.6" (W) x 3.9" (H) x 2.0" (D) 90 mm (W) x 100 mm (H) x 51 mm (D)
Weight	21 oz (595 g)
Battery Pack	4.8 volt, 2.0 amp hour, sealed.
Battery Type	Rechargeable nickel metal hydride
Battery Charge Time	14 - 16 hours
Approvals	UL Approved

BDX-II Pumps and Accessories	120V	230V
BDX II Pump, No Charger	801863-171	801863-171
BDX II Pump Kit (with Charger, Tool Kit, Tubing, Clip, & Manual)	801863-171-1201	801863-171-2301
Single Unit Charger (120V Replaces 402118)	911-0601-US-R	911-0601-EU-R
BDX-II 5-Unit Charger	811-9919-US	—
Five Pump Carrying Case (Also fits GilAir-3 & GilAir-5)	800511	800511
Single Pump Carrier, Soft Side (Also fits GilAir-3, -5, Gillian 3500 & 5000)	375-0003-01	375-0003-01
Filter Cassette Holder Kit (required when sampling with 37 mm cassette)	800143	800143
Filter Housing, Front	201044-10	201044-10
Filter, Replacement	201050	201050
Filter, Replacement package of 100, (Also fits GilAir-3 & GilAir-5)	201050-100	201050-100
Rotameter, scaled face plate and internal tubing, 4 LPM	800592	800592
Rotameter, scaled face plate, 4 LPM	801009	801009
Tubing, 1/4" ID x 1/16" W (3 ft)	200484	200484
Clip Assembly, Replacement for Filter Cassette Kit 800143	800142	800142
Replacement battery pack	783-0008-04	783-0008-04

The BDX-II has a filter that protects the internal pneumatics from dirt and debris. This filter is externally mounted, enabling users to quickly and easily inspect filter condition and when necessary replace the filter.

BDX-II air sampling pumps accurately monitor for asbestos using the NIOSH Method 7400 or the OSHA reference sampling method. The pumps also monitor for lead using NIOSH Methods 7082, 7105 or 7300.

Chargers: BDX-II	Part No.	Description
Single-Station	911-0601-US-R	USB w/Power Adapter, US cord
	911-0601-EU-R	USB w/Power Adapter, Euro cord
	911-0601-UK-R	USB w/Power Adapter, UK cord
	911-0601-NO-R	USB w/Power Adapter, No cord
Replacement	811-0601-01-R	USB Adaptor Only

Gilian LFS-113

Compact, Pocket-sized, Low Flow Air Sampling Pump

The LFS-113 is a compact low flow air sampling pump. Designed for flow rates between 1 cc/min and 350 cc/min, the LFS-113 is perfect for very low flow applications sampling with sorbent tubes. The compact size and light weight of this pump allow it to easily fit inside a shirt pocket.

The Compact LFS-113 fits easily in the palm of your hand.

- Dual Mode Automatic Constant Flow or Constant Pressure Control
- Multi-flow Capacity
- Compact Size & Lightweight
- Flow Fault Indicator Light
- Clock Model/Elapsed Time Display
- Battery Check LED

Part Numbers	LFS-113
Starter Kit, Pump w/ no Clock	*Model LFS-113DS*
- w/ 120V charger	910-0301-01
- ATEX, w/ 230V charger	910-0301-02
Starter Kit, Pump w/ Clock	*Model LFS-113DCS*
- w/ 120V charger	910-0303-01
- ATEX, w/ 230V charger	910-0303-02
Five-Pack Kit, Pump w/ no Clock	*Model LFS-113DS*
- w/ 120V Universal charger	910-0302-01
- w/ 230V Universal charger	910-0302-02
Five-Pack Kit, Pump w/ Clock	*Model LFS-113DCS*
- w/ 120V Universal charger	910-0304-01
- w/ 230V Universal charger	910-0304-02

The Gilian LFS-113 low flow sampler is the most powerful and reliable pocket sized personal air sampler available today. Its size and robust design makes it the perfect pump for dedicated low flow sampling applications.

The LFS-113 offers two user selectable sampling modes. The constant flow control mode holds the flow within ±5% of the set flow while the constant pressure control mode [multi-flow] allows multiple samples to be taken simultaneously through the use of a multi-flow manifold (see page 37).

The LFS-113 was previously offered in a US and Global version. Sensidyne recently updated the LFS-113 to provide a single model version with ATEX, CSA, C-US, and UL approvals. The LFS-113 is offered in basic and clock models both which feature a memory-free NiMH battery for fast charges and consistent performance.

No other pocket-sized pump matches the wide flow range and high back-pressure capability of the LFS-113.

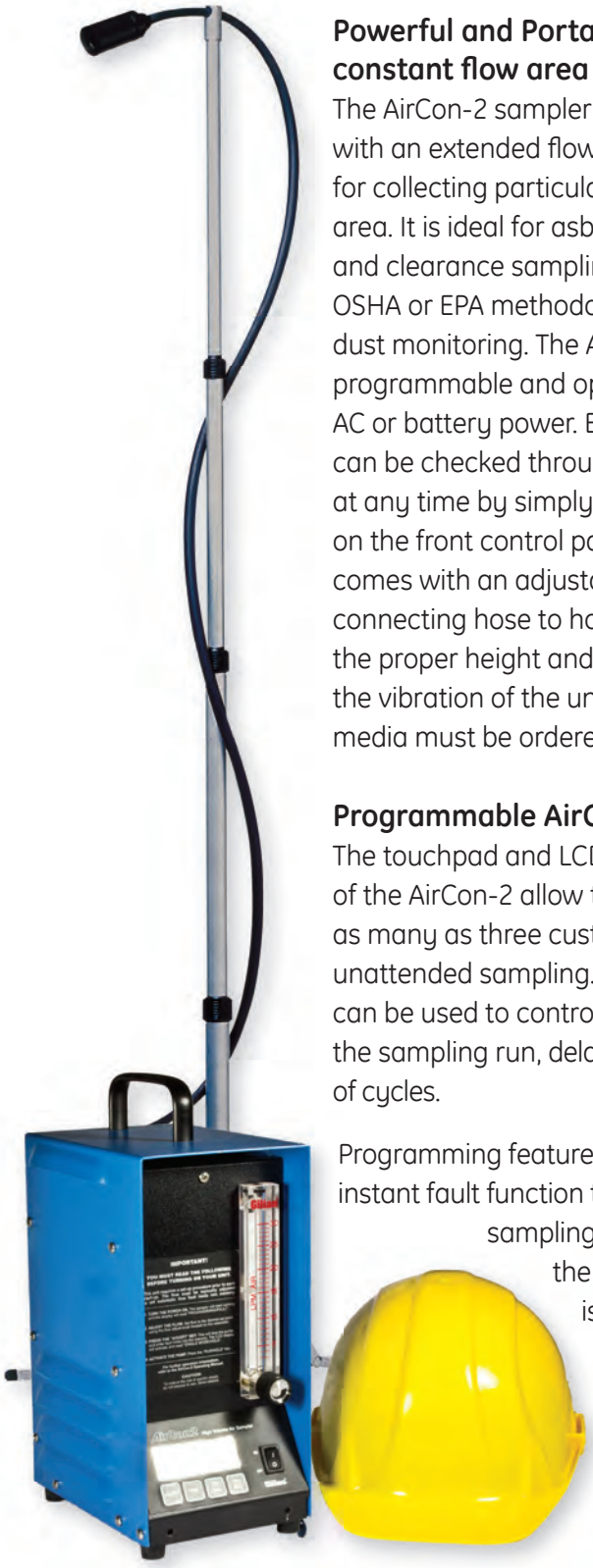
Specifications	LFS-113	
Total Flow Range	1 - 350 cc/min	
Low Flow Range, Constant Flow	20-200 cc/min	
Low Flow Range, Constant Pressure*	1-350 cc/min, @ 15" ± 1.5" H_2O (3.7 ± 0.4 kPa)	
Max. Pressure Capability:	Fault†	8 hr. Run††
@ 0.35 LPM, Inches H_2O (kPa)	25 (6.2)	—
Data Shown In Display	Elapsed Time	
Overall Dimensions: inches centimeters	2.5W x 4.63H x 1.38D 6.4W x11.8H x 3.5D	
Total Pump Weight	12 oz. (0.34 kg)	
Rechargeable Battery	4.8V, NiMH	
Operating Temperature	32°F to 113°F 0°C to 45°C	
Certifications** CSA CE ATEX	 EMC Directive (EMI/RFI): EN 55 022 Class B; IEC 801-2, 3 EX II 2 G, EEx ib IIC T4	
Charging Time	14-16 hours	

* Using manifold system
** Consult individual specification sheets as approvals can vary based on model
† Typical back-pressure limit before fault with fully charged battery pack.
†† Maximum back-pressure for 8-hour run without fault.

Chargers: LFS-113	Part No.	Description
Five-Pump-Charger	811-0302-US-R	USB w/Power Adapter, US cord
	811-0302-EU-R	USB w/Power Adapter, Euro cord
	811-0302-UK-R	USB w/Power Adapter, UK cord
	811-0302-NO-R	USB w/Power Adapter, No cord
Single-Station	911-0301-US-R	USB w/Power Adapter, US cord
	911-0301-EU-R	USB w/Power Adapter, Euro cord
	911-0301-UK-R	USB w/Power Adapter, UK cord
	911-0301-NO-R	USB w/Power Adapter, No cord
Replacement	811-0303-01-R	USB Adaptor Only

Gilian AirCon-2

Portable High Volume Area Sampler



Powerful and Portable 2-30 LPM constant flow area air sampler

The AirCon-2 sampler is a high volume unit with an extended flow range, designed for collecting particulate in a given plant area. It is ideal for asbestos background and clearance sampling following NIOSH, OSHA or EPA methodology and for ambient dust monitoring. The AirCon-2 System is programmable and operates off either AC or battery power. Back-pressure load can be checked through the LCD display at any time by simply pressing a button on the front control panel. The AirCon-2 comes with an adjustable tripod mast and connecting hose to hold the filter cassette at the proper height and isolate the filter from the vibration of the unit. Cassette and filter media must be ordered separately.

Programmable AirCon-2 Sampler

The touchpad and LCD display on the front of the AirCon-2 allow the user to program as many as three custom timing routines for unattended sampling. The program feature can be used to control starts and stops to the sampling run, delays, holds, and number of cycles.

Programming features also include an instant fault function that terminates the sampling run and locks in the time when the unit is operated out of its performance envelope. A flashing word 'FAULT' appears on the display to alert the operator.

SPECIFICATIONS	
Flow Range	2-30 LPM
Constant Flow	2-30 LPM @ pressures up to 7 psi
Run Time	8 hour minimum*
Temperature Ranges:	
Operating	-4°F to 113°F (-20°C to 45°C)
Storage	-40°F to 113°F (-40°C to 45°C)
Humidity Range	0-95 %RH, non-condensing
Display	Electronic Pressure Display, Full-Function Timing Program, Instant-Fault Function, Programmable Memory (up to 3 custom programs)
Keypad	ACCEPT, PROG, TIME/PRESS, RUN/HOLD
Controls	Flow Adjust
Indicators	LCD Display, External Rotameter, Instant Fault, Low Battery
Dimensions	5.25Wx7.5Dx13.0"H (13.3Wx19Dx33cm H)
Weight	Main Unit: 12 lbs (5.4 kg), 4-Hour Battery Pack: 11.5 lbs (5.2 kg) Power Module: 2 lbs (0.9 kg)
Main Unit Input	12 VDC @ 3.4 A
Power Module Input	115-230 VAC @ 800/600 mA, 50-63 Hz
Power Module Output	14 VDC @ 4.6 A (51 watts)
Battery Pack Output	12 VDC, 13 AH
Fuses	250 VAC, 3 amp, fast acting, 250 VAC, 1.6 amp, fast acting
Charging Time	14 hours (operational), 8 hours (non-operational)

* With 2 battery packs stacked
†† Maximum back-pressure for 8-hour run without fault.

1 Programmable AirCon-2 Sampler – AC or Battery Powered

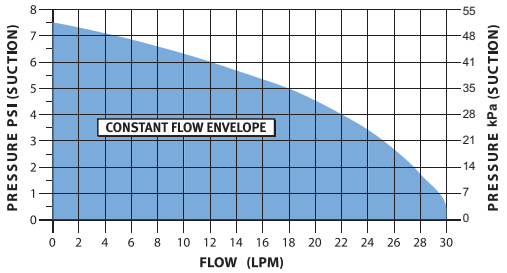
The AirCon-2 offers two power options. It can operate off a 12Vdc battery pack, for completely portable sampling or directly off the charger module connected to AC, without the use of a battery. The AirCon-2 does not include a battery pack and power module, which must be ordered separately.

2 12v Battery Packs

4-hour packs can be stacked on top of each other to obtain up to an 8-hour sampling period. A power module charger is required to charge the battery pack.

3 Power Module Charger

Provides rapid recharging of battery packs, whether the packs are independent or connected to the sampler. That is, it recharges batteries while simultaneously powering the sampler from an AC source. Batteries are fully charged in 14 hours (running) or 8 hours (non running). May be used to run continuously via AC without a battery.



AirCon-2 Samplers offer constant flow capability, over their entire 2 to 30 LPM flow range, at back-pressures up to 7 psi (48 kPa). Flow is controlled within ±5% of the set point.

	AirCon-2 Sampler		Power Accessories	
	Programmable Model with Battery Power		**Four-Hour Battery Pack**	**Power Mod. Charger (120V & 230V)**
Part Number	801012 -100 (*)		801001(**)	No AC Cord Supplied: 801000-1 With USA AC Cord: 801000-2 With Euro AC Cord: 801000-3
Electrical Input	3.4A @ 12Vdc		—	95-240 Vdc @50-60 Hz
Electrical Output	——		12 Vdc, 13 AH	3.6A @ 14Vdc (51 watts)
Weight	12 lbs. (5.4 kg)		11.5 lbs. (5.2kg)	2 lbs. (0.9 kg)
Overall Dimensions	5.25Wx7.5Dx13.0"H (13.3Wx19Dx33cm H)		5.25Wx7.5Dx5.5"H (13.3Wx19Dx14cm H)	5.25Wx7.5Dx3.5"H (13.3Wx19Dx8.9cm H)
Operating Temperature	-4° to 113°F (-20° to 45°C)		-40° to 113°F (-40° to 45°C)	
Recommended Filter Media				
Airborne Substance	Filter Description	Preload Cassette Part No.	Cassette	Filter Part No. (Replaceable)
Asbestos (OSHA, NIOSH) PCM	25 mm, 0.8 micron, MCEF	GCS 25080	25 mm	GF25080
Asbestos (EPA, AHERA) TEM	25 mm, 0.45 micron, MCEF	GCS 25455-50	25 mm	GF25450
Dust	37 mm, 5 micron, PVC Previously weighed (0.1 mg)	GCU 37500 PVC GCU 37500 PVC PW	37 mm 37 mm	GF37500PVC
	* Battery-powered Sampler does not include a battery pack or required power module, which must be ordered separately. ** Internal battery replacement requires two batteries, part no. 700285.			

Gilian Personal Pump Specification Comparison Guide
Flow Range: Low to Medium

	Gilian LFS-113		Gilian 800i		Gilian BDX-II		GilAir-3		GilAir-5	
Total Flow Range	1 - 350 cc/min		200 - 800 cc/min		500 – 3,000 cc/min		1 - 3,000 cc/min		1 - 5,000 cc/min	
High Flow Range, Constant Flow	1-350 cc/min 0.001-0.35 LPM		200 - 800 cc/min		500 – 3,000 cc/min 0.5-3.0 LPM		850-3,000 cc/min 0.85-3.0 LPM		850-5,000 cc/min 0.85-5.0 LPM	
High Flow Range, Constant Pressure	NA		NA		NA		NA		NA	
Low Flow Range, Constant Flow	20-200 cc/min		NA		NA		20-500 cc/min		20-500 cc/min	
Low Flow Range, Constant Pressure	1-350 cc/min, @ 15" ± 1.5" H_2O (3.7 ± 0.4 kPa)		NA		NA		1-750 cc/min, @ 15" ± 1.5" H_2O (3.7 ± 0.4 kPa)*		1-750 cc/min, @ 15" ± 1.5" H_2O (3.7 ± 0.4 kPa)*	
QuadMode℠ Capable	No		No		No		No		No	
SmartCal℠ Capable	No		No		No		No		No	
Max. Pressure Capability:	Fault	†8 hr. Run††	Fault	†8 hr. Run††	Fault†	8 hr. Run††	Fault †	8 hr. Run††	Fault†	8-hr Run††
@ 0.2 LPM, Inches H_2O (kPa)	25 (6.2)	—	80 (19.9)		—	—	—	—	—	—
@ 0.35 LPM, Inches H_2O (kPa)	25 (6.2)	—	—		—	—	—	—	—	—
@ 0.6 LPM, Inches H_2O (kPa)	—	—	80 (19.9)		—	—	—	—	—	—
@ 0.8 LPM, Inches H_2O (kPa)	—	—	80 (19.9)		—	—	—	—	—	—
@ 1 LPM, Inches H_2O (kPa)	—	—	—		—	—	30 (7.5)	25 (6.2)	37 (9.2)	29 (7.2)
@ 2 LPM, Inches H_2O (kPa)	—	—	—		—	—	20 (5.0)	15 (3.7)	37 (9.2)	26 (6.5)
@ 3 LPM, Inches H_2O (kPa)	—	—	—		—	—	10 (2.5)	8 (2.0)	32 (8.0)	23 (5.7)
@ 4 LPM, Inches H_2O (kPa)	—	—	—		—	—	—	—	20 (5.0)	18 (4.5)
@ 5 LPM, Inches H_2O (kPa)	—	—	—		—	—	—	—	10 (2.5)	8 (2.0)
Data Shown In Display	Elapsed Time		Live Flow Rate, Total Sample Time, Total Volume Sampled		NA		Elapsed Time (clock & timer models), Low Battery, Flow Fault		Elapsed Time (clock & timer models), Low Battery, Flow Fault	
Overall Dimensions: inches centimeters	2.5W x 4.63H x 1.38D 6.4W x11.8H x 3.5D		3.2W x 5.4H x 2.3D 8.2W x 13.7H x 5.8D		3.6W x3.5H x 2.0D 9.1W x8.9H x 5.1D		3.6W x 3.5H x 2.0D 9.1W x 8.9H x 5.1D		3.6W x 4.1H x 2.0D 9.1W x 10.4Hx 5.1D	
Total Pump Weight	12 oz. (0.34 kg)		20.5 oz. (0.58 kg)		21 oz. (0.6 kg)		21.0 oz. (0.6 kg)		22.5 oz. (0.64 kg)	
Rechargeable Battery	4.8V, NiMH		NiMH		4.8V, NiMH		4.8V, NiMH		6.0V, NiMH	
Operating Temperature	32°F to 113°F 0°C to 45°C		32°F to 113°F 0°C to 45°C		32°F to 113°F 0°C to 45°C		32°F to113°F 0°C to 45°C		32°F to113°F 0°C to 45°C	
Certifications* **	UL, CSA,CE/ATEX		FM, CE/ATEX		UL		UL, CE		UL, CE	
Charging Time	14-16 hours		< 4 hours		14-16 hours		14-16 hours		14-16 hours	

* Requires installation of low flow module.
** Battery Life estimates based on proper battery maintenance.
*** Consult individual specification sheets as approvals can vary based on model
† Typical back-pressure limit before fault with fully charged battery pack.
†† Maximum back-pressure for 8-hour run without fault.

Gilian Personal Pump Specification Comparison Guide (continued)
Flow Range: Medium to High

	GilAir Plus		Gilian 5000		Gilian 10i		Gilian 12	
Total Flow Range	1-5,100 cc/min		20-5,000 cc/min		4000 - 10,000 cc/min		4000 - 12,000 cc/min	
High Flow Range, Constant Flow	450-5,100 cc/min 0.45-5.1 LPM		800-5000 cc/min 0.8-5LPM		4000-10,000 cc/min 4-10.0 LPM		4000-12,000 cc/min 4-12.0 LPM	
High Flow Range, Constant Pressure	450-5,100 cc/min to 30" H_2O (7.5 kPa) †††		NA		NA		NA	
Low Flow Range, Constant Flow	20-445 cc/min No module needed		NA		NA		NA	
Low Flow Range, Constant Pressure	1-445 cc/min, @ 40" ± 2.5" H_2O (10.0 ± 0.6 kPa)		20-800 cc/min, @ 15" ± 1.5" H_2O (3.7 ± 0.4 kPa)*		NA		NA	
QuadMode℠ Capable	Yes		No		No		No	
SmartCal℠ Capable	Yes		No		No		No	
Max. Pressure Capability:	Fault †	8 hr. Run††	Fault †	8 hr. Run††	Fault†	8-hr Run††	Fault †	8 hr. Run††
@ 1 LPM, Inches H_2O (kPa)	40 (10.0)	35 (8.7)	70 (17.5)	70 (17.5)	—	—	—	—
@ 2 LPM, Inches H_2O (kPa)	40 (10.0)	30 (7.5)	60 (15.0)	60 (15.0)	—	—	—	—
@ 3 LPM, Inches H_2O (kPa)	35 (8.7)	30 (7.5)	50 (12.5)	50 (12.5)	—	—	—	—
@ 4 LPM, Inches H_2O (kPa)	30 (7.5)	20 (5.0)	30 (7.5)	30 (7.5)	45 (11.3)	24 (6.0)	67 (16.7)	45 (11.3)
@ 5 LPM, Inches H_2O (kPa)	15 (3.7)	12 (3.0)	24 (6.0)	20 (5.0)	40 (10.0)	20 (5.0)	57 (14.2)	38 (9.5)
@ 8 LPM, Inches H_2O (kPa)	—	—	—	—	22 (5.5)	12 (3.0)	33 (8.2)	22 (5.5)
@ 10 LPM, Inches H_2O (kPa)	—	—	—	—	12 (3.0)	8 (2.0)	23 (5.7)	15 (3.0)
@ 12 LPM, Inches H_2O (kPa)	—	—	—	—	—	—	14 (3.5)	10 (2.5)
Data Shown In Display	Live Flow Rate, Sample Time, Battery Level, Run Time, Predicted Run Time, Sampling Mode, Time and Date, and Sample Volume in Actual Conditions.		Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery		Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery		Live Flow Rate, Total Sample Time, Total Volume Sampled, Low Battery	
Overall Dimensions: inches centimeters	4.3W x 2.4H x 2.4D 10.9W x 6.1H x 6.1D		3.2W x 4.9H x 2.0D 8.2W x 12.4H x 5.1D		3.2W x 5.4H x 2.3D 8.2W x 13.7H x 5.8D		3.2W x 5.4H x 2.3D 8.2W x 13.7H x 5.8D	
Total Pump Weight	20.5 oz. (0.58 kg)		20.5 oz. (0.58 kg)		23.0 oz. (0.65 kg)		25.5 oz. (0.73 kg)	
Rechargeable Battery	7.2V, NiMH		7.2V, NiMH		7.2V, NiMH		9.6V, NiMH	
Operating Temperature	32°F to 113°F 0°C to 45°C		32°F to 113°F 0°C to 45°C		32°F to 113°F 0°C to 45°C		32°F to 113°F 0°C to 45°C	
Certifications* **	US†††, CE/ATEX, IECEx		US†††, CE/ATEX		US†††, CE/ATEX		EN 55011:1998/A1:1999 Group 1 Class B	
Charging Time	< 3.5 hours		< 4 hours		< 4 hours		< 4 hours	

* Requires installation of low flow constant pressure adaptor.
** Battery Life estimates based on proper battery maintenance.
*** Consult individual specification sheets as approvals can vary based on model
† Typical back-pressure limit before fault with fully charged battery pack.
†† Maximum back-pressure for 8-hour run without fault.
††† US/CAN Class 1 Div Gas Groups A,B,C,D; ATEX-IECEX Ex ia IIC T4 Ga

Gilian Gilibrator® 3

Primary Dry Cell Calibrator • Convenient and Accurate With Stable Back Pressure

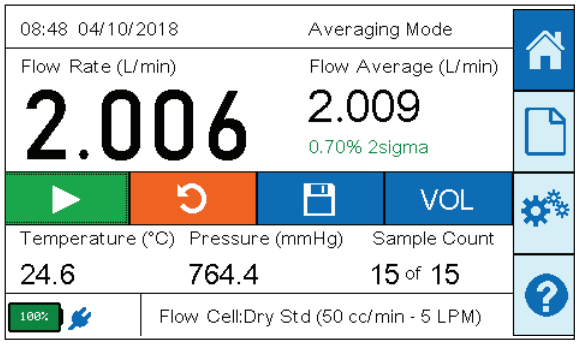
The New Standard in Calibration Devices

The Gilibrator 3 is the most advanced calibrator on the market, designed to provide performance, reliability, and ease-of-use. The Gilibrator 3 truly sets the standard for calibration integrity and data reporting. The Gilibrator 3 is a Primary air flow calibrator by NIOSH definition, and delivers NIST traceability through Sensidyne's ISO 17025 accredited laboratory.

Gilibrator 3 features include:

- Fast and easy to use dry calibrator
- StablFlow™ provides constant low back pressure to device being calibrated
- Patent pending pulse-free valve technology maintains calibration integrity
- Touch screen color display that is visible in direct light
- Multiple flow cells with a common base adds convenience and saves cost
- Gilian CONNECT PC compatible for data retrieval, record keeping, and statistical analysis of data
- SmartCal℠ capable with GilAir Plus® pumps

Gilibrator® 3
with STABLFLOW™



Live reading during air sampling calibration

Calibrations in the Field, the Lab, or Wherever You Go

The Gilibrator 3 delivers maximum convenience, accuracy, and data integrity. The calibrator is designed for mobility with an advanced rechargeable Lithium Iron Phosphate (LiFePO4) battery. It has a modular design for quick changes of liquid-free, dry flow cells, addressing calibrations from 5 cc/min to 30 LPM. ISO 17025 calibration certificates available from Sensidyne.

Modularity

Quick disconnect fittings allow for easy flow cell exchange:

- Low: 5 to 450 cc/min
- Standard: 50 to 5,000 cc/min
- High: 1LPM to 30LPM

High, standard, & low flow cell modules are easily interchanged

Configure to Your Requirements

The Gilibrator 3 can be configured to meet the user's calibration needs. The user may select between Continuous or Averaging modes. In Averaging mode, the user may select a sample set between 3 and 20 samples to be averaged. In addition, the user can define statistical parameters for 95% confidence level of averaged samples. Within the settings screen, the user is able to define engineering units of measurement, date, time, temperature, and choose from a selection of languages in the devices library.

Screens for Sampling, Display, and Maintenance

Design Features

The Gilibrator 3 display window and internal LED lighting allows for visual verification of a dry cell. The Patent Pending design equalizes pressure on the pump regardless of puck travel direction. This feature allows for minimal disturbance of the airflow generated by the instrument under calibration. Since the Gilibrator 3 does not vary the back pressure presented to the device under calibration, the calibration process is faster and more accurate. Unlike competitor dry cell calibrators, the Gilibrator 3 uses a fixed sensing array, which eliminates the potential for misalignment of photo sensors, and lowers operational costs.

Accurate Air Flow Calibration Capabilities

The Gilibrator 3 has live, instantaneous flow measurement, accurate within 1% of reading. The constant, low interference back pressure throughout the calibration sets allow for consistent airflow accuracy.

Easy Data Input and Access to Critical Information

The Gilibrator 3 offers the best user interface capabilities, with full touch screen keyboard for completing data input, and user defined fields for maintaining sample integrity. The Gilibrator 3 displays the last calibration and serial numbers for both the Base and connected Flow Cell, and displays a reminder of next calibration due date. In addition, the user can track use of the calibrator through displayed cycle counts for both the base and for the flow cell.

Digital Calibration Records Improve Report Reliability

The Gilibrator 3 can generate printable calibration reports, the need for pen or paper has been eliminated. The calibrator base can store 100 time-stamped calibration events in its on-board memory. This feature allows calibration data in sampling reports and historical records for statistical analysis to be retrieved from the on-board memory.

Datalogging and Downloading

The Gilibrator 3 comes with an SD Card slot, which allows increased storage and alternate transfer of calibration data via exporting of bitmap and .csv files. Bitmap calibration reports display sample information, saved instrument settings, and individual sample results. Exporting of .csv files allows data archiving in Excel that can be used for input into larger data comparison sets.

Part Number	Description
910-1701-CH-R*	Gilibrator 3 Deluxe Kit, **All Three** Dry Cell Sizes
910-1702-CH-R*	Gilibrator 3 **Low Flow** Dry Cell Kit
910-1703-CH-R*	Gilibrator 3 **Standard Flow** Dry Cell Kit
910-1704-CH-R*	Gilibrator 3 **High Flow** Dry Cell Kit
910-1705-CH-R*	Gilibrator 3 **Low Flow and Standard Flow** Dry Cell Kit
910-1706-CH-R*	Gilibrator 3 **Standard Flow and High Flow** Dry Cell Kit
910-1707-CH-R*	Gilibrator 3 **Low Flow and High Flow** Dry Cell Kit

* Kits are available with US, EU, and UK cords for charging system. All kits include control base, interchangeable dry cell, DC charger/AC power supply, and tubing , in hard shell carry case.

Specifications	
Flow Ranges	**Low** 5-450cc/min, **Standard** 50-5000cc/min, **High** 1-30LPM
Volumetric Accuracy	1% of reading†
Temp. & Pressure Sensor	YES, in flow stream
Time per Measurement	1-15 seconds
Sampling Mode	Instantaneous, Averaging
Averaging Function	Selectable; 3 to 20 Measurements
Gas Compatibility	non-corrosive, non-condensing
Flow Modes	Pressure or Suction
AC Adapter / Charger	12 VDC
Battery System	Lithium (LiFePO4)
Battery Run Time	3 hours max flow, 8 hours continuous use (min brightness),
Battery Charge Time	12 VDC Adaptor 3 hr, , USB 7 hrs (unit off)
Warranty	24 Months (1 Year Battery)
Operating Temperature	0-50° C (32-122° F)
Storage Temperature	0-70° C (32-158° F)
Operating Humidity	0-85% RH, non-condensing
Storage Humidity	0-100% RH, non-condensing
Display	Color Graphic LCD, HMI Touch Screen
Data Port	RS-232 (for Pump interface), USB (for data)
Transportable Storage	SD Card
Protective Case	Standard or Deluxe carrying case for 1 or 3 Cells
Dimensions (HxWxD)	6.6" x 9.2" x 3.2" (168 x 234 x 81mm)
Weight	Base: 2.8 lbs / 1,270 g, Low Flow Cell: 0.8 lbs / 363g, Std Flow Cell: 0.85 lbs / 385g, High Flow Cell 1 lb / 454g
Certifications	UL601010, CE, RoHS

† Or 0.003 LPM, whichever is greater

Gilibrator® 2 USB

Primary standard accuracy and performance validation for sampling pump air flows from 1 cc/min to 30 LPM

Sensidyne's Gilibrator 2 System provides users with a convenient and highly automated way to check almost any commercially available air sampling pump for proper air flow function before deployment. The system consists of an electronic Gilibrator 2^{USB} Base which is used with any of three sizes of flow cells. These interchangeable components are also available as part of kits which can also include a complete calibration diagnostic panel. All cells use a twist-on bayonet design for quick and easy mounting to the base. All are certified for accuracy and traceable to NIST. Sensidyne recommends calibration be checked annually by a certified laboratory.

Calibration Cells
Three flow cells are available, for air flow ranges of 1 to 250 cc/min (low flow cell), 20 cc/min to 6 LPM (standard flow cell) and 2 to 30 LPM (high flow cell). These interchangeable cells generate perfect bubble films at the touch of a button. Infrared sensors read the bubble flow rate, which is then calculated and displayed. ISO 17025 calibration certificates available from Sensidyne.

Gilibrator 2^{USB} Base
Easy to operate, microprocessor-controlled unit features simple on/off and reset touchpad with large LCD screen that displays flow rate, the calculated average of multiple flow samples in a series and the sample number. Light in weight, it operates with either AC power or rechargeable batteries (8-hour life) for easy portability in either the lab or the field.

Deluxe Diagnostic Kit

Gilibrator 2^{USB} Diagnostic Kit
This kit offers the industrial hygienist a complete, portable calibration laboratory: a Gilibrator 2^{USB} Base, three flow cells, a cushioned carrying case, and a full diagnostic panel built into the top lid of the case. The panel uses a selectable rotameter design for 2 to 5,000 cc/min flow capability and will run any of several diagnostic tests:

- "Load" simulation – Offers two load simulations for high and low flows to imitate sample line back-pressures.
- Back-pressure reading – A built-in Magnehelic® gauge allows visual monitoring of in-line back-pressures up to 40" H2O (10 kPa).
- Leak checking – Built-in Magnehelic® gauge allows visual leak testing and monitoring capabilities.
- Pump flow adjustment – Rotameters allow instant visual indication of approximate flow rates, assisting in properly adjusting air flows.

PC Interface – Flow Monitoring Software
Downloadable software enables real-time data transfer to a PC, enabling analysis of current flow rate, average flow rate, sample number, and standard deviation. Charge calibrator and/or connect to PC through a USB-A to USB-B cable, provided with all kits.

Gilian Gilibrator 2^{USB} Part Numbers & Descriptions

Item	Part No.	Model	Description
Low Flow Cell Kit (1 to 250 cc/min)	800272 800272-2 800272-2-UK	US cord EU Cord UK Cord	Control base, low flow cell, DC charger/AC power supply, tubing and soap solution with dispenser in hard shell carry case.
Standard Flow Cell Kit (20 cc/min to 6000 cc/min)	800271 800271-2 800271-2-UK	US cord EU Cord UK Cord	Control base, standard flow cell, DC charger/AC power supply, tubing and soap solution with dispenser in hard shell carry case.
High-Flow Cell Kit (2 to 30 LPM)	800270 800270-2 800270-2-UK	US cord EU Cord UK Cord	Control base, high flow cell, DC charger/AC power supply, tubing and soap solution with dispenser in hard shell carry case.
Deluxe Cell Kit (All Three Cell Sizes)	801804 801804-1 801804-1-UK	US cord EU Cord UK Cord	Control base, three interchangeable cells for low, standard and high flow rates, DC charger/AC power supply, tubing and soap solution with dispenser, in hard shell carry case. Thermal printer not included, but available as option.
Low Flow Cell Diagnostic Kit	800844-1 800844-1-230 800844-1-230-UK	US cord EU Cord UK Cord	Same items as low flow cell kit, but carry case also includes built-in diagnostic panel with rotameters and pressure gauge.
Standard Flow Cell Diagnostic Kit	800844-2 800844-2-230 800844-2-230-UK	US cord EU Cord UK Cord	Same items as standard flow cell kit, but carry case also includes built-in diagnostic panel with rotameters and pressure gauge.
Deluxe Cell Diagnostic Kit	800844-5 800844-5-230 800844-5-230-UK	US cord EU Cord UK Cord	Same items as Deluxe Cell Kit, but carry case also includes built-in diagnostic panel with rotameters and pressure gauge.
Gilibrator 2 USB Control Base only	850190-1-R		Replacement Gilibrator 2 USB base with battery pack. Charger and Cables not included.
Gilibrator 2 USB Charger and Cables	811-0507-01-R 811-0509-01-R 811-9943-01-R 780-0015-05-R		Universal Wall Power Adapter with USB-A to USB-B cable Universal Wall Power Adapter only Cable, USB-A to USB-B, 6 ft (1.83m) long Cable for Smart Cal application
Low Flow Sensor & Cell Assembly (1 to 250cc)	800267-1		Sensor and cell assembly only. Includes calibration certificate.
Standard Flow Sensor & Cell Assembly (20cc to 6 LPM)	800266-1		Sensor and cell assembly only. Includes calibration certificate.
High Flow Sensor & Cell Assembly (2 to 30 LPM)	800265-1		Sensor and cell assembly only. Includes calibration certificate.
9-pin to 25-pin printer cable only	811-0508-01		RS-232 connecting cable from base to 25-pin printer socket
Replacement Battery Pack	700560		For Gilibrator 2 Control Base only.
Replacement Battery Pack	400692		For Gilibrator Control Base only.
Bubble Solution (8 oz.)	800450		For both Gilibrator and Gilibrator 2.
Bubble Solution Dispenser	400667		For both Gilibrator and Gilibrator 2.

Gilibrator-2 Specifications	
Low Flow Cell Dimensions:	2W x 4H x 2.1"D (51W x 102H x 53mmD)
Weight	0.4 lbs. (.18 kg)
Standard Flow Cell Dimensions:	2.5W x 6H x 2.6"D (64W x 152H x 66mmD)
Weight	0.82 lbs. (0.37 kg)
High Flow Cell Dimensions:	3.5W x 8.1H x 3.7"D (89W x 206H x 94mmD)
Weight	2.26 lbs. (1.02 kg)
Flow Range, Accuracy Low Flow Cell	1 - 250 cc/min, ±1% of reading accuracy*
Standard Flow Cell	20 cc/min to 6 LPM, ±1% of reading accuracy*
High Flow Cell	2-30 LPM, ±1% of reading accuracy
Temperature Limits	
Operating Temperature	5° to 35°C (41° to 95°F)
Storage Temperature:	0° to 50°C (32° to 122°F)
Electrical: DC Power Source	Internal Battery Pack
AC Power Source	Continuous operation through USB adapter/ charger
Battery Charge Time	15 Hrs
Expected Battery Life	Over 300 charge/recharge cycles

* Or 0.001 LPM, whichever is greater

Gilibrator 2^{USB} shown calibrating the GilAir Plus air sampling pump, with optional Printer Kit and Bubble Soap Solution.

Go-*Cal*

Air Flow Calibrator

The Go-*Cal*™ air flow calibrator is a portable, battery-operated calibrator that is lightweight, easy to use, and accurate within 2% of reading. Go-*Cal*™ displays air flow rate continuously allowing adjustments to pump flow-rate in real-time. The Go-*Cal*™ displayed flowrate is compensated for temperature making it easier to produce consistent results at various calibration locations.

- Precision air flow calibration between 0.01 - 20 LPM
- Continuous real-time air flow display
- Battery powered, compact, and lightweight for field portability
- NIST traceable calibration certificate included
- Calibrator kit ships complete for immediate use

Specifications	
Range	0.01 to 20 LPM (10-20,000 cc/min)
Accuracy	±2% or 0.005 LPM, whichever is greater
Dimensions	5 in. × 2 in. × 1.25 in.
Weight	0.75 lbs
Warm Up Time	1 Minute
DC Power Input	7.5 VDC ±1.5 V, 300 mA max
Each Go-Cal calibrator is shipped complete with the following: Calibrator, Battery pack including 6-AA size alkaline batteries, Tubing kit, Carrying case. NIST traceable calibration certificate, and User guide	

Description	Part Number
Go-Cal Air Flow Calibrator Kit	811-9916-01
Go-Cal Replacement Battery Pack	811-9917-03
Go-Cal Replacement Filter	811-9917-01
Go-Cal Replacement Tubing Kit	811-9917-02
Go-Cal Dampening Module	811-9917-05
Go-Cal Carrying Case, Soft	811-9917-04
Go-Cal AC Adapter US, 100-240V - North America Plug	811-9918-02
Go-Cal AC Adapter Euro, 100-240V	811-9918-03
Go-Cal AC Adapter UK, 100-240V	811-9918-04
Go-Cal AC Adapter Australia/NZ, 100-240V	811-9918-05
Go-Cal Manual	360-0162-01

Sampling Media & Accessories

Sensidyne provides sampling media and accessories for a wide array of airborne substances. This sampling media is available either as individual components or as pre-loaded cassettes, complete with filters and support pads.

Two-piece 37mm cassette

Three-piece 37mm cassette

Three-piece 25mm cassette, Classic Style

Cassette sizes, types

37 mm – Available in both a standard two-piece style and a three-piece style. These cassettes meet the NIOSH requirements for sampling most dusts, fumes and mists. Three-piece cassettes allow open face sampling, typically for asbestos and other fibers.

25 mm – Available only in three-piece style, this cassette is used only for "Open Face" sampling and meets specifications for asbestos sampling, as described by NIOSH, OSHA and EPA. It has a two-inch extension cowl, assuring proper fiber distribution for microscopic fiber counts. The carbon imbedded body reduces static charge.

Membrane types

PVC, Teflon, Glass fiber, Silver, Quartz and MCE (Mixed Cellulose Ester).

Cellulose shrink seals

Available in both 25mm and 37mm sizes, these bands are applied wet around the cassette and shrink when dry to form a tight seal. The seal provides a positive non-tampering indication when the cassette is received by the lab for analysis.

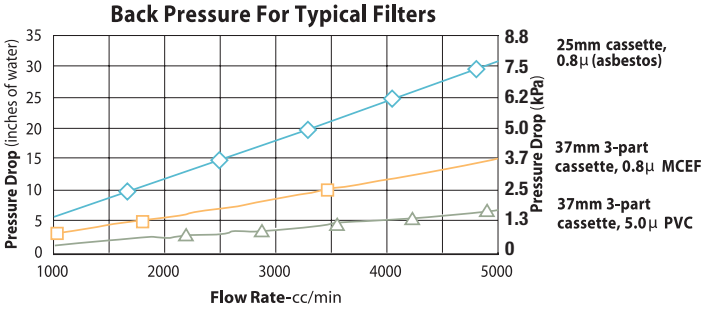
Cassette holder

Consists of tubing with clip, designed to mount the cassette to the worker's collar close to the breathing zone.

While selection of a specific cassette size/type and filter membrane should be determined by review of the NIOSH sampling guide, the following rules generally apply:

- All dusts, fumes and powders sampling – use 37mm filter and cassette.
- All asbestos and fibers sampling – use 25mm filter and cassette.
- Dust sampling – use 0.5 micron (pore size) PVC filter membrane.
- Most heavy metal (such as lead fume) sampling – use 0.8 micron MCE (mixed ester of cellulose) filter membrane.*

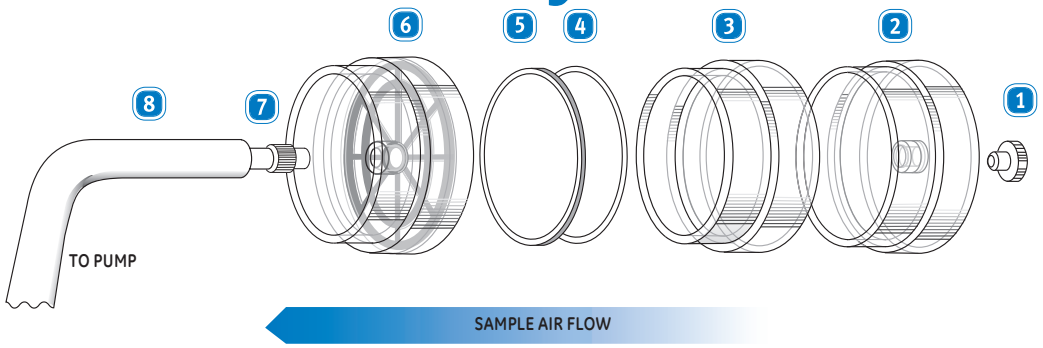
**Metals form airborne vapors when heated. As these vapors cool, they become small airborne particulates, known as fumes.*



Pre-Loaded Cassettes & Cassette Housings

Polycarbonate	Sensidyne Part Number
CASSETTE, 37mm, 2 pc, 0.8µm POLYCARBONATE, 50/bx	GC728PC
CASSETTE, 37mm, 3 pc, 0.4µm POLYCARBONATE, 50/bx	GC7345PC
CASSETTE, 37mm, 3 pc, 0.8µm POLYCARBONATE, 50/bx	GC738PC
CASSETTE, 25mm, 3 pc, 0.8µm POLYCARBONATE, 50/bx	GCZ008PC

Cassette Assembly



1. **Seal Plug** – Provided on the outlet and inlet (if applicable) of cassette and replaced after sampling when cassette is sent to lab.
2. **Cassette Inlet Cap** – Used in "Closed Face" sampling and removed on three-piece 37mm cassette in "Open Face" sampling. Always removed from 25mm cassette for asbestos sampling and replaced for shipment to lab.
3. **Center Spacer Ring** – Provided with three-piece 37mm cassette to allow for "Open Face" Sampling, but not provided with two-piece 37mm cassette. In 25mm asbestos cassette, always used for 'Open Face' method, this space is provided as an elongated 2- inch section.
4. **Filter Membrane** – Specific filter membrane used varies with application. (Refer to NIOSH Method Guidelines, found in Air Sampling Guide tables starting on page 30.)
5. **Support Pad** – Consists of thick layer of mixed cellulose.
6. **Gridded Filter Base** – Gridded design of cross-sectional area helps to more evenly distribute pump vacuum.
7. **Luer Fitting** – Inserted in end of hose to mate with 37mm cassette outlet. 25mm asbestos cassette does not require a Luer Fitting.
8. **Holder Tubing** – Holder with collar clip is connected by tubing to Gilian Pump.

Pre-Loaded Cassettes & Cassette Housings

Description	Sensidyne Part Number	Main Application
Pre-Loaded Cassettes		
Cassette, 25mm, Classic Style, PCM, 0.8µm, MCE Black Gridded, 50/bx	GCU25080BLG	Asbestos, OSHA PCM
Cassette, 25mm, Classic Style, PCM, 0.8µm MCE Green Gridded, 50/bx	GCU25080GRG	Asbestos, OSHA PCM
Cassette, 25mm, Classic Style, PCM, 0.8µm, MCE, No Grid, 50bx	GCS25080	Asbestos, OSHA PCM
Cassette, 25mm, Classic Style TEM, 0.45µm, MCE, 50/bx	GCS25455-50	Asbestos, EPA-AHERA TEM
Cassette, 25mm Micro Vac, ea	GCU25MV	
Cassette, 37mm, 3pc, 0.8µm MCE 50/bx	GCU37080	Lead, Metals, Welding Fume
Cassette, 37mm 2pc 5.0µm PVC, 50/bx	GCU37500PVC-2	Total Dust
Cassette, 37mm, 3pc, 5.0µm PVC, 50/bx	GCU37500PVC	Total & Respirable Dust & Silica, Hexavalent Chromium
Cassette, 37mm, 3pc, 1.0µm, PTFE (Teflon), 50/bx	GCU731TF	Coal Tar Pitch Volatiles, Benzene Solubles, NIOSH
Cassette, 37mm 3pc w/ Type A/E Glass Fiber, 50/bx	GCU37AE	Coal Tar Pitch Volatiles, OSHA
Cassette, 37mm 2pc w/ Type A/E Glass Fiber, 50/bx	GCU37AE-2	Coal Tar Pitch Volatiles, OSHA
Pre-Weighed Cassettes		
Cassette, 37mm 2pc 0.8µm, MCE Matched (50µg), 50/bx	GCU37080MW-2	Lead, Metals, Welding Fume
Cassette, 37mm, 3pc, 0.8µm, MCE, Matched, Unb. 50/bx	GCU37080MW	Lead, Metals, Welding Fume
Cassette, 37mm 2pc 5.0µm, PVC Matched, (50µg), 50/bx	GCU37500PVCMW-2	Total Dust
Cassette, 37mm 3pc 5.0µm, PVC Matched, (50µg), 50/bx	GCU37500PVCMW	Total & Respirable Dust & Silica
Cassette, 37mm 2pc 5.0µm, PVC Preweighed, 50/bx	GCU37500PVCPW100	Total Dust
Cassette, 37mm, 3pc, 5.0µm, PVC, Preweighed, (100µg) 50/bx	GCU37500PVCPW	Total & Respirable Dust & Silica
Mold Sampling Cassettes		
Cassette, Air-O-Cell 10/bx	GCAOC10	Mold
Cassette, Air-O-Cell 50/bx	GCAOC50	Mold
Cassette, 37mm .45µm PC Endotoxin Free, 10/bx	GCU3745EF	NA
Cassette, Carpet Sampling, 10/bx	GCCS10	NA
Sterile Cassettes		
Cassette, 37mm 3pc .45µm MCE Gridded Sterile, 50/pk	GCU3745GS	NA
Cassette, 37mm 3pc 0.8µm MCE Sterile, 50/pk	GCU37080S	NA
Cassette, 37mm 3pc 0.8µm MCE, Gridded, Sterile, 50/pk	GCU37080GS	NA

MCE = Mixed Cellulose Esters • PVC = Polyvinyl Chloride • PTFE = Teflon (DuPont Trademark) • µm or µ = micron • mm = millimeter
PCM = Phase Contrast Microscope (OSHA Asbestos Method) • TEM = Transmission Electron Microscope (EPA Asbestos Method)

Cassette Housings and Shrink Bands

Description	Sensidyne Part Number
Band, 25mm Shrink, White, 100/pk	GB25W
Band, 25mm Shrink, White, 1400/pk	GCO25DNL
Band, 25mm Shrink, Clear 1400/pk	GB25C
Band, 37mm Shrink, White 100/pk	GB37W
Band, 37mm Shrink, White, 1000/pk	GCO37DNL
Band, 37mm Shrink, Clear 100/pk	GB37C
Band, 37mm Shrink, Clear 1000/pk	GB37C1000
Band, 37mm Shrink, Yellow 100/pk	GB37Y
Band, 37mm Shrink, Yellow 1000/pk	GB37Y1000
Band, 37mm Shrink, Red 100/pk	GB37R
Band, 37mm Shrink, Red 1000/pk	GB37R1000
Housing, 25mm, Classic Style, 3pc, Conductive, 50/bx	GH25
Housing, 37mm, 3Pc, 50/bx	GCO37050
Housing, 37mm, 2Pc, 50/bx	GCO37050-2
Housing, 37mm 2pc Opaque, 50/bx	GH37-2
Housing, 37mm 3pc Opaque, 50/bx	GH37
Housing, 37mm 2pc Solvent Res, 50/bx	GH37SR-2
Housing, 37mm 3pc Solvent Res 50/bx	GH37SR
Housing, 37mm, Conductive 3pc, 50/bx	GH37C

MCE = Mixed Cellulose Esters • PVC = Polyvinyl Chloride • PTFE = Teflon (DuPont Trademark) • µm or µ = micron • mm = millimeter • PCM = Phase Contrast Microscope (OSHA Asbestos Method) • TEM = Transmission Electron Microscope (EPA Asbestos Method)

Filter Membranes & Support Pads (Pads sold separately)

Description	Part Number
Filter, MCE, 0.8µm 25mm, PCM, with Black Grid Line, 100/pk	GF25080BLG
Filter, MCE, 0.8µm 25mm, PCM, with Green Grid Line, 100/pk	GF25080GRG
Filter, MCE, 0.8µm, 25mm, PCM, No Grid, 100/pk	GF25080
Filter, MCE, 0.45µm, 25mm, TEM 100/pk	GF25450
Filter, MCE 1.2µm 25mm, 100/pk	GF25120
Filter, MCE, 5.0µm, 25mm, 100/pk	GF25500
Filter, MCE, 0.45µm, 37mm, 100/pk	GF37450
Filter, MCE, 0.8µm, 37mm, 100/pk	GF37080
Filter, MCE, 0.45µm, 47mm, 100/pk	GF47450
Filter, MCE, 0.8µm, 47mm, 100/pk	GF47080
Filter, PVC, 5.0µm 25mm, 100/pk	GF25500PVC
Filter, PVC, 5.0µm, 37mm, 100/pk	GF37500PVC
Filter, PVC, 5.0µm 47mm, 100/pk	GF47500PVC
Filter, PTFE, with PTFE supp, 1.0µm, 37mm, 50/pk	GCUFPTE137
Filter, Glass Fiber, Binderless, 1.1µm, 37mm, 100/pk	GFG85037MM
Filter, Glass Fiber, Binderless, 1.1µm, 8" x 10", 100/pk	GFG858x10
Filter, Support Pads, Cellulosic, 25mm, 40.0µm, 100/pk	GPG25100
Filter, Support Pads, Cellulosic, 37mm, 40.0µm, 100/pk	GPG37100
Filter Support Pads, Porous Plastic, 25mm, 100/pk	GP25
Filter, Support Pads, Porous Plastic, 37mm, 20.0µm, 100/pk	GPP3700
Filter, 37mm, 0.2µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC0237
Filter, 25mm, 0.2µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC225
Filter, 47mm, 0.4µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC447
Filter, 25mm, 0.4µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC4525
Filter, 37mm, 0.4µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC4537
Filter, 25mm, 5.0µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC525
Filter, 25mm, 0.8µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC825
Filter, 37mm, 0.8µm, POLYCARBONATE, PLAIN WHITE, 100/pk	GFPC837
Filter, Tissue Quartz, (99.90% retention of 0.3µm DOP) 25mm, 100/pk	GF25TQ
Filter, Tissue Quartz, (99.90% retention of 0.3µm DOP) 37mm, 25/pk	GF37TQ

MCE = Mixed Cellulose Esters • PVC = Polyvinyl Chloride • PTFE = Teflon (DuPont Trademark) • µm or µ = micron • mm = millimeter • PCM = Phase Contrast Microscope (OSHA Asbestos Method) • TEM = Transmission Electron Microscope (EPA Asbestos Method)

Crystalline Silica Exposure

Personal Air Sampling from Exposure to Respirable Crystalline Silica

OSHA issued a final rule to combat lung cancer, silicosis, chronic obstructive pulmonary disease and kidney disease in workers by limiting their exposure to respirable crystalline silica. Estimates predict that the rule will save over 600 lives and prevent more than 900 new cases of silicosis annually.

- Establishes lower (50 µg/m3) permissible exposure limit (PEL)
- Confirms ISO/CEN criteria of a 4-µm 50% cut-point for respirable dust samplers
- Aligns OSHA with NIOSH, ACGIH, and several global occupational hygiene organizations
- Identifies samplers conforming to ISO 7708/CEN criteria can be used

Air Sampling According to the New OSHA Standard

Six existing sampling methods are identified in the new OSHA standard with the goal of optimizing the methods to obtain a quantitative limit of detection no higher than 25% of the PEL (based on air volume). A large enough sample is required to reach the detecting limit down to 12.5 micrograms/cubic meter (25% of the new PEL).

The standard recommends modifying current methods to lower the detection level by taking a larger air sample, this accounts for tasks performed for short periods of time.

Applying the formula *1.7 LPM x 60 x 8 hours = 816 L = 0.816 CM* you can reach the LDL on some of the methods with the traditional 10 mm nylon cyclone at 1.7 LPM in 8 hours. With a four-hour task it is necessary to double the flow rate by using a medium flow cyclone such as our 4.2 LPM cyclone. Tasks performed for only two hours will require higher flow rates to reach the LDL, by using cyclones such as the 9 LPM RASCAL.

Method No.	Analysis	LDL (1.7LPM)
OSHA ID-142	XRD, Redposition	12.0 µg/m3 (qtz)
NIOSH 7500	XRD, Redposition	6.12 µg/m3 (8 hr)
NIOSH 7602	IR, KBr Pellet	6.12 µg/m3 (8 hr)
NIOSH 7603	IR, Redeposition	12.24 µg/m3 (8 hr)
MSHA P-2	XRD, Redposition	24.48 µg/m3 (8 hr)
MSHA P-7	IR, Redeposition	24.48 µg/m3 (8 hr)

Silica Sampling Best Practices

- Draw a large enough sample to obtain a maximum limit of detection of 12.5 micrograms per cubic meter (i.e., 25% of 50 micrograms per cubic meter)
- Use the analysis by XRD or IR as described in the methods above.
- Observe the cyclone flow rate specification for meeting the ACGIH size selection curve (50% at 4 microns).
- Use a constant flow pump that keeps the flow rate at +/- 5% of set flow.
- A medium flow cyclone can meet the detecting limit in an 8 hour sample and still be comfortable to wear.

Application	Cyclone Model	Part Number	Filter/ Cassette	Pump Types	Overall Height (mm/)	Weight Approx. (Kg)	Flow rate ACGIH Respirable*	Flow rate BMRC Respirable†	Flow rate Thoracic††
Full Shift sampling, medium to high dust	10 mm Dorr-Oliver	800061	37mm, 5µm PVC, 3-pc Cassette	**Basic:** GilAir 5, **High Back Pressure:** Gilian 5000, **Advanced:** GilAir Plus w/ DL and Motion	160	0.08	1.7 LPM*	—	—
Full Shift sampling, medium to high dust	BGI-4L Aluminum Cyclone, HD style (US version)	811-9924-01	37mm, 5µm PVC, 3-pc Cassette	**Basic:** GilAir 5, **High Back Pressure:** Gilian 5000, **Advanced:** GilAir Plus w/ DL and Motion	105	0.8	2.2 LPM*	2.0 LPM†	1.0 LPM††
Full Shift sampling, medium to high dust	FSP-2 Aluminum Cyclone, HD style- (Euro Version)	811-9930-01	37 mm, 5 µm PVC, German Style Cassette	**Basic:** GilAir 5, **High Back Pressure:** Gilian 5000, **Advanced:** GilAir Plus w/ DL and Motion	130	0.14	—	2.0 LPM†	—
4-8 hours light dust, or 2-4 hours medium to high dust	GK 2.69 Aluminum Cyclone, or 37 mm Cassettes	811-9926-01	37mm, 5µm PVC, 3-pc Cassette	Gilian 5000 Gilian 10i (Use in higher dust areas)	125	0.1	4.2 LPM*	—	1.6 LPM††
2-8 hours light dust, or <2 hours medium to high dust	GK 4.162 "RASCAL" Aluminum Cyclone	811-9925-01	47mm, 5µm PVC, Plastic Filter Holder	Gilian 10i Gilian 12 (Use in higher dust areas)	170	0.26	8.5 to 9.5 LPM*	—	—
Task Samples <2 hours	FSP-10 Aluminum Cyclone	811-9931-01	37 mm, 5 µm PVC, German Style Cassette	Gilian 12	203	0.26	11.2 LPM*	10 LPM†	—

* (50% cut@ 4 µm) (US) † (50% cut@ 5 µm) (Europe) †† 50% cut@10 µm **ACGIH:** American Conference of Governmental Industrial Hygienists. **BMRC:** British Research Medical Council

Dust Fraction & Size Distribution

Accessories for Particulate Sampling

Dust Fraction	Description	Size Distribution
Total Dust	All airborne particles	Size range encompassing all airborne particles
Inhalable Dust	Particle size range that can be hazardous anywhere in the respiratory tract	50% cut at 100 microns (ACGIH-US)
Thoracic Dust	Particle size range that can be hazardous when deposited anywhere within the lung airways and gas exchange area	50% cut at 10 microns (ACGIH-US)
Respirable Dust	Particle size range that can be hazardous when deposited in the gas exchange region	50% cut at 4 microns (ACGIH-US) 50% cut at 5 microns (BMRC-Europe)

Gilian Cyclones for Respirable and Thoracic Dust Sampling

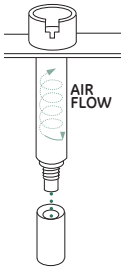
Cyclones have been utilized in personal air sampling since the early 1960s as a way to collect a respirable fraction of airborne dust at a worker's breathing zone. They follow the particle size distribution of the human respiratory system nicely when used at a specific air flow rate. Just as the body removes larger particles in the upper respiratory tract, the cyclone will remove those particles at a similar ratio, allowing the smaller respirable sized particles to collect onto a filter for gravimetric determination or lab analysis. Sensidyne, LP offers a full line of respirable dust cyclones as accessories for Gilian air sampling pumps. Note that some of the cyclones described here were developed in the US and some in Europe, and a few types are used in both markets. The US and Europe follow different particle size distribution curves. The ACGIH in the US specifies a distribution curve with a 50% cut at 4 microns particle size. The BMRC in Europe (UK) specifies a particle size distribution curve with a 50% cut at 5 microns particle size. The same cyclone can be used for both applications, but it will be specified at two different flow rates. Be sure to use the correct flow rate for your intended application.

Respirable Silica Dust Exposure Sampling Kits						
Kits*	**Part Number**	**Cyclone/Impactor**	**Pump**	**Media**	**Calibrator**	**Accessories**
Basic-1, Compliance Kit	**911-9902-01-R**	BGI-4L Aluminum Cyclone, 2.2 LPM	GilAir 5	37mm, 5µm PVC, 3-pc Cassette, Box of 50	GoCal	Tubing
Basic-5, Compliance Kit (5-pack)	**911-9902-05-R**	BGI-4L Aluminum Cyclone, 2.2 LPM (5 cyclones)	GilAir 5 (5 pumps)	37mm, 5µm PVC, 3-pc Cassette, Box of 50	GoCal	Tubing
Medium Flow-1, Compliance Kit	**911-9903-01-R**	GK 2.69 Aluminum Cyclone, 4.2 LPM	Gilian 10i	37mm, 5µm PVC, 3-pc Cassette, Box of 50	GoCal	Tubing
Medium Flow-5, Compliance Kit (5-pack)	**911-9903-05-R**	GK 2.69 Aluminum Cyclone, 4.2 LPM (5 cyclones)	Gilian 10i (5 pumps)	37mm, 5µm PVC, 3-pc Cassette, Box of 50	GoCal	Tubing
High Flow-1, Compliance Kit	**911-9904-01-R**	FSP-10 Aluminum Cyclone, 11.2 LPM	Gilian 12	37 mm, 5 µm PVC Filters, Box of 100	GoCal	Tubing, German Style Cassettes (10 units), Calibration Jar
High Flow-5, compliance Kit (5-pack)	**911-9904-05-R**	FSP-10 Aluminum Cyclone, 11.2 LPM (5 cyclones)	Gilian 12 (5 pumps)	37 mm, 5 µm PVC Filters, Box of 100	GoCal	Tubing, German Style Cassettes (10 units), Calibration Jar

*Kit components meet OSHA ID-142; NMAM 7500 analytical method qualifications as described in OSHA 29 CFR 1926.1153 (d)(2)(v) respirable crystalline silica rule.

Cyclone Sampler for Respirable Dust and Silica

This Dorr-Oliver unit meets NIOSH sampling requirements for 10mm nylon cyclones, as specified by NIOSH for nuisance dust (#0600) and silica dust (#7500, 7501, 7601 and 7602).

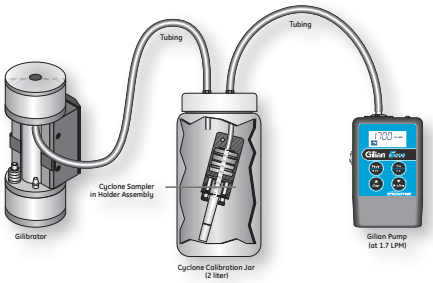


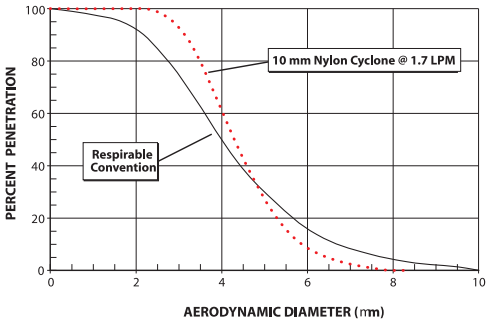
It is designed to separate the respirable fraction of airborne dust from the nonrespirable fraction; i.e. airborne particles with aerodynamic diameters between 0.2 and 10 microns, capable of producing pneumonconiosus lung disease with long-term exposure. Designed for pneumonconiosus-producing dusts, it can also monitor the respirable fraction of all types of dusts, from high toxic to nuisance particulate.

The unit consists of a two-stage cyclone and a lightweight aluminum frame, which mounts a standard 3-part 37mm filter cassette, with membrane filter. When air enters the cyclone stage at 1.7 LPM, the larger nonrespirable particles are centrifugally separated out and drop into a removable lower grit pot. The smaller, respirable particles pass on to the cassette and are captured by the filter membrane.

Cyclone Calibration Jar

When ordering a traditional Dorr-Oliver cyclone sampler, be sure to also order a Cyclone Calibration Jar. Since a Dorr-Oliver cyclone has only a single hose connection, this jar allows proper placement of the cyclone filter between the sampling pump and the calibrator device.



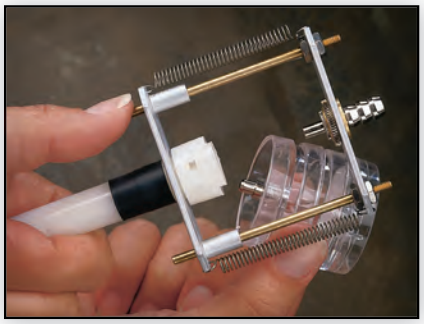


Note how closely the separation achieved by the Cyclone Sampler (red curve) follows the convention for separation of respirable particles, as specified by ACGIH (black curve). Few other cyclone separators show such a close fit of actual to ideal performance. For example, 100% of 10 micron particles and 50% of 4 micron particles are removed by the cyclone. This corresponds with 0% of 10 micron particles and 50% of 4 micron particles that penetrate the lower lung.

Traditional 10 mm Nylon Cyclone

10 mm nylon cyclone is used in NIOSH & OSHA sampling methods.

The traditional personal air sampling cyclone in the US is the Dorr-Oliver, 10mm nylon cyclone. It was first utilized in US coal mines in the early 1960's, and it continues to be the most commonly used model in the US. It will follow the US ACGIH size distribution curve (50% cut at 4 microns) closely when used at 1.7 LPM. This cyclone is specified in numerous NIOSH and OSHA Test Methods. Calibration jar P/N 7013376 (2 Liter size) is also required with calibration with this cyclone



Filter Cassette used with a cyclone.

The Gilian BGI-4L (Higgins-Dewell Style) Cyclone with the GilAir Plus Pump

The GK 2.69 Aluminum Cyclone with the Gilian 5000 Pump

HD style cyclone with US style cassette is specified in numerous NIOSH protocols

Higgins-Dewell Style BGI-4L Cyclone (US Version)

The Gilian BGI-4L is a Higgins-Dewell style aluminum cyclone that operates at 2.2 LPM to produce a 50% cut at 4 microns per the US-ACGIH size distribution curve. This style cyclone is specified in NIOSH 0600 and other respirable dust methods as an alternative to the 10 mm nylon cyclone. It is used with 37 mm, 5 micron, PVC, 3-piece NIOSH-style filter cassettes. The GilAir Plus and Gilian 5000 pump models are recommended.

See photo on previous page (bottom left).

HD style cyclone with European style sampling cassette.

Higgins-Dewell Style FSP-2 Cyclone (European Version)

Identical in function to our BGI-4L Higgins-Dewell style cyclone, this Higgins-Dewell style cyclone incorporates two different styles of European filter cassettes and holders. It is ideal for respirable dust sampling according to HSE MDHS 14/3 (UK) at 2.0 LPM (50% cut at 5 microns). In that sampling method glass fiber filters and MCE filters are recommended, depending upon the application. The GilAir Plus and Gilian 5000 pump models are suggested for use with this cyclone.

Medium Flow Rate GK 2.69

GK 2.69 cyclone can be used for respirable or thoracic sampling.

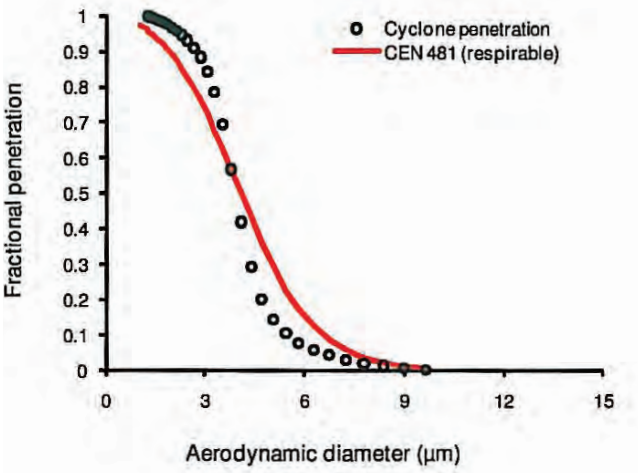
The GK 2.69 respirable dust cyclone operates at 4.2 LPM to follow the US-ACGIH respirable dust size distribution curve with 50% cut at 4 microns. It can also be used at 1.6 LPM to follow convention for thoracic dust sampling with a 50% cut at 10 microns. It also uses 37 mm, 5 micron, PVC, 3-piece NIOSH style cassettes. The Gilian 12 sampling pump is recommended for respirable sampling. The GilAir Plus and Gilian 5000 pump models are recommended for thoracic sampling.

See photo on previous page (bottom right).

RASCAL cyclone with optional **aluminum** filter holder

High Flow RASCAL Cyclone GK 4.162

The Gilian RASCAL (Respirable Air Sampling Cyclone, Aluminum, Large), made in the US, follows the ACGIH particle size distribution curve (50% at 4µm) at flow rates between 8.5 and 9.5 LPM, per NIOSH Report ECM/2011/03. It is ideal for use with the Gilian 12 air sampling pump for larger volume sampling per the OSHA silica standard. The high flow rate range optimizes the sensitivity for respirable dust and respirable silica dust measurements. The RASCAL is used in conjunction with a 47 mm diameter, 5 micron pore size, PVC filter membrane.



Distribution Curve for RASCAL at 9 LPM.

RASCAL cyclone with **standard** plastic filter holder

FSP-10 High Flow European Style Cyclone

The new OSHA standard for silica dust requires larger air samples to attain improved sensitivity for lab analysis, and application of this high flow European cyclone is described in NIOSH Report ECM/2011/03 using a 37mm, 5 micron PVC filter membrane. Developed in Germany for 10 LPM sampling following Europe's 5 micron 50% particle size curve, it also conforms to the traditional US respirable dust curve (50% at 4 microns) at 11.2 LPM. The unit uses a European style 37mm filter holder, and is suggested for use with the Gilian 12 pump.

Gilian FSP-10 cyclone offers a high flow rate alternative for better sensitivity in silica sampling.

Inhalable Dust Samplers

The inhalable fraction of airborne dust represents dust of 100 microns and smaller that can enter the respiratory tract through the nose and mouth. Inhalable dust sampling differs from traditional total dust sampling (or total suspended particulates) in that total dust includes all particulate sizes that can become airborne, and inhalable dust includes only those sizes that can enter the body through respiration.

GSP-3.5 Conical Inhalable Dust Sampling Head

Inhalable dust sampling may be conducted at 3.5 LPM using this European style conical sampling head following HSE MDHS 14/3 (UK). In that sampling method glass fiber filters and MCE filters are recommended, depending upon the application. This unit uses a 37 mm European style sample holder.

Inhalable Dust Sampling Head, UK Style

Inhalable dust sampling may be conducted at 2.0 LPM using this European style sampling head following HSE MDHS 14/3 (UK). In that sampling method glass fiber filters and MCE and PVC filters are recommended, depending upon the application. This unit incorporates a 25 mm re-usable cassette.

UK style Inhalable Dust Sampler with reusable 25mm cassette.

Ordering Information

Cyclones & Accessories	Part Number
10 mm Nylon Cyclone: Dorr-Oliver (uses 37 mm US style filter cassettes)	800061
Higgins-Dewell style BGI-4L Aluminum Cyclone (Uses 37 mm US style filter cassettes)	811-9924-01
Higgins-Dewell style FSP-2 Aluminum Cyclone (Uses 37 mm German style filter cassettes)	811-9930-01
Medium Flow Rate GK 2.69 Aluminum Cyclone, for 37 mm cassettes	811-9926-01
GK 4.162 RASCAL (Respirable Air sampling Cyclone Aluminum Large) with Plastic Filter Holder	811-9925-01
FSP-10, High flow rate cyclone (uses 37 mm German style cassette)	811-9931-01

Inhalable Dust Samplers	Part Number
GSP 3.5 Conical Sampler (Uses 37 mm German style cassette)	811-9929-01
Inhalable Dust Head (UK Style, uses 25 mm special cassette)	811-9909-01

Filters/Cassettes & Accessories	Part Number
Filter Media	
Filter Membrane PVC, 5.0µm, 25mm, 100/pk	GF25500PVC
Filter Membrane PVC, 5.0µm 37mm, 100/pk	GF37500PVC
Filter Membrane PVC, 5.0µm 47mm, 100/pk	GF47500PVC
Filter, Glass Fiber Binderless, 1.1µm, 37mm, 100/pk	GFG85037MM
Filter, PTFE, pure 2.0µm, 37mm, 50/pk	GF37200PT
Filter, MCE, 0.8µm, 25mm, 100/pk	GF25080
Filter, MCE, 0.8µm, 37mm, 100/pk	GF37080
Filter, MCE, 0.8µm, 47mm, 100/pk	GF47080
Support Pads	
Filter Support Pads Cellulosic, 25mm, 40.0µm, 100/pk	GPG25100
Filter Support Pads Cellulosic, 37mm, 40.0µm, 100/pk	GPG37100
Filter Support Pads, Porous Plastic, 25mm, 100/pk	GPP2500
Filter, Support Pads, Porous Plastic, 37mm, 20.0µm, 100/pk	GPG3700
US Style Filter Cassettes-Preloaded	
Filter Cassettes, PVC, 5.0µm 37mm, 50/pk (US style 3-piece cassette)	GCU37500PVC
Filter Cassettes, PVC, 5.0µm 37mm, Pre-weighed, 50/pk (US style 3-piece cassette)	GCU37500PVCPW
European Style Filter Cassettes- Cassette only	
Filter Cassettes, 37mm, (German style for 811-9930-01, 811-9931-01 & 811-9929-01), Cassette only	811-9932-02
Filter Cassettes, 25mm, conductive plastic for Inhalable Dust Sampler 811-9909-01 with transport clip (UK style)	811-9910-01
Miscellaneous Accessories	
Calibration Jar, 2L for Dorr-Oliver Cyclone (800061) and Inhalable Dust Head (811-9909-01)	7013376
Calibration Jar, Large Size for FSP-10 High Flow Cyclone (811-9931-01)	811-9950-01-R
Optional RASCAL Aluminum Filter Holder, 47 mm	811-9928-01

Sensidyne Deluxe Nephelometer

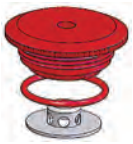
Real-Time Handheld Aerosol/Dust Monitor

The Sensidyne Deluxe Nephelometer is an advanced real-time particulate monitor accurately measuring aerosol and dust concentrations using proven light scatter technology. This portable instrument accurately measures and records particulate from 0.1-10,000 µg/m3 with resolution to 1 µg/m3. Sample modes are selectable between 60 second sample, 15 minute STEL, or continuous sampling.

TSP

The Deluxe Nephelometer offers 4 different Impactor sizes for measurements

PM10 Impactor



PM 4.0 Impactor

PM 2.5 Impactor

The Deluxe Nephelometer has an internal pump drawing samples into the iso-kinetic sampling inlet at 1 liter per minute, where they meet sheath air that guides samples past the particle sensor. The sensor is a photo detector that measures laser light scattered by particulates in the sample stream. The Deluxe Model is capable of sampling selective sized particles with interchangeable impactor heads. The Deluxe Model comes standard with the total suspended particulate (TSP) head. Additional impactor heads are available in specific kits; the PM-2.5µm impactor head, the PM-4.0µm impactor head, and the PM-10µm impactor head.

The instrument multiplies each measurement by a K-factor and displays the real-time reading on the display of the instrument. After each sample the K-factor, Impactor Size, STEL, maximum, minimum, and average readings write to the instrument's data log. When connected to a computer the instrument uploads up to 4,000 data-log records in spreadsheet format.

In addition to high sensitivity and ease-of-use the Sensidyne Deluxe Nephelometer offers a low cost of ownership, automatic power save, long-life, data-logging, facility monitoring features, and user-replaceable filters.

Description	Part Number
Charger	298-0027-01
Zero Cap	385-0014-01
Sheath Air Filter	385-0012-01
USB Communication Cable	297-0012-01
PC App/Manual CD	390-0048-01
Rubber Boot	375-0008-01
Carrying Case	375-0009-01
Tri-pod Mount	385-0017-01
TSP Inlet Head	811-1004-03-R
PM-2.5 Impactor	811-1004-01
PM-4.0 Impactor	811-1004-04-R
PM-10 Impactor	811-1004-02
Deluxe Kit (US)*	810-1003-US-R
Deluxe Kit (EU)*	810-1003-EU-R
Deluxe Kit (UK)*	810-1003-UK-R

*All Deluxe Kits come with TSP, PM-2.5, PM-4, and PM-10 impactor heads, Charger, Zero Cap, Replacement Filter, Communication Cable and Software.

Accurate Aerosol/Dust Concentration

Proprietary algorithm provides accurate aerosol and dust concentration. The sheath air feature prevents internal contamination and improves accuracy.

Reliable and Easy-to-Use

Temperature compensated, durable housing and minimal moving parts ensure reliability. Two-button user-interface ensures easy monitoring.

Field Portable

All-in-one handheld instrument with long-life batteries that fully charge in less than 3 hours.

Environment Profiling

Easy to use software allows programming unique environmental profiles and recording sample data.

Surveying Tool

The Nephelometer is commonly used as a survey tool to collect objective data on dust and silica exposures. Additional uses are evaluating the effectiveness of dust and silica controls.

Common Applications

- Industrial/Occupational Hygiene Area Surveys
- Particulate Matter or Aerosol Research Studies
- Immediate Spot Measurement
- Validating Silica Exposure Controls
- Emergency Response Measurements

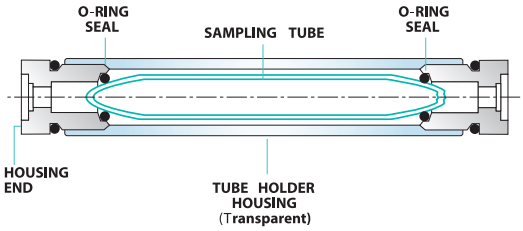
Specifications	
Measurement Method:	Light scatter
Particle Size Screening:	TSP, PM 2.5, PM 4.0 or PM 10 (Selective Heads)
Sample Method:	Pump sample draw at 1.0 LPM
Range:	0.1 – 10,000 µg/m3 (0.0001 to 10 mg/m3)
Sample Options:	1 minute, Continuous, or 15 min STEL
Resolution:	1 µg/m3 (0.001 mg/m3)
Sensitivity:	1 µg/m3 (0.001 mg/m3)
Accuracy:	± 5% traceable standard with 0.6 µm (0.0006 mg) PSL
Data logging:	4000 records of STEL, Max, Min, Avg, and k-factor
Operating Temp:	32°F to 122°F (0°C to 50°C)
Storage Temp:	-4°F to 140°F (-20°C to 60°C)
Display:	2 line, 16-character LCD
Controls:	2-button
Dimensions:	3.75W x 6.75H x 2.0D inches (9.5W x 17.2H x 5.1D cm)
Weight:	24 oz. (0.67 kg
Light Source:	Laser diode
Power:	7.2V Lithium Ion self-contained battery pack providing 30 hours of typical intermittent operation and up to 12 hours continuous use.
Charger:	100-240VAC Lithium Ion Charger 8.4VDC @ 1500mA typical.
Charging Time:	Less than 3 hours
Communications:	USB Mini B-Type
Standard Calibration:	Arizona Road Dust. K-factors allow direct reading of other substances.
Safety Conformity:	IEC 60825-1 Ed.1.1 (1998-01) • EN 60825-1 W/A11 (1996) • US 21 CFR 1040.10 • FDA / CDRH This product is tested and complies with 21 CFR, Subchapter J, of the health and Safety Act of 1968. European Community (CE) Directive 89/336/EEC EN 55011 Group 1, Class B (Emissions) and EN 55082-1 (Immunity)
Supplied:	Operation manual, charger with power cord, zero cap, spare filter, software and USB cable.
Optional:	Carrying case and Rubber Protective Boot
Warranty:	One year from date of shipment.

Sorbent Tubes for single or multiple sampling of vapors and gases using a low flow sampling pump

These high quality sealed glass tubes are 6x70mm in size, packed with accurately weighed, high purity coconut shell charcoal. The specific applicable test methods should be determined from the Air Sampling Guide on pages 30 to 40.

They are designed to absorb vapors and gases passed through them, when used with low flow air sampling systems and fit a variety of holders described here. A tube has sorbent material in two sections: the first for sample collection and the second for sample break-through control.

The tips of the tubes are snapped off with a tube tip breaker, just prior to use. Each tube comes with caps to protect the user from the sharp glass ends and to seal the tubes after sampling is complete, prior to sending them to the lab. Tubes are packaged 50 to a box.



This unique system consists of a series of components which can be used to make up any of a wide range of different sorbent tube holders. That includes holders for single tube sampling or for multiple tubes manifolded together, with variable control of flow rate to each individual tube. These holders accept not only Sensidyne sorbent tubes but other standard sized industry tubes.

Tight sealing, visible design

The quality construction of these holders features housings of clear plastic, allowing easy see-through inspection. In addition, each of the fittings at either end of the holder contains positive sealing O-rings in a double seal arrangement, eliminating any possible contamination of the sample by assuring absolute airtight integrity. They allow the sample tube to be flow-calibrated in place and also permit quick, easy reconfiguring of tube holder arrangements.

Single Tube Holder Kits

Kit comes with single holder, tubing, adapters and collar clip. Available for any of six different tube sizes. It can be ordered as a standard tube holder kit for constant flow control applications, or with a needle valve, which can also be used for variable flow single tube sampling, with a constant pressure (multi-flow) control in place.

Sorbent Tube Kit Descriptions

Starter Single Tube Kit
This is the most popular of our universal tube holder kits, containing everything needed to put together holders for standard single tube sampling, variable flow single tube sampling, or "in series" multiple tube sampling. Includes standard and variable flow tubes in 6x70mm, 7-10x110mm, 7-10x 150mm and 7-10x175mm tube sizes. Also includes tubing, adaptor and collar clips.

Dual, Triple and Quad Kits
Allow simultaneous tandem sampling with multi-flow control systems (i.e., constant pressure control). Contains tubing, adapters and collar clip, as well as a manifolded variable flow holder set, for either dual, triple, or quadruple sorbent tubes. Available in kits for a single specific tube size or kits for four different tube sizes.

Deluxe Universal Tube Holder Kit
Offering the ultimate in sampling flexibility, this kit allows you to "build your own" arrangement for almost any combination of single or multiple tube (1, 2, 3 and 4) manifolded sampling, for any of six different tube sizes. Includes all necessary fittings, adaptors, tubing and collar clips.

Description	Kit Includes	5x150 mm	6x70 mm	7-10x110 mm	7-10x150 mm	7-10x175 mm	7x130 mm
Single-Tube Holder Kit	(No manifold)	800263	800149*†	800259	800260	800261	800262
Single-Variable Manifold Kit	Holder/Ends/Tubing	800254	800253*	800255	800256	800257	800258

Kit Description	Tube Holder Sizes Included (in addition to manifolds, ends and tubing)	Part No.
Starter Kit, Single Variable Manifold	One each of: 6x70mm, 7-10x110mm, 7-10x150mm and 7-10x175mm	800252
Dual-Variable Manifold Kit	Two of 6x70mm*	800148
Dual-Variable Manifold Kit	Two of 7-10x110mm	801407
Dual-Variable Manifold Kit	Two each: 6x70mm, 7-10x110mm, 7-10x150mm and 7-10x175mm	800251
Triple-Variable Manifold Kit	Three of 6x70mm*	800230
Triple-Variable Manifold Kit	Three each: 6x70mm, 7-10x110mm, 7-10x150mm and 7-10x175mm	800250
Quad-Variable Manifold Kit	Four of 6x70mm*	800231
Quad-Variable Manifold Kit	Four each: 6x70mm, 7-10x110mm, 7-10x150mm,and 7-10x175mm	800249
Deluxe Kit	Four of 6x70mm; three each of 7-10x110mm, 7-10x150mm and 7-10x175mm; two each of 5x150mm and 7x130mm (also includes single, double and triple manifolds, which can be combined to form quad manifold)	800232

** For use with standard activated charcoal tube*
† LFS-113 and GilAir Plus® Starter Kits include one of 800149 single tube holder kits.

Sorbent Tubes

Description	Part Number
Charcoal Tube, Coconut Shell, Standard, 50/100 mg, 6 x 70mm (pkg of 50)	801935
Charcoal Tube, Coconut Shell, Large, 200/400mg, 8x110mm, with end caps, 20pk	811-9902-20
Charcoal Tube, Coconut Shell, Large, 200/400mg, 8x110mm, with end caps, 50pk	811-9902-50
Charcoal Tube, Coconut Shell, Jumbo, 200/800mg, 10x110mm, with end caps, 20pk	811-9903-20
Charcoal Tube, Coconut Shell, Jumbo, 200/800mg, 10x110mm, with end caps, 50pk	811-9903-50
Sorbent Tube, Chromosorb-102, 8X110, 100/50, 50/BX	811-9962-50
Sorbent Tube, Microlite, 6X70, 200mg, 50/BX	811-9963-50
Sorbent Tube, Microlite, 8X110, 500mg, 50/BX	811-9964-50
Sorbent Tube, Silica Gel, 6X70, 150/75, 50/BX	811-9965-50
Sorbent Tube, Silica Gel, 6X70, 100/50, 50/BX	811-9966-50
Sorbent Tube, Silica Gel, 8X110, 300/150, 50/BX	811-9967-50
Sorbent Tube, Silica Gel, 8X110, 520/360, 50/BX	811-9968-50
Sorbent Tube, Silica, DNPH, 6X110, 300/150, 20/BX	811-9969-20
Sorbent Tube, Silica, DNPH, 6X110, 300/150, 100/BX	811-9969-100
Sorbent Tube, Silica (Specially Cleaned), 7X110, 50/BX	811-9970-50
Sorbent Tube, Silica (H2SO4-Sulfuric Acid), 6X70, 150/75, 50/BX	811-9971-50
Sorbent Tube, TenaX, 8X110, 100/50, 50/BX	811-9972-50
Sorbent Tube, XAD-2, 8X110, 100/50, 50/BX	811-9973-50
Sorbent Tube, XAD-2, 8X110, 150/75, 50/BX	811-9974-50
Sorbent Tube, XAD-2, 8X110, 400/200, 50/BX	811-9975-50
Sorbent Tube, XAD-2, 2-(Hydroxymethyl)Piperidine, 6X110, 150/75, 20/BX	811-9976-20
Sorbent Tube, XAD-2, 2-(Hydroxymethyl)Piperidine, 6X110, 120/60, 20/BX	811-9977-20
Sorbent Tube, XAD-2, 2-(Hydroxymethyl)Piperidine, 8X110, 450/225, 20/BX	811-9978-20
Sorbent Tube, XAD-7, 6X110, 100/50, 50/BX	811-9979-50
Sorbent Tube, XAD-7, 6X70, 60/30, 50/BX	811-9980-50
Sorbent Tube, Porapak-N, 6X70, 88/44, 50/BX	811-9981-50
Sorbent Tube, Porapak-P, 6X110, 100/50, 50/BX	811-9982-50
Sorbent Tube, Porapak-Q 6X110, 150/75, 50/BX	811-9983-50
Sorbent Tube, Porapak-R 6X70, 70/35, 50/BX	811-9984-50
Sorbent Tube, Florisil, 6X70, 100/50, 50/BX	811-9985-50
Sorbent Tube, Chromosorb-106, 10X150, 600/300, 10/BX	811-9988-10
Sorbent Tube, Beaded Activated Carbon, 6X70, 140/70, 20/BX	811-9989-20
Tube Tip Breaker, Package of 5	7015377P

Impinger/Bubblers

For collecting various airborne gases, vapors and particulates using a high flow sampling pump

Gilian 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 impinger liquid used can be analyzed to determine airborne contaminant levels. Impingers can be mounted directly to a personal air sampling pump or a special spill-proof version can be attached to the worker's collar with a clip.

Midget Impingers, 25 ml - Standard, "Bubbler" and Special

These two-piece glass impingers have a capacity of 25 ml and a graduated scale along the side in 5 ml increments. The tip is precisely spaced in relation to the bottom of the impinger.

- The Standard Midget Impinger has its two glass pieces joined by a 24/40 ground joint.
- The "Bubbler" or Fritted Midget Impinger is like the standard impinger, except it has a special fritted tip to increase the interaction between the air sample and the impinger liquid by breaking the air stream into smaller bubbles and thereby increasing surface area.
- The Special Midget Impinger has a Teflon® sleeve on the glass stopper, allowing its use for ozone sampling.

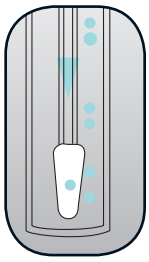
Micro Spill-Proof Midget Impinger

This impinger is designed with traps to keep the liquid from spilling out, should they be tipped accidentally. It comes with a collar clip, allowing placement within the worker' s immediate breathing zone. Very light in weight, the micro spill-proof impinger has a capacity of 2 oz (50 ml) and is made of PVC coated glass.

Moisture Traps & Holders

Moisture traps are designed to prevent moisture carryover from the impinger that might internally damage the sampling pump. Single and double holders are available for midget impingers and traps. A mounting bracket is also required when mounting these holders to Gilian 5000, Gilian 3500, GilAir-3, GilAir-5, or BDX II pumps.

Micro Spill-Proof Midget Impinger



Bubbling action of fritted tip.

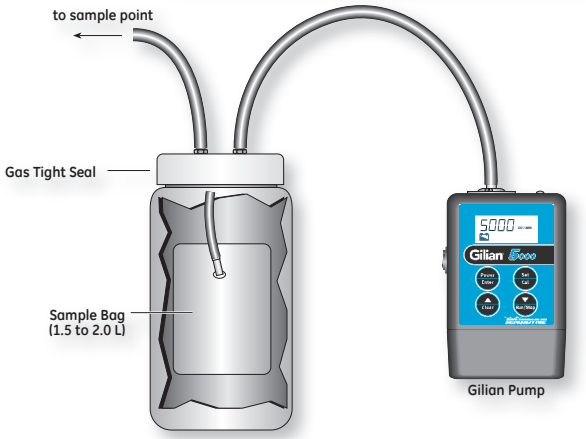
	Size	Description	Part No.
Impingers			
Standard Midget	25ml	2-pc., glass, 5ml increments	400165
Fritted Plastic	2oz	Fritted, 2-pc, plastic	800776
Fritted Midget (Bubbler)	25ml	Fritted, 2-pc., glass, 5ml increments	400506
Special Midget,Teflon	25ml	2-pc., glass, Teflon sleeve, Ozone, 5 ml increments	400509
Spill-proof, Micro, 2 oz.	50 ml	PVC-coated glass, fritted, collar clip	800772
Moisture Traps			
Standard Moisture Trap	98 ml	Plastic w/ 36"(91 cm) length of 1/4"(6.4 mm) ID tubing	800217
Midget Sorbent Trap	25 ml	Glass w/ screw cap	200241
Holders			
GilAir Plus Impinger Kit, Single	—	Aluminum holder with mounting bracket for GilAir Plus pump	811-0921-01-R
GilAir Plus Impinger Kit, Double	—	Aluminum holder with mounting bracket for GilAir Plus pump	811-0921-02-R
Impinger Holder, single	—	Aluminum/black, GilAir-3/GilAir-5/Gilian 800i/5000/10i/12	200222
Impinger Holder, double	—	Aluminum/black, GilAir-3/GilAir-5/Gilian 800i/5000/10i/12	200131
Mounting Bracket for Impinger Holder	—	Required to mount impinger holder to GilAir-3, GilAir-5 and BDX II pumps	801146
Mounting Bracket for Impinger Holder	—	Required to mount impinger holder to Gilian 800i/5000/10i/12 pumps	801983

Gas Sampling Bags

For convenient sample collection of specific compounds
Sensidyne carries a full line of Kynar® and Teflon® Gas Bags, which are convenient for grab sampling or TWA sampling of ambient chemical hazards for which other, conventional sampling methods are not available. NIOSH requires the use of the bag sampling method for certain compounds.

Reusable Gilian Gas Bags feature a quality construction that offers both durability and flexibility, as well as very long service life. They are both fatigue and temperature resistant and have a large sample port for easy flushing.

Kynar Gas Sampling Bags		Teflon Gas Sampling Bags		
Capacity (liters)	Part No.	Nominal Capacity (liters)	Valve Type	Part No.
0.5	KB-05	0.5	On/Off Valve	TE-22
1.0	KB-1	1.2	On/Off Valve	TE-21
3.0	KB-3	4.7	On/Off Valve	TE-23
5.0	KB-5	5.0	On/Off Valve	TE-24
10.0	KB-10	0.5	Septum Valve	TE-25
25.0	KB-25	1.2	Septum Valve	TE-26
50.0	KB-50	4.7	Septum Valve	TE-27
100.0	KB-100	50.0	Septum Valve	TE-28
200.0	KB-200	—	—	—



811-9901-01

Specifying Your Sample Train

Follow the steps below to select the components needed for the air sampling system that fits your needs. Refer to the Equipment Selection Table below and the Air Sampling Contaminant Reference Guide on the following pages.

1. **Look up** the specific airborne material you are sampling in the ***Air Sampling Contaminant Reference Guide*** and note the Configuration Code in the last column.

2. **Match up** the Configuration Code (from the last column of the guide) to the ***Equipment Selection Table*** below (in the first column) and read across to find the recommended Collection Media, Media Holder and appropriate accessories.

3. Continue moving across the table to **select** a Gilian air sampling pump and appropriate air flow calibrator. You have now specified your Sample Train.

Equipment Selection Table

Config. Code	Collector Type	Primary Use	Collection Media	Media Holder	Page No's	Gilian Pump Models	Calibrator
A	**Cassette Membrane Filter**	**Metals**	**37mm MCEF** GCU37080	**Filter Holder** 800143	23–25	**GilAir Plus** **Gilian 5000** **GilAir-3** **GilAir-5**	**Gilibrator-2** (standard wet) **Gilibrator-3** (standard dry) **GoCal**
B	**Cassette Membrane Filter**	**Total Dust**	**37mm PVC** GCU37500PVC, GCU37500PVCPW				
C	**Cassette Membrane Filter with Cyclone**	**Respirable Dust/Silica**	**37or 47mm PVC** [1] GCU37500PVC, GCU37500PVCPW	**Cyclone/Impactor**[1] 800061	26–30	**GilAir Plus** **GilAir-5** **Gilian 5000** **GilAir-10i** **GilAir-12**	**Gilibrator-2** (standard wet) **Gilibrator-3** (standard dry) **GoCal** **Small Cyclone Cal. Jar** [2] **Large Cyclone Cal. Jar** [3]
D	**Impinger***	**Gases. Vapors & Aerosols**	**Impinger*** 400165 (Standard) (see also spill-proof models)	**Impinger Holders:** Single: 200222 Double: 200131 **GilAir 3/5 Bracket:** 801146 **Gilian 5000 Bracket:** 801983 **GilAir Plus Impinger Kit:** Single 811-0921-01-R Double 811-0921-02-R	36–37	**GilAir Plus** **Gilian 5000** **GilAir-3** **GilAir-5**	**Gilibrator-2** (standard wet) **Gilibrator-3** (standard dry)
E	**Bubbler***	**Gases. Vapors & Aerosols**	**Bubbler*** 400506 (Fretted) (see also spill-proof models)				
F	**Cassette Membrane Filter**	**Misc. PTFE****	**37mm PFTE**	**Filter Holder** 800143	23–25	**GilAir Plus** **Gilian 5000** **GilAir-3** **GilAir-5**	**Gilibrator-2** (standard wet) **Gilibrator-3** (standard dry) **GoCal**
G	**Cassette Membrane Filter**	**Misc. GFF****	**37mm GFF** (glass fiber)				
H	**Cassette Membrane Filter**	**Misc. Silver**	**Silver Membrane**				
I	**Cassette Membrane Filter**	**Asbestos**	**25mm MCEF** (cellulose ester) GCS25080				
J	**Cassette Membrane Filter**	**Lead Abatement**	**37mm MCEF** (cellulose ester) GCU37080				
K	**Sorbent Tube**	**Solvents by ACT** (Single)	**ACT** [4] (150 mg) 801935	**ACT** [5] **Single** 800149	33–35	**GilAir Plus** **Gilian 800i** **Gilian 5000** [7] **GilAir-3/GilAir-5** [8] **LFS-113**	**Gilibrator-2** (low or standard wet)
L	**Gas Sampling Bag**		**Gas Sample Bag** (various sizes & materials)	**Bag Sampling Kit Vacuum Bottle** [6] 811-9901-01	37		**Gilibrator-2** (low or standard wet) **Gilibrator-3** (low or standard dry)
M	**Sorbent Tube**	**Solvents by ACT** (Multi)	**ACT** [4] (150 mg) 801935	**Appropriate Tube Manifold** [5]	33–35	**GilAir Plus** **Gilian 3500/5000** [7] **GilAir-3/GilAir-5** [9] **LFS-113**	**Gilibrator-2** (low or standard wet) **Gilibrator-3** (low or standard dry)
N	Special Configuration using chemically treated filters & combination media. Please call 800-451-9444 / +1 727-530-3602 for further information.						
P	Other special sampling media. Please call 800-451-9444 / +1 727-530-3602 for further information.						

Note: *Gilian 5000 pumps require Kit No.811-9901-01 for bag sampling and are limited to area sampling only.*
* *Impingers and bubblers require a liquid medium specific to the test method.*
** *PFTE Methods 5010, 5021, 5506, & 5515 us PNP GCU37200T Other PTFE methods require filter assembly. All GFF and Silver Membrane filters require assembly.*

1 See cyclone and impactor application guide for paired models, media, and pumps on page 26
2 7013376 (Dorr-Oliver/10mm Nylon) cyclone jar
3 811-9950-01-R (FSP-10)
4 See page 37 for additional selection of charcoal tubes
5 See sizing table on page 37 for various sized tube holders
6 Only needed for use with Gilian 800i and Gilian 5000 pumps
7 With Low Flow Adapter
8 With Constant Low Flow Module
9 With Constant Pressure Multi-Flow Module

DISCLAIMER: This equipment selection guide and its attached tables are provided in good faith as a general air sampling guide. The tables are based on the NIOSH Manual of Analytical Methods, 4th Edition. It is the responsibility of the user to determine if alternate test methods are available. References to NIOSH, OSHA or EPA do not imply product endorsement by those agencies.

Air Sampling Contaminant Reference Guide

Airborne Material Sampled	NIOSH Method No.	NIOSH Method Name	Sampling Flow Rate (LPM)	Sampling Volume Min	Sampling Volume Max	Analytical Technique	Sample Collection Media	Config. Code
Acenaphthene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Acenaphthylene	5506/5515	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Acetaldehyde	2538	Acetaldehyde	0.01-0.05	1	12	GC-FID	XAD-2; 2-(Hydroxymethyl) piperidine	P
Acetaldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Acetaldehyde	3507	Acetaldehyde	0.1-0.5	6	60	HPLC-Ultraviolet	Bubbler	E
Acetic acid	1603	Acetic Acid	0.01-0.1	20	300	GC-FID	Coconut Shell Charcoal Tube	K/M
Acetic anhydride	3506	Acetic Anhydride	0.2-1.0	25	100	VIS	Bubbler	E
Acetone	1300	Ketones I	0.01-0.2	0.5	3	GC-FID	Coconut Shell Charcoal Tube	K/M
Acetone cyanohydrin	2506	Acetone Cyanohydrin	0.2	0.3	12	GC-Nitrogen phosphorus detector	Poropak QS	P
Acetonitrile	1606	Acetonitrile	0.01-0.2	3	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Acetylene dichloride	1003	Hydrocarbons, Halogenated 0.01-0.2	0.01-0.2	0.2	5	GC-FID	Coconut Shell Charcoal Tube	K/M
Acetylene tetrabromide	2003	1,1,2,2-Tetrabromoethane	0.2-1.0	50	100	GC-FID	Silica Gel	P
Acetylene tetrachloride	1019	1,1,2,2-Tetrachloroethane	0.01-0.2	3.0	30	GC-FID	Petroleum Charcoal Tube	P
Acids, inorganic	7903	Acids, Inorganic	0.2-0.5	3.0	100	Ion Chromatography	Silica Gel (washed)	P
Acrolein	2501	Acrolein	0.01-0.1	1.5	48	GC-Nitrogen phosphorus detector	XAD-2; 2-(Hydroxymethyl) piperidine	P
Acrolein	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Acrylonitrile	1604	Acrylonitrile	0.01-0.2	3.5	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Aldehydes, screening	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2	P
Aldrin	5502	Aldrin & Lindane	0.2-1.0	18	240	GC-Electrolytic conductivity detector	Glass Fiber Filter & Bubbler	N
Alkaline dusts	7401	Alkaline Dusts	1-4	70	1000	Titration	PTFE	F
Allyl alcohol	1402	Alcohols Iii	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Allyl chloride	1000	Allyl Chloride	0.01-1.0	16	100	GC-FID	Coconut Shell Charcoal Tube	K/M
Allyl glycidyl ether	2545	Allyl Glycidyl Ether	0.01-0.2	1.5	8	GC-FID	Tenax	P
Allyl trichloride	1003	Hydrocarbons, Halogenated	0.01-0.2	2	60	GC-FID	Coconut Shell Charcoal Tube	K/M
Alumina	0500	Particulates N.O.R.	1-2	7	133	Grav	Polyvinyl Chloride Filter, tared	B
Aluminum	7300	Elements By Icp	1-4	5	100	ICP-AES	Mixed Cellulose Ester Filter	A
Aluminum	7013	Aluminum & Cpds, As Al	1-3	10	400	Flame AAS	Mixed Cellulose Ester Filter	A
Amines, aliphatic	2010	Amines, Aliphatic	0.01-1.0	3	30	GC-FID	Silica Gel	P
Amines, aromatic	2002	Amines, Aromatic	0.2-1.0	30	150	GC-FID	Silica Gel	P
Aminobenzene	2002	Amines, Aromatic	0.2-1.0	30	150	GC-FID	Silica Gel	P
2-Aminoethanol	2007	Aminoethanol Compounds I	0.01-0.2	4	24	GC-FID	Silica Gel	P
2-Aminoethanol	3509	Aminoethanol Compounds Ii	0.5-1.0	5	300	Ion Chromatography	Impinger	D
p-Aminophenylarsonic acid	5022	Arsenic, Organo-	1-3	50	1000	Ion Chromatography-HYAAS	PTFE	F
2-Aminotoluene	2002	Amines, Aromatic	0.02-1.0	10	150	GC-FID	Silica Gel	P
Ammonia	6015	Ammonia By Vis	0.1-0.2	0.1	90	VIS-Auto	Silica Gel + H2SO4	P
n- and sec-Amyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Aniline	2002	Amines, Aromatic	0.02-0.2	5	30	GC-FID	Silica Gel	P
Anisidine	2514	Anisidine	0.5-1.0	24	320	HPLC-Ultraviolet	XAD-2	P
Anthracene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
p-Arsanilic acid	5022	Arsenic, Organo-	1-3	50	1000	Ion Chromatography-HYAAS	PTFE	F
Arsenic	7900	Arsenic & Compounds, As As	1-3	30	1000	Flame AAS	Mixed Cellulose Ester Filter	A
Arsenic	7300	Elements By Icp	1-4	5	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Arsenic trioxide	7901	Arsenic Trioxide, As As	1-3	30	1000	GFAAS	Mixed Cellulose Ester Filter	A
Arsine	6001	Arsine	0.01-0.2	0.1	10	GFAAS	Coconut Shell Charcoal Tube	K/M
Asbestos	7400	Asbestos Fibers By Pcm	0.5-16	400	varies	Phase contrast microscopy	Mixed Cellulose Ester Filter	I
Asbestos	7402	Asbestos Fibers By Tem	0.5-16	400	varies	Transmission electron microscopy	Mixed Cellulose Ester Filter	I
Asbestos	9000	Asbestos, Chrysotile Bulk By Xrd	NA	NA	NA	X-Ray Diffraction	bulk	I
Asbestos	9002	Asbestos (Bulk) By Plm	NA	NA	NA	Polarized light microscopy	bulk	I
Aspartame	5031	Aspartame	1-3	70	1200	HPLC-Ultraviolet	PTFE	F
Azelaic acid	5019	Azelaic Acid	1-3	200	1000	GC-FID	Polyvinyl Chloride Filter	B
Azinphos methyl	5600	Organophosphorus Pesticides	0.2-1.0	12	240	GC-Flame photometric detector	OVS-2	P
B[a]P	5506/5515	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Barium	7056	Barium, Soluble Compounds	1-4	50	2000	Flame AAS	Mixed Cellulose Ester Filter	A
Benz(a)anthracene	5506/5515	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Benzene	3700	Benzene By Portable Gc	> 0.02	NA	80% capac	GC	air bag	L

Guide to Abbreviations:

AAS = Atomic absorption spectrophotometry
DNPH = Dinitrophenylhydrazine HCl
FID Flame ionization detector
FL Fluorescence detector
GC Gas chromatography
Grav = Gravimetric (filter weight)
GFAAS Graphite furnace AAS (heated)
HPLC = High performance liquid chromatography
HYAAS = Hydride generation AAS
ICP-AES = Inductively coupled plasma-atomic emission spectroscopy
NA = Not Applicable
OVS-2 = OSHA versatile sampler (quartz filter / XAD-2)
PTFE = Polytetrafluoroethylene (Teflon) filter
VIS = Visible absorption spectrophotometry

Air Sampling Contaminant Reference Guide (continued)

Airborne Material Sampled	NIOSH Method No.	NIOSH Method Name	Sampling Flow Rate (LPM)	Sampling Volume Min	Max	Analytical Technique	Sample Collection Media	Config. Code
Benzene	1501	Hydrocarbons, Aromatic	0.01-0.2	5	30	GC-FID	Coconut Shell Charcoal Tube	K/M
Benzene	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	2	30	GC-FID	Coconut Shell Charcoal Tube	K/M
Benzidine Dyes	5013	Dyes	1-3	150	500	HPLC-Ultraviolet	PTFE	P
Benzidine	5509	Benzidine And 3,3'-Dichlorobenzidine	0.2	20	100	HPLC-Ultraviolet	Glass Fiber Filter	G
Benzo(a)pyrene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Benzo(b)fluoranthene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Benzo(e)pyrene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Benzo(k)fluoranthene	5506;	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Benzo(ghi)perylene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Benzoyl peroxide	5009	Benzoyl Peroxide	1-3	40	400	HPLC-Ultraviolet	Mixed Cellulose Ester Filter	A
Benzyl chloride	1003	Hydrocarbons, Halogenated	0.01-0.2	6	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Beryllium	7300	Elements By Icp	1-4	1250	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Beryllium & compounds	7102	Beryllium And Cpds, As Be	1-4	25	1000	HGAAS	Mixed Cellulose Ester Filter	A
Biphenyl	2530	Diphenyl	0.01-0.5	15	30	GC-FID	Tenax GC	P
Boron carbide	7506	Boron Carbide	1.7 or 2.2	100	1000	X-Ray Diffraction	Cyclone & Polyvinyl Chloride Filter	C
Boron oxide	0500	Particulates N.O.R.	1.5-2.0	25	133	Grav	Polyvinyl Chloride Filter	B
Bromine	6011	Chlorine And Bromine	0.3-1.0	8	360	Ion Chromatography	Silver membrane filter	H
Bromoform	1003	Hydrocarbons, Halogenated	0.01-0.2	4	70	GC-FID	Coconut Shell Charcoal Tube	K/M
Bromotrifluoromethane	1017	Trifluorobromomethane	0.01-0.05	0.3	1.0	GC-FID	2 Coconut Shell Charcoal Tube	P
Bromoxynil	5010	Bromoxynil And B'octanoate	1-3	2	400	HPLC-Ultraviolet	PTFE	F
Bromoxynil octanoate	5010	Bromoxynil And B'octanoate	1-3	90	400	HPLC-Ultraviolet	PTFE	F
1,3-Butadiene	1024	1,3-Butadiene	0.01-0.5	5	25	GC-FID	Coconut Shell Charcoal Tube	K/M
2-Butanone	2500	Methyl Ethyl Ketone	0.01-0.2	1	12	GC-FID	Amb; XE-347	P
2-Butoxyethanol	1403	Alcohols Iv	0.01-0.05	2	10	GC-FID	Coconut Shell Charcoal Tube	K/M
n-, sec-, & t-Butyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
tert-Butyl alcohol	1400	Alcohols I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
n- & sec-Butyl alcohol	1401	Alcohols Ii	0.01-0.2	2	10	GC-FID	Coconut Shell Charcoal Tube	K/M
n-Butylamine	2012	N-Butylamine	0.01-1.0	2	100	GC-FID	Silica Gel + H2SO4	P
Butyl cellosolve	1403	Alcohols Iv	0.01-0.05	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Butyl glycidyl ether	1616	Butyl Glycidyl Ether	0.01-0.2	15	30	GC-FID	Coconut Shell Charcoal Tube	K/M
n-Butyl mercaptan	2542	Mercaptans	0.1-0.2	10	150	GC-Flame photometric detector	Glass Fiber Filter; HgAc	N
p-tert-Butyltoluene	1501	Hydrocarbons, Aromatic	0.01-0.2	1	29	GC-FID	Coconut Shell Charcoal Tube	K/M
Butyraldehyde	2539	Aldehydes, Screening	0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Cadmium	7300	Elements By Icp	1-4	13	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Cadmium & compounds	7048	Cadmium And Cpds, As Cd	1-3	25	1500	Flame AAS	Mixed Cellulose Ester Filter	A
Calcium	7300	Elements By Icp	1-4	5	200	ICP-AES	Mixed Cellulose Ester Filter	A
Calcium & compounds	7020	Calcium And Cpds As Ca	1-3	20	400	Flame AAS	Mixed Cellulose Ester Filter	A
Camphor	1301	Ketones Ii	0.01-0.2	1	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Carbaryl (Sevin)	5006	Carbaryl	1-3	20	400	VIS	Glass Fiber Filter	G
Carbon black	5000	Carbon Black	1-2	30	570	Grav	Polyvinyl Chloride Filter	B
Carbon dioxide	6603	Carbon Dioxide	0.02-0.1	NA	80% capac	GC-Thermal conductivity detector	air bag	L
Carbon disulfide	1600	Carbon Disulfide	0.01-0.2	2	25	GC-Flame photometric detector	Coconut Shell Charcoal Tube & drying tube	P
Carbon tetrachloride	1003	Hydrocarbons, Halogenated	0.01-0.2	3	150	GC-FID	Coconut Shell Charcoal Tube	K/M
Chlordane	5510	Chlordane	0.5-1.0	10	200	GC-Electron capture detector	Mixed Cellulose Ester Filter & Chromosorb 102	P
Chlorinated camphene	5039	Chlorinated Camphene	0.2-1	2	30	GC-Electron capture detector	Mixed Cellulose Ester Filter	A
Chlorinated diphenyl oxide	5025	Chlorinated Diphenyl Oxide	0.5-1.5	8	200	GC-Electrolytic conductivity detector	Mixed Cellulose Ester Filter	A
Chlorinated terphenyl	5014	Chlorinated Terphenyl	1-3	100	1500	GC-Electron capture detector	Glass Fiber Filter	G
Chlorine	6011	Chlorine And Bromine	0.3-1.0	2	90	Ion Chromatography	Silver membrane filter	H
Chloroacetaldehyde	2015	Chloroacetaldehyde	0.05-0.2	3	16	GC-Electron capture detector	Silica Gel	P
Chloroacetic acid	2008	Chloroacetic Acid	0.05-0.2	1	100	Ion Chromatography	Silica Gel	P
Chlorobenzene	1003	Hydrocarbons, Halogenated	0.01-0.2	1.5	40	GC-FID	Coconut Shell Charcoal Tube	K/M
Chlorobromomethane	1003	Hydrocarbons, Halogenated	0.01-0.2	0.5	8	GC-FID	Coconut Shell Charcoal Tube	K/M
Chlorodifluoromethane	1018	Dichlorodifluoromethane	0.01-0.05	1	4	GC-FID	2Coconut Shell Charcoal Tube (lg+sm)	P
Chlorodiphenyl	5503	Polychlorobiphenyls	0.05-0.2	1	50	GC-Electron capture detector	Glass Fiber Filter & (42% & 54% Cl) Florisil	P
2-Chloroethanol	2513	Ethylene Chlorohydrin	0.01-0.2	2	35	GC-FID	Petroleum Charcoal Tube	P

Guide to Abbreviations:

AAS = Atomic absorption spectrophotometry
DNPH = Dinitrophenylhydrazine HCl
FID Flame ionization detector
FL Fluorescence detector
GC Gas chromatography
Grav = Gravimetric (filter weight)
GFAAS Graphite furnace AAS (heated)
HPLC = High performance liquid chromatography
HYAAS = Hydride generation AAS
ICP-AES = Inductively coupled plasma-atomic emission spectroscopy
NA = Not Applicable
OVS-2 = OSHA versatile sampler (quartz filter / XAD-2)
PTFE = Polytetrafluoroethylene (Teflon) filter
VIS = Visible absorption spectrophotometry

Air Sampling Contaminant Reference Guide (continued)

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Chloroform	1003	Hydrocarbons, Halogenated	0.01-0.2	1	50	GC-FID	Coconut Shell Charcoal Tube	K/M
4-Chloronitrobenzene	2005	Nitrobenzenes	0.01-1.0	1	150	GC-FID	Silica Gel	P
p-Chlorophenol	2014	P-Chlorophenol	0.05-0.2	1.5	40	HPLC-Ultraviolet	Silica Gel	P
Chloroprene	1002	§-Chloroprene	0.01-0.1	1.5	8	GC-FID	Coconut Shell Charcoal Tube	K/M
Chlorpyrifos	5600	Organophosphorus Pesticides 0.2-1.0	12	240	GC-FPD	OVS-2		P
Chromic acid	7600	Chromium, Hexavalent	1-4	8	400	VIS	Polyvinyl Chloride Filter	B
Chromic acid	7604	Chromium, Hexavalent	1-4	100	1000	Ion Chromatography	Polyvinyl Chloride Filter	B
Chromium	7024	Chromium And Cpds, As Cr	1-3	10	1000	Flame AAS	Mixed Cellulose Ester Filter	A
Chromium	7300	Elements By Icp	1-4	5	1000	ICP-AES	Mixed Cellulose Ester Filter	A
Chromium, hexavalent	7600	Chromium, Hexavalent	1-4	8	400	VIS	Polyvinyl Chloride Filter	B
Chromium, hexavalent	7604	Chromium, Hexavalent	1-4	100	1000	Ion Chromatography	Polyvinyl Chloride Filter	B
Chrysene	5506/5515	Polynuclear Aromatic H/C	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Coal tar naphtha	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Coal tar pitch volatiles	OSHA 58	Coal Tar Pitch Volatiles	1.5-2.0	480	960	Grav & HPLC-UV	Glass Fiber Filter	G
Cobalt	7300	Elements By Icp	1-4	25	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Cobalt & compounds	7027	Cobalt And Cpds, As Co	1-3	30	1500	Flame AAS	Mixed Cellulose Ester Filter	A
Copper	7300	Elements By Icp	1-4	5	1000	ICP-AES	Mixed Cellulose Ester Filter	A
Copper (dust & fume)	7029	Copper (Dust & Fumes)	1-3	50	1500	Flame AAS	Mixed Cellulose Ester Filter	A
Cresol, all isomers	2546	Cresols And Phenol	0.01-0.1	1	24	GC-FID	XAD-7	P
Crotonaldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Crotonaldehyde	3516	Crotonaldehyde	0.1-0.2	1	49	Differential Pulse Polargraphy	Bubbler	E
Cryofluorane	1018	Dichlorodifluoromethane, 1,2-Dichlorotetrafluoroethane, & Chlorodifluoromethane	0.01-0.05	1	4	GC-FID	2 Coconut Shell Charcoal Tube	P
Cumene	1501	Hydrocarbons, Aromatic	0.01-0.2	1	30	GC-FID	Coconut Shell Charcoal Tube	K/M
Cyanides	7904	Cyanides, Aerosol And Gas	0.5-1.0	10	180	Ion Specific Electrode	Mixed Cellulose Ester Filter & Bubbler	N
Cyanides	6010	Hydrogen Cyanide	0.05-0.2	0.6	90	VIS	soda lime	P
Cyanuric acid	5030	Cyanuric Acid	1-3	10	1000	HPLC-Ultraviolet	Polyvinyl Chloride Filter	B
Cyclohexane	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	2.5	5	GC-FID	Coconut Shell Charcoal Tube	K/M
Cyclohexanol	1402	Alcohols Iii	0.01-0.2	1	10	CG-FID	Coconut Shell Charcoal Tube	K/M
Cyclohexanone	1300	Ketones I	0.01-0.2	1	10	CG-FID	Coconut Shell Charcoal Tube	K/M
Cyclohexene	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	5	7	CG-FID	Coconut Shell Charcoal Tube	K/M
1,3-Cyclopentadiene	2523	1,3-Cyclopentadiene	0.01-0.05	1	5	GC-FID	Chromosorb 104; maleic anh.	P
2,4-D	5001	2,4-D And 2,4,5-T	1-3	15	200	HPLC-Ultraviolet	Glass Fiber Filter	G
Demeton	5514	Demeton	0.2-1.0	30	500	GC-Flame photometric detector	Mixed Cellulose Ester Filter & XAD-2	P
Diacetone alcohol	1402	Alcohols Iii	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
o-Dianisidine	5013	Dyes	1-3	150	500	HPLC-Ultraviolet	PTFE	P
Diatomaceous earth	7501	Silica, Amorphous	1-3	50	400	X-Ray Diffraction	Polyvinyl Chloride Filter; Cyclone	C
Diazinon	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Diazomethane	2515	Diazomethane	0.2	6	30	GC-FID	XAD-2 (coated)	P
Dibenz(a,h) anthracene	5506/5515	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID PTFE & XAD-2		P
Diborane	6006	Diborane	0.5-1.0	60	260	Plasma emission spectrometry	PTFE & Coconut Shell Charcoal Tube w/ oxidizer	P
Dibromodifluoromethane	1012	Difluorodibromomethane	0.01-0.2	2.5	10	GC-FID	2 Coconut Shell Charcoal Tube	K/M
2-Dibutylaminoethanol	2007	Aminoethanol Compounds	0.01-0.2	4	24	GC-FID	Silica Gel	P
Dibutyl phosphate	5017	Dibutyl Phosphate	1-3	50	250	GC-Flame photometric detector	PTFE	F
Dibutyl phthalate	5020	Dibutyl Phthalate & Di(2-Ethylhexyl) Phthalate	1-3	6	200	GC-FID	Mixed Cellulose Ester Filter	A
Dibutyltin bis(isooctyl mercaptoacetate)	5504	Organotin Compounds	1-1.5	50	500	HPLC; GFAAS	Glass Fiber Filter + XAD-2	P
o-Dichlorobenzene	1003	Hydrocarbons, Halogenated	0.01-0.2	1	60	GC-FID	Coconut Shell Charcoal Tube	K/M
p-Dichlorobenzene	1003	Hydrocarbons, Halogenated	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
3,3-Dichlorobenzidine	5509	Benzidine And 3,3'-Dichlorobenzidine	0.2	20	100	HPLC-Ultraviolet	Glass Fiber Filter	K/M
Dichlorodifluoromethane	1018	Dichlorodifluoromethane, 1,2-Dichlorotetrafluoroethane & Chlorodifluoromethane	0.01-0.05	1	4	GC-FID	2 Coconut Shell Charcoal Tube (lg + sm)	P
1,1-Dichloroethane	1003	Hydrocarbons, Halogenated	0.01-0.2	0.5	15	GC-FID	Coconut Shell Charcoal Tube	K/M

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FL Fluorescence detector
GC Gas chromatography
Grav = Gravimetric (filter weight)
GFAAS Graphite furnace AAS (heated)
HPLC = High performance liquid chromatography
HYAAS = Hydride generation AAS
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1,2-Dichloroethane	1003	Hydrocarbons, Halogenated	0.01-0.2	0.5	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Dichloroethyl ether	1004	Dichloroethyl Ether	0.01-1.0	2	15	GC-FID	Coconut Shell Charcoal Tube	K/M
1,2-Dichloroethylene	1003	Hydrocarbons, Halogenated	0.01-0.2	0.2	5	GC-FID	Coconut Shell Charcoal Tube	K/M
Dichlorofluoromethane	2516	Dichlorofluoromethane	0.01-0.05	0.25	3	GC-FID	2 Coconut Shell Charcoal Tube (lg)	P
1,1-Dichloro-1- nitroethane	1601	1,1-Dichloro-1-Nitroethane	0.01-1.0	1.5	15	GC-FID	Petroleum Charcoal Tube	P
1,2-Dichloropropane	1013	Propylene Dichloride	0.01-0.2	0.1	3.5	GC-Electrolytic conductivity detector	Petroleum Charcoal Tube	P
1,2-Dichlorotetra-fluoroethane	1018	Dichlorodifluoromethane, 1,2-Dichlorotetrafluoroethane (Lg + & Chlorodifluoromethane Sm)	0.01-0.05	1	4	GC-FID	2 Coconut Shell Charcoal Tube	P
Dicrotophos	5600	Organophosphorus Pesticides 0.2-1	12	240	GC-FPD	OVS-2		P
Diethanolamine	3509	Aminoethanol Compounds Ii	0.5-1.0	5	300	Ion Chromatography	Impinger	D
Diethylamine	2010	Amines, Aliphatic	0.01-1.0	3	30	GC-FID	Silica Gel	P
2-Diethylaminoethanol	2007	Aminoethanol Compounds I	0.01-0.2	4	24	GC-FID	Silica Gel	P
Diethylenetriamine	2540	Ethylenediamine, Diethylenetriamine, & Triethylenetetramine	0.01-0.1	1	20	HPLC-Ultraviolet	XAD-2 w/10% 1-naphthylisothiocyanate	P
Di-(2-ethylhexyl)	5020	Dibutyl Phthalate And Di(2-Ethylhexyl) Phthalate	1-3	10	200	GC-FID	Mixed Cellulose Ester Filter	A
Difluorodibromomethane	1012	Difluorodibromomethane	0.01-0.2	2.5	10	GC-FID	2 Coconut Shell Charcoal Tube	K/M
Difluorodichloromethane	1018	Dichlorodifluoromethane, 1,2-Dichlorotetrafluoroethane & Chlorodifluoromethane	0.01-0.05	1	4	GC-FID	2 Coconut Shell Charcoal Tube	P
Diisobutyl ketone	1300	Ketones I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Dimethylacetamide	2004	Dimethylacetamide And Dimethylformamide	0.01-1.0	15	80	GC-FID	Silica Gel	P
Dimethylamine	2010	Amines, Aliphatic	0.01-1.0	3	30	GC-FID	Silica Gel	P
N,N-Dimethylaniline	2002	Amines, Aromatic	0.02-1.0	3	30	GC-FID	Silica Gel	P
Dimethylarsinic acid	5022	Arsenic, Organo-	1-3	50	1000	Ion Chromatography-HYAAS	PTFE	F
Dimethylformamide	2004	Dimethylacetamide & Dimethylformamide	0.01-1.0	15	80	GC-FID	Silica Gel	P
1,1-Dimethylhydrazine	3515	1,1-Dimethylhydrazine	0.2-1.0	2	100	VIS	Bubbler (.1 M HCl)	E
N,N-Dimethyl-p-toluidine	2002	Amines, Aromatic	0.02-1.0	20	100	GC-FID	Silica Gel	P
Dimethyl sulfate	2524	Dimethyl Sulfate	0.01-0.2	0.25	12	GC-Electrolytic conductivity detector	Poropak P	P
Dioxane	1602	Dioxane	0.01-0.2	0.5	15	GC-FID	Coconut Shell Charcoal Tube	K/M
Diphenyl	2530	Diphenyl	0.01-0.5	15	30	GC-FID	Tenax, GC	P
Disulfoton	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Dyes- benzidine-,	5013	Dyes, Benzidine-, O-Dianisidine O-Tolidine-,	1-3	150	500	HPLC-Ultraviolet	PTFE	P
Elements	7300	Elements By Icp	1-4	varies	varies	ICP-AES	Mixed Cellulose Ester Filter	A
Endrin	5519	Endrin	0.5-1.0	12	400	GC-Electron capture detector	Mixed Cellulose Ester Filter & Chromosorb 102	P
Epichlorohydrin	1010	Epichlorohydrin	0.01-0.2	2	30	GC-FID	Coconut Shell Charcoal Tube	K/M
EPN	5012	Epn	1-2	15	700	GC-Flame photometric detector	Glass Fiber Filter	G
1,2-Epoxypropane	1612	Propylene Oxide	0.01-0.2	0.5	5	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethanol	1400	Alcohols I	0.01-0.05	0.1	1	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethanolamine	2007	Aminoethanol Compounds I	0.01-0.2	4	24	GC-FID	Silica Gel	P
Ethion; Ethoprop	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
2-Ethoxyethanol	1403	Alcohols Iv	0.01-0.05	1	6	GC-FID	Coconut Shell Charcoal Tube	K/M
2-Ethoxyethyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl acetate	1457	Ethyl Acetate	0.01-0.2	0.1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl acrylate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl amyl ketone	1301	Ketones Ii	0.01-0.2	1	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethylbenzene	1501	Hydrocarbons, Aromatic	0.01-0.2	1	24	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl bromide	1011	Ethyl Bromide	0.01-0.2	0.5	4	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl butyl ketone	1301	Ketones Ii	0.01-0.2	1	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl chloride	2519	Ethyl Chloride	0.02-0.05	0.3	3	GC-FID	2 Coconut Shell Charcoal Tube (lg)	P
Ethylene chlorohydrin	2513	Ethylene Chlorohydrin	0.01-0.2	2	35	GC-FID	Petroleum Charcoal Tube	P
Ethylenediamine	2540	Ethylenediamine, Diethylenetriamine, & Triethylenetetramine	0.01-0.1	1	20	HPLC-Ultraviolet	XAD-2 w/10% 1-naphthylisothiocyanate	P

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HPLC = High performance liquid chromatography
HYAAS = Hydride generation AAS
ICP-AES = Inductively coupled plasma-atomic emission spectroscopy
NA = Not Applicable
OVS-2 = OSHA versatile sampler (quartz filter / XAD-2)
PTFE = Polytetrafluoroethylene (Teflon) filter
VIS = Visible absorption spectrophotometry

Air Sampling Contaminant Reference Guide (continued)

Airborne Material Sampled	NIOSH Method No.	NIOSH Method Name	Sampling Flow Rate (LPM)	Sampling Volume Min	Sampling Volume Max	Analytical Technique	Sample Collection Media	Config. Code
Ethylene dibromide	1008	Ethylene Dibromide	0.02-0.2	0.1	25	GC-Electron capture detector	Coconut Shell Charcoal Tube	K/M
Ethylene dichloride	1003	Hydrocarbons, Halogenated	0.01-0.2	1	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethylene glycol dinitrate	2507	Nitroglycerin & Ethylene Glycol Dinitrate	0.2-1.0	3	100	GC-Electron capture detector	Tenax, GC	P
Ethylene oxide	1614	Ethylene Oxide	0.05-0.15	1	24	GC-Electron capture detector	Petroleum Charcoal Tube w/ HBr	P
Ethylene oxide	3702	Ethylene Oxide By Portable Gc	> 0.02	NA	80% capac	GC-Photoionization detector	air bag	P
Ethylene thiourea	5011	Ethylene Thiourea	1-3	200	800	VIS	Polyvinyl Chloride Filter or Mixed Cellulose Ester Filter	C/A
Ethylenimine	3514	Ethylenimine	0.2	1	48	HPLC-Ultraviolet	Bubbler	E
Ethyl ether	1610	Ethyl Ether	0.01-0.2	0.25	3	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl formate	1452	Ethyl Formate	0.01-0.2	0.3	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Ethyl mercaptan	2542	Mercaptans	0.1-0.2	10	150	GC-Flame photometric detector	Glass Fiber Filter; HgAc	N
Fenamiphos	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Fibrous glass	7400	Asbestos & Other Fibers By Pcm	0.5-16	400	varies	Phase contrast microscopy	Mixed Cellulose Ester Filter	A
Fluoranthene	5506/5515	Polynuclear Aromatic Hydrocarbons 2.0	200	1000	HPLC-FL/UV; GC-FID	PTFE & XAD-2		P
Fluorene	5506/5515	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Fluorides	7902	Fluorides, Aerosol & Gas	1-2	12	800	Ion Specific Electrode	Mixed Cellulose Ester Filter & pad w/ Na2CO3	N
Fluorides (sol)	7906	Fluorides By Ic	1-2	120	IC	MCEF & pad w; Na2CO3		P
Fluorides (insol)	7906	Fluorides By Ic	1-2	800	IC	MCEF & pad w; Na2CO3		P
Fluorotrichloromethane	1006	Fluorotrichloromethane	0.01-0.05	0.3	7	GC-FID	Coconut Shell Charcoal Tube (lg)	P
Fonofos	5600	Organophosphorus Pesticides	0.2-1.0	12	240	GC-Flame photometric detector	OVS-2	P
Formaldehyde	2541	Formaldehyde	0.01-0.1	1	36	GC-FID	XAD-2; 2-(Hydroxymethyl) piperidine	P
Formaldehyde	3500	Formaldehyde	0.2-1.0	1	100	VIS	PTFE & 2 Impinger	N
Formaldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Formaldehyde	5700	Formaldehyde On Dust	2	240	1050	HPLC-Ultraviolet	Inspirable Dust Sampler; Polyvinyl Chloride Filter	C
Formic acid	2011	Formic Acid	0.05-0.2	1	24	Ion Chromatography	PTFE & Silica Gel (washed)	P
Furfural	2529	Furfural	0.01-0.05	1	12	GC-FID	XAD-2; 2-(Hydroxymethyl) piperidine	P
Furfural	2539	Aldehydes, Screening	0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Furfuryl alcohol	2505	Furfuryl Alcohol	0.01-0.05	3	25	GC-FID	Poropak Q	P
Glutaraldehyde	2532	Glutaraldehyde	0.01-0.08	4	39	HPLC-Ultraviolet	Silica Gel; DNPH	P
Glycerin mist	0500	Particulates N.O.R.	1-2	7	133	Grav	Polyvinyl Chloride Filter	B
Glycidol	1608	Glycidol	0.01-1.0	5	100	GC-FID	Coconut Shell Charcoal Tube	K/M
Heptanal	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
n-Heptane	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	4	4	GC-FID	Coconut Shell Charcoal Tube	K/M
Hexachlorobutadiene	2543	Hexachlorobutadiene	0.05-0.2	1	100	GC-Electron capture detector	XAD-2	P
Hexachloro-1,3-cyclopentadiene	2518	Hexachloro-1,3- Cyclopentadiene	0.01-0.2	0.25	90	GC-Electron capture detector	2 Poropak T	P
Hexachloroethane	1003	Hydrocarbons, Halogenated	0.01-0.2	3	70	GC-FID	Coconut Shell Charcoal Tube	K/M
Hexamethylene- diisocyanate	5521	Isocyanates, Monomeric	1.0	5	500	HPLC-Electrochemical detector	Impinger	D
Hexanal	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
n-Hexane	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	4	4	GC-FID	Coconut Shell Charcoal Tube	K/M
2-Hexanone	1300	Ketones I	0.01-1.0	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Hydrazine	3503	Hydrazine	0.2-1.0	7	100	VIS	Bubbler	E
Hydrogen bromide	7903	Acids, Inorganic	0.2-0.5	3	100	Ion Chromatography	Silica Gel	P
Hydrogen chloride	7903	Acids, Inorganic	0.2-0.5	3	100	Ion Chromatography	Silica Gel	P
Hydrogen cyanide	6010	Hydrogen Cyanide	0.05-0.2	2	90	VIS	soda lime	P
Hydrogen cyanide	7904	Cyanides, Aerosol & Gas	0.5-1.0	7	100	Ion Specific Electrode	Mixed Cellulose Ester Filter	A
Hydrogen flouride	7903	Acids, Inorganic	0.2-0.5	3	100	Ion Chromatography	Silica Gel	P
Hydrogen flouride	7902	Fluorides, Aerosol & Gas	1-2	12	800	Ion Specific Electrode	Mixed Cellulose Ester Filter & pad w/ Na2CO3	N
Hydrogen flouride	7906	Fluorides By Ic	1-2	1	800	Ion Chromatography	Mixed Cellulose Ester Filter & pad w/ Na2CO3	N
Hydrogen sulfide	6013	Hydrogen Sulfide	0.1-1.5	1.2	40	Ion Chromatography	PTFE & Coconut Shell Charcoal Tube (lg)	P
Hydroquinone	5004	Hydroquinone	1-4	30	180	HPLC-Ultraviolet	Mixed Cellulose Ester Filter	A

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FID Flame ionization detector
FL Fluorescence detector
GC Gas chromatography
Grav = Gravimetric (filter weight)
GFAAS Graphite furnace AAS (heated)
HPLC = High performance liquid chromatography
HYAAS = Hydride generation AAS
ICP-AES = Inductively coupled plasma-atomic emission spectroscopy
NA = Not Applicable
OVS-2 = OSHA versatile sampler (quartz filter / XAD-2)
PTFE = Polytetrafluoroethylene (Teflon) filter
VIS = Visible absorption spectrophotometry

Air Sampling Contaminant Reference Guide (continued)

Airborne Material Sampled	NIOSH Method No.	NIOSH Method Name	Sampling Flow Rate (LPM)	Sampling Volume Min	Sampling Volume Max	Analytical Technique	Sample Collection Media	Config. Code
Indeno [1,2,3-cd] pyrene	5506/5515	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Iodine	6005	Iodine	0.5-1.0	15	225	Ion Chromatography	Coconut Shell Charcoal Tube w/ alkali	P
Iron	7300	Elements By Icp	1-4	5	100	ICP-AES	Mixed Cellulose Ester Filter	A
Isoamyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Isoamyl alcohol	1402	Alcohols Iii	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Isobutyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Isobutyl alcohol	1401	Alcohols Ii	0.01-0.2	2	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Isobutyraldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Isocyanates	5521	Isocyanates, Monomeric	1.0	5	500	HPLC-Electrochemical detector	Impinger	D
Isophorone	2508	Isophorone	0.01-1.0	2	25	GC-FID	Petroleum Charcoal Tube	P
Isopropyl acetate	1454	Isopropyl Acetate	0.02-0.2	0.1	9	GC-FID	Coconut Shell Charcoal Tube	K/M
Isopropyl alcohol	1400	Alcohols I	0.01-0.2	0.2	3	GC-FID	Coconut Shell Charcoal Tube	K/M
Isopropyl ether	1618	Isopropyl Ether	0.01-0.05	0.1	3	GC-FID	Coconut Shell Charcoal Tube	K/M
Isopropyl glycidyl ether	1620	Isopropyl Glycidyl Ether	0.01-0.2	1	30	GC-FID	Coconut Shell Charcoal Tube	K/M
Isovaleraldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Kepone	5508	Kepone	0.5-1.0	50	600	GC-Electron capture detector	Mixed Cellulose Ester Filter & Impinger	N
Kerosene	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Lead	7082	Lead By Faas	1-4	200	1500	Flame AAS	Mixed Cellulose Ester Filter	A/J
Lead	7105	Lead By Hgaas	1-4	1	1500	HGAAS	Mixed Cellulose Ester Filter	A/J
Lead	7300	Elements By Icp	1-4	1250	2000	ICP-AES	Mixed Cellulose Ester Filter	A/J
Lead sulfide	7505	Lead Sulfide	1.7 or 2.2	600	1000	X-Ray Diffraction	Cyclone & Polyvinyl Chloride Filter	C
Lindane	5502	Aldrin And Lindane	0.2-1.0	18	240	GC-Electrolytic conductivity detector	Glass Fiber Filter & Bubbler	N
Lithium	7300	Elements By Icp	1-4	100	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Lithium hydroxide	7401	Alkaline Dusts	1-4	70	1000	Titration	PTFE	F
Magnesium	7300	Elements By Icp	1-4	5	67	ICP-AES	Mixed Cellulose Ester Filter	A
Malathion	5600	Organophosphorus Pesticides	0.2-1	12	60	GC-Flame photometric detector	OVS-2	P
Maleic Anhydride	3512	Maleic Anhydride	0.2-1.5	40	500	HPLC-Ultraviolet	Bubbler	E
Manganese	7300	Elements By Icp	1-4	5	200	ICP-AES	Mixed Cellulose Ester Filter	A
MBK	1300	Ketones I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
MDI (4,4'-methylene-bisphenyl isocyanate)	5521	Isocyanates, Monomeric	1.0	5	500	HPLC-Electrochemical detector	Impinger	D
Mercury	6009	Mercury	0.15-0.25	2	100	AAS-cold	Hopcalite vap	P
Mercaptans	2542	Mercaptans	0.1-0.2	10	150	GC-Flame photometric detector	Glass Fiber Filter; HgAc	N
Mesityl oxide	1301	Ketones Ii	0.01-0.2	1	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Metals in air	7300	Elements By Icp	1-4	varies	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Methamidophos	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Methanol	2000	Methanol	0.02-0.2	1	5	GC-FID	Silica Gel	P
2-Methoxyethyl acetate	1451	Methyl Cellosolve Acetate	0.01-0.2	0.2	20	GC-FID	Coconut Shell Charcoal Tube	K/M
2-Methoxyethanol	1403	Alcohols Iv	0.01-0.05	6	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl acetate	1458	Methyl Acetate	0.01-0.2	0.2	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl acrylate	1459	Methyl Acrylate	0.01-0.2	1	5	GC-FID	Coconut Shell Charcoal Tube	K/M
Methylal	1611	Methylal	0.01-0.2	1	3	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl-(n-amyl)-ketone	1301	Ketones Ii	0.01-0.2	1	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Methylarsonic acid	5022	Arsenic, Organo-	1-3	50	1000	Ion Chromatography-HYAAS	PTFE	F
Methyl cellosolve	1403	Alcohols Iv	0.01-0.05	6	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl cellosolve acetate	1451	Methyl Cellosolve Acetate	0.01-0.2	0.2	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl chloride	1001	Methyl Chloride	0.01-0.1	0.4	3	GC-FID	2 Coconut Shell Charcoal Tube (lg + sm)	P
Methyl chloroform	1003	Hydrocarbons, Halogenated	0.01-0.2	0.1	8	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl cyanide	1606	Acetonitrile	0.01-0.2	3	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl cyclohexane	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	4	4	GC-FID	Coconut Shell Charcoal Tube	K/M
Methylcyclohexanol	1404	Methylcyclohexanol	0.01-0.2	1	15	GC-FID	Coconut Shell Charcoal Tube	K/M
Methylcyclohexanone	2521	Methylcyclohexanone	0.01-0.05	1	6	GC-FID	Poropak Q	P
Methylene chloride	1005	Methylene Chloride	0.01-0.2	0.5	2.5	GC-FID	2 Coconut Shell Charcoal Tube	K/M
4,4'-Methylenedianiline	5029	4,4'-Methylenedianiline	1-2	10	1000	HPLC-Ultraviolet	Glass Fiber Filter; H2SO4	N
Methyl ethyl ketone	2500	Methyl Ethyl Ketone	0.01-0.2	0.25	12	GC-FID	Molecular Sieve (carbon)	P
Methyl ethyl ketone peroxide	3508	Methyl Ethyl Ketone Peroxide	0.5-0.2	52	520	VIS	Impinger	D

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Air Sampling Contaminant Reference Guide (continued)

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5-Methyl-3-heptanone	1301	Ketones Ii	0.01-0.2	1	25	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl iodide	1014	Methyl Iodide	0.01-1.0	15	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl isoamyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl isobutyl carbinol	1402	Alcohols Iii	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl isobutyl ketone	1300	Ketones I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl mercaptan	2542	Mercaptans	0.1-0.2	10	150	GC-Flame photometric detector	Glass Fiber Filter; HgAc	P
Methyl methacrylate	2537	Methyl Methacrylate	0.01-0.05	1	8	GC-FID	XAD-2	P
Methyl parathion	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
alpha-Methyl styrene	1501	Hydrocarbons, Aromatic	0.01-0.2	1	30	GC-FID	Coconut Shell Charcoal Tube	K/M
Methyl tert-butyl ether	1615	Methyl Tert-Butyl Ether	0.1-0.2	2	96	GC-FID	2 Coconut Shell Charcoal Tube (lg)	P
Mevinphos	5600	Organophosphorus Pesticides	0.2-1.0	12	240	GC-Flame photometric detector	OVS-2	P
Mineral spirits	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Molybdenum	7300	Elements By Icp	1-4	5	67	ICP-AES	Mixed Cellulose Ester Filter	A
Monocrotophos	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Monomethylaniline	3511	Monomethylaniline	0.2-1.0	11	100	GC-FID	Bubbler; H2SO4	E
Monomethylhydrazine	3510	Monomethylhydrazine	0.5-1.5	3	20	VIS	Bubbler; HCl	E
Naphtha (coal tar)	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Naphthalene	1501	Hydrocarbons, Aromatic	0.01-1.0	100	200	GC-FID	Coconut Shell Charcoal Tube	K/M
Naphthalene	5506	Polynuclear Aromatic H/C	2.0	200	1000	HPLC-Ultraviolet; GC-FID	PTFE & XAD-2	P
Naphthylamines	5518	Naphthylamines	0.2-0.8	30	100	GC-FID	Glass Fiber Filter & Silica Gel	P
Nickel	7300	Elements By Icp	1-4	25	1000	ICP-AES	Mixed Cellulose Ester Filter	A
Nickel carbonyl	6007	Nickel Carbonyl	0.05-0.2	7	80	HGAAS	Coconut Shell Charcoal Tube (low Ni)	K/M
Nicotine	2544	Nicotine	1.0	60	400	GC-Nitrogen phosphorus detector	XAD-2	P
Nitric acid	7903	Acids, Inorganic	0.2-0.5	3	100	Ion Chromatography	Silica Gel (washed)	P
Nitric oxide	6014	Nitric Oxide & Nitrogen Dioxide	0.025	1.5	6	VIS	Molecular Sieve w/ Triethanolamine & oxidizer	P
p-Nitroaniline	5033	P-Nitroaniline	1-3	16	350	HPLC-Ultraviolet	Mixed Cellulose Ester Filter	A
Nitrobenzene	2005	Nitrobenzenes	0.01-1	10	150	GC-FID	Silica Gel	P
p-Nitrochlorobenzene	2005	Nitrobenzenes	0.01-1	1	150	GC-FID	Silica Gel	P
Nitroethane	2526	Nitroethane	0.01-0.05	1.5	3	GC-FID	2XAD-2	P
Nitrogen dioxide	6014	Nitric Oxide & Nitrogen Dioxide	0.025-0.2	1.5	6	VIS	Molecular Sieve w/ Triethanolamine	P
Nitroglycerin	2507	Nitroglycerin & Ethylene Glycol Dinitrate	0.2-1.0	3	100	GC-Electron capture detector	Tenax-GC	P
Nitromethane	2527	Nitromethane	0.01-0.05	1.2	3	GC-Flame photometric detector	Chromosorb 106	P
2-Nitropropane	2528	2-Nitropropane	0.01-0.05	0.1	2	GC-FID	Chromosorb 106	P
Nitrosamines	2522	Nitrosamines	0.2-2.0	15	1000	GC-TEA	Thermosorb; N	P
Nitrotoluene	2005	Nitrobenzenes	0.01-0.2	1	30	GC-FID	Silica Gel	P
Nitrous oxide	6600	Nitrous Oxide	NA	NA	80% capac	Infrared Spectrophotometry	air bag	L
Nuisance dusts	0500	Particulates N.O.R.	1-2	7	133	GRAV	Polyvinyl Chloride Filter	B
n-Octane	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	4	4	GC-FID	Coconut Shell Charcoal Tube	K/M
1-Octanethiol	2510	1-Octanethiol	0.01-0.2	1	15	GC-Flame photometric detector	Tenax GC	P
Oil mist (mineral)	5026	Oil Mist, Mineral	1-3	20	500	Infrared Spectrophotometry	Polyvinyl Chloride Filter or MCE	A/B
Organophosphorus Pesticides	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Oxygen	6601	Oxygen	NA	1	NA	Sensor	portable	P
Paraquat	5003	Paraquat	1-4	40	1000	HPLC-Ultraviolet	PTFE	F
Parathion	5600	Organophosphorus Pesticides	0.2-1.0	12	240	GC-Flame photometric detector	OVS-2	P
Particulates N.O.R.	0600	Particulates, N.O.R, Resp.	1.7 or 2.2	20	400	Grav.	Cyclone & Polyvinyl Chloride Filter	C
Pentachlorobenzene	5517	Polychlorobenzenes	0.01-0.2	3	12	GC-Electron capture detector	PTFE & XAD-2	P
Pentachloroethane	2517	Pentachloroethane	0.01-0.2	1	10	GC-Electron capture detector	Poropak R	P
Pentachlorophenol	5512	Pentachlorophenol	0.5-1.0	48	480	HPLC-Ultraviolet	Mixed Cellulose Ester Filter & Bubbler	N
Pentamidine	5032	Pentamidine Isethionate	1-2	50	1500	HPLC; FL	Polyvinyl Chloride Filter; opaque	B
n-Pentane	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.05	2	2	GC-FID	Coconut Shell Charcoal Tube	K/M

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Air Sampling Contaminant Reference Guide (continued)

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2-Pentanone	1300	Ketones I	0.01-2.0	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Petroleum ether/naphtha	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Phenol	2546	Cresols And Phenol	0.01-0.1	1	24	GC-FID	XAD-7	P
Phenyl ether	1617	Phenyl Ether	0.01-0.2	1	50	GC-FID	Coconut Shell Charcoal Tube	K/M
Phenyl ether-diphenyl mixture	2013	Phenyl Ether-Diphenyl Mixture	0.01-0.2	1	40	GC-FID	Silica Gel	P
Phenyl glycidyl ether	1619	Phenyl Glycidyl Ether	0.01-1	80	150	GC-FID	Coconut Shell Charcoal Tube	K/M
Phenylhydrazine	3518	Phenylhydrazine	0.2-1.0	25	120	VIS	Bubbler; HCl	E
Phorate	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Phosdrin (mevinphos)	5600	Organophosphorus Pesticides	0.2-1	12	480	GC-Flame photometric detector	OVS-2	P
Phosphine	6002	Phosphine	0.01-0.2	1	16	VIS	Silica Gel; Hg(CN)2	P
Phosphoric acid	7903	Acids, Inorganic	0.2-0.5	3	100	Ion Chromatography	Silica Gel (washed)	P
Phosphorus	7300	Elements By Icp	1-4	50	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Phosphorus	7905	Phosphorus	0.01-0.2	5	100	GC-Flame photometric detector	Tenax GC	P
Phosphorus trichloride	6402	Phosphorus Trichloride	0.05-0.2	11	100	VIS	Bubbler; H2O	E
Platinum	7300	Elements By Icp	1-4	13	2000	ICP-AES	Mixed Cellulose Ester Filter	A
PAH	5506	Polynuclear Aromatic H/C	2.0	200	1000	HPLC-FL; Ultraviolet	PTFE & XAD-2	P
Polyacrylate	5035	Super Absorbent Polymer	1-2	50	1500	Ion ChromatographyP or AAS	Polyvinyl Chloride Filter	B
Polychlorobiphenyl (42% & 54% Cl)	5503	Polychlorobiphenyls	0.05-0.2	1	50	GC-Electron capture detector	Glass Fiber Filter & Florisil	P
Potassium hydroxide	7401	Alkaline Dusts	1-4	70	1000	titration	PTFE	F
Propionaldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
n-Propyl acetate	1450	Esters I	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
n-Propyl alcohol	1401	Alcohols Ii	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Propylene dichloride	1013	Propylene Dichloride	0.01-0.2	0.1	3.5	GC-Electrolytic conductivity detector	Petroleum Charcoal Tube	P
Propylene oxide	1612	Propylene Oxide	0.01-0.2	0.5	5	GC-FID	Coconut Shell Charcoal Tube	K/M
Pyrene	5506	Polynuclear Aromatic Hydrocarbons	2.0	200	1000	HPLC-FL; Ultraviolet; GC-FID	PTFE & XAD-2	P
Pyrethrum	5008	Pyrethum	1-4	20	400	HPLC-Ultraviolet	Glass Fiber Filter	G
Pyridine	1613	Pyridine	0.01-1.0	18	150	GC-FID	Coconut Shell Charcoal Tube	K/M
Ribavirin	5027	Ribavirin	1-4	5	1000	HPLC-Ultraviolet	Glass Fiber Filter	G
Ronnel	5600	Organophosphorus Pesticides	0.2-1	12	60	GC-Flame photometric detector	OVS-2	P
Rotenone	5007	Rotenone	1-4	8	400	HPLC-Ultraviolet	PTFE	F
Rubber solvent	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Selenium	7300	Elements By Icp	1-4	5	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Silica, amorphous	7501	Silica, Amorphous	1.7 or 2.2	50	400	X-Ray Diffraction	Polyvinyl Chloride Filter (total) or Polyvinyl Chloride Filter & Cyclone	B/C
Silica in coal mine dust	7603	Silica In Coal Mine Dust	1.7 or 2.2	300	1000	Infrared Spectrophotometry	Cyclone & Polyvinyl Chloride Filter	C
Silica, crystalline	7601	Silica, Crystalline	1.7 or 2.2	400	800	VIS	Cyclone & MCE or Polyvinyl Chloride Filter	C
Silica, crystalline	7602	Silica, Crystalline (Ir)	1.7 or 2.2	400	800	Infrared Spectrophotometry	Cyclone, & MCE or Polyvinyl Chloride Filter	C
Silica, crystalline,	7500	Silica, Crystalline, Resp.	1.7 or 2.2	400	1000	X-Ray Diffraction	Cyclone & Polyvinyl Chloride Filter respirable	C
Silver	7300	Elements By Icp	1-4	250	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Sodium hexafluoro aluminate -	7902	Fluorides, Aerosol & Gas	1-2	12	800	Ion Specific Electrode	Mixed Cellulose Ester Filter & pad w/ Na2CO3	N
Sodium hexafluoro- aluminate	7906	Fluorides By Ic	1-2	120	800	Ion Chromatography	Mixed Cellulose Ester Filter & pad w/ Na2CO3	N
Sodium hydroxide	7401	Alkaline Dusts	1-4	70	1000	Titration	PTFE	F
Stibine	6008	Stibine	0.01-0.2	4	50	VIS	Silica Gel w/ HgCl2	P
Stoddard solvent	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Strychnine	5016	Strychnine	1-3	70	1000	HPLC-Ultraviolet	Glass Fiber Filter	G
Styrene	1501	Hydrocarbons, Aromatic	0.01-1.0	1	14	GC-FID	Coconut Shell Charcoal Tube	K/M
Sulfur dioxide	6004	Sulfur Dioxide	0.5-1.5	4	200	Ion Chromatography	Mixed Cellulose Ester Filter & Cellulose w/ Na2CO3	N
Sulfur hexafluoride	6602	Sulfur Hexafluoride	0.01-0.05	NA	80% capac	GC-Electron capture detector	air bag	L
Sulfuric acid	7903	Acids, Inorganic	0.2-0.5	3	100	Ion Chromatography	Silica Gel (washed)	P

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HPLC = High performance liquid chromatography
HYAAS = Hydride generation AAS
ICP-AES = Inductively coupled plasma-atomic emission spectroscopy
NA = Not Applicable
OVS-2 = OSHA versatile sampler (quartz filter / XAD-2)
PTFE = Polytetrafluoroethylene (Teflon) filter
VIS = Visible absorption spectrophotometry

Air Sampling Contaminant Reference Guide (continued)

Airborne Material Sampled	NIOSH Method No.	NIOSH Method Name	Sampling Flow Rate (LPM)	Sampling Volume Min	Sampling Volume Max	Analytical Technique	Sample Collection Media	Config. Code
Sulfuryl fluoride	6012	Sulfuryl Fluoride	0.05-0.1	1.3	10	Ion Chromatography	Coconut Shell Charcoal Tube (lg)	P
Sulprofos	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-Flame photometric detector	OVS-2	P
Super absorbent polymer	5035	Super Absorbent Polymer	1-3	50	1500	Ion ChromatographyP or AAS	Polyvinyl Chloride Filter	B
2,4,5-T	5001	2,4-D And 2,4,5-T	1-3	15	200	HPLC-Ultraviolet	Glass Fiber Filter	G
Tellurium	7300	Elements By Icp	1-4	25	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Terbufos	5600	Organophosphorus Pesticides	0.2-1	12	240	GC-FID	OVS-2	P
o-Terphenyl	5021	O-Terphenyl	1-3	2	30	GC-FID	PTFE	F
1,1,2,2-Tetrabromoethane	2003	1,1,2,2-Tetrabromoethane	0.2-1.0	50	100	GC-FID	Silica Gel	P
Tetrabutyltin	5504	Organotin Compounds	1-1.5	50	500	HPLC; HGAAS	Glass Fiber Filter & XAD-2	P
1,2,4,5- Tetrachlorobenzene	5517	Polychlorobenzenes	0.01-0.2	3	12	GC-Electron capture detector	PTFE & XAD-2	P
1,1,2,2-Tetrachloro-2,2-difluoroethane	1016	1,1,2,2-Tetrachloro-2,2-Difluoroethane & 1,1,2,2-Tetrachloro-1,2-Difluoroethane	0.01-0.035	0.5	2	GC-FID	Coconut Shell Charcoal Tube	K/M
1,1,1,2-Tetrachloro-1,2-difluoroethane	1016	1,1,2,2-Tetrachloro-2,2-Difluoroethane & 1,1,2,2-Tetrachloro-1,2-Difluoroethane	0.01-0.035	0.5	2	GC-FID	Coconut Shell Charcoal Tube	K/M
1,1,2,2-Tetrachloroethane	1019	1,1,2,2-Tetrachloroethane	0.01-0.2	3	30	GC-FID	PCT	P
Tetrachloroethylene	1003	Hydrocarbons, Halogenated	0.01-0.2	0.2	40	GC-FID	Coconut Shell Charcoal Tube	K/M
Tetraethyl lead	2533	Tetraethyl Lead (As Pb)	0.01-1.0	30	200	GC-Photoionization detector	XAD-2	P
Tetraethyl pyrophosphate	2504	Tetraethyl Pyrophosphate	0.01-0.2	20	48	GC-Flame photometric detector	2 Chromosorb 102	P
Tetrahydrofuran	1609	Tetrahydrofuran	0.01-0.2	1	9	GC-FID	Coconut Shell Charcoal Tube	K/M
Tetramethyl lead	2534	Tetramethyl Lead (As Pb)	0.01-0.2	15	100	GC-Photoionization detector	XAD-2	P
Tetramethyl thiourea	3505	Tetramethyl Thiourea	0.2-1.0	50	250	VIS	Impinger; H2O	D
Tetranitromethane	3513	Tetranitromethane	0.5-1.0	20	250	GC-FID	Impinger; EtAc	D
Thallium	7300	Elements By Icp	1-4	25	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Thiram	5005	Thiram	1-4	10	400	HPLC-Ultraviolet	PTFE	F
Tin, organic compounds as Sn	5504	Organotin Cpds. (As Sn)	1-1.5	50	500	HPLC; HGAAS	Glass Fiber Filter & XAD-2	P
Titanium	7300	Elements By Icp	1-4	5	100	ICP-AES	Mixed Cellulose Ester Filter	A
o-Tolidine	5013	Dyes	1-3	150	500	HPLC-Ultraviolet	PTFE	P
Toluene	4000	Toluene	NA	(15 min) (8 h)	GC-FID	passive		P
Toluene	1500	Hydrocarbons, Bp 36-126¡C	0.01-0.2	2	8	GC-FID	Coconut Shell Charcoal Tube	K/M
Toluene	1501	Hydrocarbons, Aromatic	0.01-0.2	1	8	GC-FID	Coconut Shell Charcoal Tube	K/M
2,4 & 2,6-Toluenediamine	5516	2,4- & 2,6-Toluenediamine	1.0	30	500	HPLC-Ultraviolet	Impinger	D
Toluene-2,4-diisocyanate	2535	Toluene-2,4-Diisocyanate	0.2-1.0	2	170	HPLC-Ultraviolet	Glass Wool (coated)	P
Toluene-2,4-diisocyanate	5521	Isocyanates, Monomeric	1.0	5	500	HPLC-Electrochemical detector	Impinger	D
Toluene-2,6-diisocyanate	5521	Isocyanates, Monomeric	1.0	5	500	HPLC-Electrochemical detector	Impinger	D
o-Toluidine	2002	Amines, Aromatic	0.02-1.0	10	150	GC-FID	Silica Gel	P
Tribromomethane	1003	Hydrocarbons, Halogenated	0.01-0.2	4	70	GC-FID	Coconut Shell Charcoal Tube	K/M
Tributyl phosphate	5034	Tributyl Phosphate	1-3	2	100	GC-Flame photometric detector	Mixed Cellulose Ester Filter	A
Tributyltin chloride	5504	Organotin Compounds	1-1.5	50	500	HPLC; HGAAS	Glass Fiber Filter & XAD-2	P
1,2,4-Trichlorobenzene	5517	Polychlorobenzenes	0.01-0.2	3	12	GC-Electron capture detector	PTFE & XAD-2	P
1,1,2-Trichloroethane	1003	Hydrocarbons, Halogenated	0.01-0.2	2	60	GC-FID	Coconut Shell Charcoal Tube	K/M
1,1,1-Trichloroethane	1003	Hydrocarbons, Halogenated	0.01-0.2	0.1	8	GC-FID	Coconut Shell Charcoal Tube	K/M
Trichloroethylene	1022	Trichloroethylene	0.01-0.2	1	30	GC-FID	Coconut Shell Charcoal Tube	K/M
Trichloroethylene	3701	Trichloroethylene By Portable Gc	> 0.02	NA	80% capac	GC	air bag	L
Trichlorofluoromethane	1006	Fluorotrichloromethane	0.01-0.05	0.3	7	GC-FID	Coconut Shell Charcoal Tube	K/M
Trichloromethane	1003	Hydrocarbons, Halogenated	0.01-0.2	1	50	GC-FID	Coconut Shell Charcoal Tube	K/M
1,2,3-Trichloropropane	1003	Hydrocarbons, Halogenated	0.01-0.2	0.6	60	GC-FID	Coconut Shell Charcoal Tube	K/M
Trichcylohexyltin hydroxide	5504	Organotin Compounds	1-1.5	50	500	HPLC-HGAAS	Glass Fiber Filter & XAD-2	P
1,1,2-Trichloro-1,2,2-trifluoroethane	1020	1,1,2-Trichloro-1,2,2- Trifluoroethane	0.01-0.05	0.1	3	GC-FID	Coconut Shell Charcoal Tube	K/M
Triethanolamine	3509	Aminoethanol Compounds Ii	0.5-1.0	5	300	Ion Chromatography	Impinger	D
Triethylenetetramine	2540	Ethylenediamine, Diethylenetriamine, & Triethylenetetramine	0.01-0.1	1	20	HPLC-Ultraviolet	XAD-2 w/10% 1-naphthylisothiocyanate	P
Trifluorobromomethane	1017	Trifluorobromomethane	0.01-0.05	0.1	1	GC-FID	2 Coconut Shell Charcoal Tube (lg+sm)	P
Trimellitic anhydride	5036	Trimellitic Anhydride	1.5-2	400	1000	GC-FID	Polyvinyl Chloride Filter	B

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Air Sampling Contaminant Reference Guide (continued)

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2,4,7-Trinitrofluoren-9-one	5018	2,4,7-Trinitro-Fluoren-9-One	1-3	100	500	HPLC-Ultraviolet	PTFE	F
Triorthocresyl phosphate	5037	Triorthocresyl Phosphate	1-3	2	100	GC-Flame photometric detector	Mixed Cellulose Ester Filter	A
Triphenyl phosphate	5038	Triphenyl Phosphate	1-3	10	400	GC-Flame photometric detector	Mixed Cellulose Ester Filter	A
Tungsten, soluble/ insoluble	7074	Tungsten (Soluble/Insoluble)	1-4	200	1000	Flame AAS	Mixed Cellulose Ester Filter	A
Turpentine	1551	Turpentine	0.01-0.2	1	10	GC-FID	Coconut Shell Charcoal Tube	K/M
Valeraldehyde	2536	Valeraldehyde	0.01-0.04	0.5	10	GC-FID	XAD-2; 2-(Hydroxymethyl) piperidine	P
Valeraldehyde	2539	Aldehydes, Screening	0.01-0.05	5	5	GC-FID; Mass Spectrometry	XAD-2; 2-(Hydroxymethyl) piperidine	P
Vanadium	7300	Elements By Icp	1-4	5	2000	ICP-AES	Mixed Cellulose Ester Filter	A
Vanadium oxides	7504	Vanadium Oxides	1.7 or 2.2	200	1000	X-Ray Diffraction	Cyclone & Polyvinyl Chloride Filter	C
Vinyl acetate	1453	Vinyl Acetate	0.1-0.2	0.75	24	GC-FID	Molecular Sieve (carbon)	P
Vinyl benzene	1501	Hydrocarbons, Aromatic	.01-1	1	14	GC-FID	Coconut Shell Charcoal Tube	K/M
Vinyl bromide	1009	Vinyl Bromide	0.01-0.2	2	10	GC-FID	Coconut Shell Charcoal Tube (lg)	P
Vinyl chloride	1007	Vinyl Chloride	0.05	0.7	5	GC-FID	2 Coconut Shell Charcoal Tube	K/M
Vinylidene chloride	1015	Vinylidene Chloride	0.01-0.2	2.5	7	GC-FID	Coconut Shell Charcoal Tube	K/M
Vinyl toluene	1501	Hydrocarbons, Aromatic	0.01-0.2	1	24	GC-FID	Coconut Shell Charcoal Tube	K/M
VM&P naphtha	1550	Naphthas	0.01-0.2	1.3	20	GC-FID	Coconut Shell Charcoal Tube	K/M
Warfarin	5002	Warfarin	1-4	200	1000	HPLC-Ultraviolet	PTFE	F
Xylene	1501	Hydrocarbons, Aromatic	0.01-0.2	2	23	GC-FID	Coconut Shell Charcoal Tube	K/M
2,4-Xylidine	2002	Amines, Aromatic	0.02-0.2	3	20	GC-FID	Silica Gel	P
Yttrium	7300	Elements By Icp	1-4	5	1000	ICP-AES	Mixed Cellulose Ester Filter	A
Zinc and compounds	7030	Zinc And Compounds, As Zn	1-3	2	400	Flame AAS	Mixed Cellulose Ester Filter	A
Zinc	7300	Elements By Icp	1-4	5	200	ICP-AES	Mixed Cellulose Ester Filter	A
Zinc oxide	7502	Zinc Oxide	1-3	10	400	X-Ray Diffraction	Polyvinyl Chloride Filter	B
Zirconium	7300	Elements By Icp	1-4	5	200	ICP-AES	Mixed Cellulose Ester Filter	A

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Colorimetric Gas Detector Tubes

World's Finest Tubes

HazMat emergencies or routine inspection? Sensidyne's detector tubes are a quick, accurate and low-cost method for measuring a wide-range of airborne gases and vapors without waiting for laboratory analysis. Detector tubes are used with a simple-to-use handheld pump that carefully draws a precise amount of air through the detector tube. Quickly, the contents of the tube will change color if the target gas or vapor is present.

- *Low-cost sampling*
- *Quick results*
- *Flow-finish indicator*
- *Highly portable*
- *Shatterproof tubes*
- *No batteries to charge*

Over 360 Gases and Vapors from A to Xylene.

Sensidyne detector tubes are inexpensive and do not require costly laboratory analysis. **Our detector tubes are available for over 360 different gases and vapors and in many different ranges.** Reading the tube is as simple as taking the sample and reading the concentration directly off the scale printed on the tube.

The Sensidyne detector tube pump is safe to be used anywhere a hazardous substance may be found. The pump is made of durable materials rugged enough for any industrial setting yet the antibacterial grip makes it safe for clean rooms, hospitals or anywhere bacterial transfer is a concern.

First responders depend upon Sensidyne HazMat kits.

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Sensidyne offers OEM detector tube development for custom and specialty applications.

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Fixed Gas Detection Instruments

Advanced Safety for Critical Applications

SensAlert ASI Point Gas Detector

SensAlert ASI (Advanced Safety Integrity) provides enhanced protection and reliability for critical safety applications where personnel, processes, and facilities are at risk. The third-party certified SIL-2 SensAlert ASI offers reliability while remaining easy to install, commission, operate, and maintain.

Critical Protection with Global Approval

SensAlert ASI is third-party certified to IEC61508 Level 2 (SIL-2) for both hardware and software with certification to global hazardous area and performance standards. The Test-on-Demand feature with on-board gas generator provides remote functionality checks with generated gas while Predictive Sensor End-of-Life Indication provides advanced warning of impending sensor expiration.

Unmatched Versatility

SensAlert ASI is a universal instrument for toxic and combustible gas detection, and oxygen monitoring. Intrinsically safe or explosion proof installation with options for remote sensors and gassing, duct mount, and sample-draw maximize application versatility. The SensAlert ASI I.S. sensor head can be remote mounted up to 100 feet (30m) from the transmitter providing an option to position the transmitter in a personnel-accessible location while positioning the sensor closer to potential hazards.

SensAlarm Plus

SensAlarm Plus is a complete gas detection system in one enclosure. The system is fully equipped with strobe, horn, high-visibility four-digit LED Display and LCD Display / Interface. At the core of SensAlarm Plus is an advanced Intelligent Sensor platform with non-volatile memory for all key application variables and sensor data. A non-intrusive user interface enables operational customization and access to sensor life parameters, TWA alarms, calibration data and other information with date and time recording.

For more information on all gas detection products:

Web: www.Sensidyne.com
www.SensidyneGasDetection.com
Email: info@Sensidyne.com
Tel: +1 727-530-3602
Fax: +1 727-539-0550

Sample Draw System

The Sensidyne Sample Draw System samples air from remote locations pulling a sample to gas detection transmitter(s) and is offered as a diaphragm pumped or an air operated aspirator unit. It is FM approved for placement in a Class I, Division 2 Hazardous (Classified) area, and to sample from Class 1, Division 1 areas. This integral power source enhances capabilities for remote applications such as pumping stations, large laboratories, and gas hoods while significantly reducing installation costs.

Expert Service & Support

Factory Service, Repair and Calibration

Sensidyne's team of well qualified technicians at our headquarters and global service centers can quickly diagnose and repair your Gilian products to meet factory specifications. And because we design and manufacture the products we are also the repair experts. We repair not only current Sensidyne equipment, but many past models as well. You get expert knowledge and skills, from repair and calibration technicians with many years of experience. Using factory repair service ensures your product's approvals remain valid.

Sensidyne repairs each product model at flat rate prices. The repair service, regardless of the problem, also includes a complete reconditioning of the product, including replacement of any critical worn parts. All Sensidyne factory service work is backed by a six-month warranty. Quick turnaround is standard, but for those who need it even faster, we also offer emergency rush service.

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Contact Sensidyne Service for more information: Call: +1 727-530-3602 x781 or Email: Service@Sensidyne.com

Gilian Calibrators	Part Number
Gilibrator Cell Calibration	812-0501-02
Gilibrator Cell Repair*	812-0506-01
Gilibrator Cell Repair* (Includes Calibration)	812-0502-02
Gilibrator Base Repair*	812-0503-01
Gilibrator Base Repair* with Battery Replacement	812-0503-02
Gilibrator Base Evaluation	812-0504-01
Gilibrator Custom Calibration Points	812-0507-01
Gilibrator As-Found Data	812-0505-01
Dust Monitor and Portable Field Calibrator	**Part Number**
Nephelometer Calibration (NIST)	812-1001-01
GoCal Calibration (NIST)	812-9904-01
GoCal Repair* & Calibration (NIST)	812-9904-02
Challenger Calibration (NIST)	812-9907-01
Gilian Sampling Pumps	**Part Number**
Personal Sampling Pumps Repair* (battery not included)	812-9901-01
AirCon-2 Area Air Sampling Pump Repair* (battery not included)	812-9902-01
BDX-II Personal Air Sampling Pump Repair* (battery not included)	812-9903-01
Expedite Fee: The repair order may be expedited upon customer request. The equipment is moved ahead of normal repair queue and behind the previous Expedited order.	812-9905-01
Evaluation Fee: Evaluation Fee is charged when fault isolation has been performed and repair service is declined. This Fee is necessary to cover the cost of labor required in evaluation of products not repaired.	812-9906-01

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