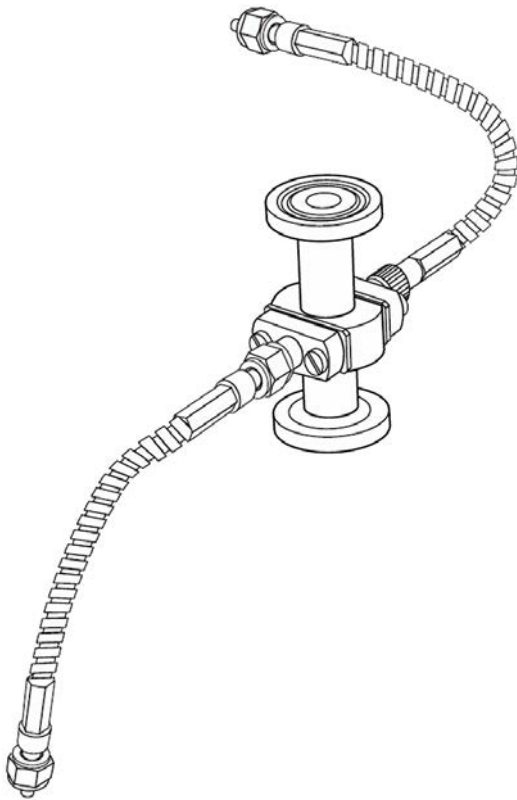


# Industrial UV Flow Cell

## Operating Instructions



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# 1 Introduction

## About this chapter

This chapter contains important user information, descriptions of safety notices, regulatory information, intended use of Industrial UV Flow Cell, and lists of associated documentation.

## In this chapter

<b>Section</b>	<b>See page</b>
1.1 About this manual	4
1.2 Important user information	5
1.3 Associated documentation	7

## 1 Introduction

### 1.1 About this manual

## 1.1 About this manual

### Purpose of this manual

The *Operating Instructions* provides you with the information needed to install, operate and maintain the product in a safe way.

### Scope of this manual

This manual is specific for 5 to 47.5 mm Industrial UV Flow Cell with housing made of PEEK or stainless steel. For specific item numbers, contact you local Cytiva representative.

Information regarding UV monitors is not covered.

### Typographical conventions

Software items are identified in the text by ***bold italic*** text.

Hardware items are identified in the text by **bold** text.

In electronic format, references in *italics* are clickable hyperlinks.

## 1.2 Important user information

### Read this before operating the product



**All users must read the entire *Operating Instructions* before installing, operating or maintaining the product.**

Always keep the *Operating Instructions* at hand when operating the product.

Do not operate the product in any other way than described in the user documentation. If you do, you may be exposed to hazards that can lead to personal injury and you may cause damage to the equipment.

### Intended use of product

The Industrial UV Flow Cell is designed for use in pilot or industrial scale liquid chromatography systems. It is made to fit high performance UV absorption detectors such as UV-900 and UVis-920. UVis-920 monitors one wavelength. With UV-900, up to three wavelengths can be monitored simultaneously.

Industrial UV Flow Cell shall not be used in any clinical procedures, or for diagnostic purposes.

The Industrial UV Flow Cell shall not be used in a potentially explosive atmosphere or for handling flammable liquids.

### Prerequisites

In order to operate Industrial UV Flow Cell safely, and according to the intended purpose, the following prerequisites must be met:

- You should be acquainted with the use of bioprocessing equipment and with the handling of biological materials.
- You must read and understand [Chapter 2 Safety Instructions, on page 8](#).
- The system must be installed according to the instructions in [Chapter 4 Installation, on page 18](#).

### Definitions

This user documentation contains safety notices (WARNING, CAUTION, and NOTICE) concerning the safe use of the product. See definitions below.

## 1 Introduction

### 1.2 Important user information



#### **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury. It is important not to proceed until all stated conditions are met and clearly understood.



#### **CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. It is important not to proceed until all stated conditions are met and clearly understood.



#### **NOTICE**

**NOTICE** indicates instructions that must be followed to avoid damage to the product or other equipment.

## Notes and tips

**Note:** *A note is used to indicate information that is important for trouble-free and optimal use of the product.*

**Tip:** *A tip contains useful information that can improve or optimize your procedures.*

## 1.3 Associated documentation

### Introduction

This section describes the user documentation that is delivered with the product, and how to find related literature that can be downloaded or ordered from Cytiva.

### Instrument-specific documentation

Instrument specific documents with regard to technical aspects of Industrial UV Flow Cell, are listed in the table below.

Document	Abbreviation	Purpose/Contents
Industrial UV Flow Cell Operating Instructions (this document)	OI	Instructions needed to install, operate and maintain Industrial UV Flow Cell in a safe way.
Material Certificate Report (delivery generated)	MCR	Material data for the instrument

## 2 Safety Instructions

### About this chapter

This chapter describes safety precautions, labels and symbols that are attached to the equipment. In addition, the chapter describes emergency and recovery procedures, and provides recycling information.

### Important



#### **WARNING**

**Before installing, operating or maintaining the product, all users must read and understand the entire contents of this chapter to become aware of the hazards involved.**

### In this chapter

<b>Section</b>	<b>See page</b>
2.1 Safety precautions	9
2.2 Labels	13

## 2.1 Safety precautions

### Introduction

Industrial UV Flow Cell handles materials that may be hazardous. Before installing, operating or maintaining the instrument, you must be aware of the hazards described in this manual.

**Follow the instructions provided to avoid personal injuries, damage to the samples, to the product, or to other personnel and equipment in the area.**

The safety precautions in this section are grouped into the following categories:

- [General precautions, on page 9](#)
- [Personal protection, on page 10](#)
- [Flammable liquids and explosive environment, on page 10](#)
- [Installing and moving the instrument, on page 11](#)
- [Operation, on page 11](#)
- [Maintenance, on page 11](#)

### General precautions



#### WARNING

**Before installing, operating or maintaining the product, all users must read and understand the entire contents of this chapter to become aware of the hazards involved.**



#### WARNING

Do not operate the product in any other way than described in the user documentation.



#### WARNING

Only properly trained personnel may operate and maintain the product.



#### NOTICE

**Keep UV flow cell clean.** Do not allow solutions containing dissolved salts, proteins or other solid solutes to dry out in the flow cell. Do not allow particles to enter the flow cell, as damage to the flow cell may occur.

## Personal protection



### WARNING

Always use appropriate Personal Protective Equipment (PPE) during operation and maintenance of this product.



### WARNING

**Hazardous substances and biological agents.** When using hazardous chemical and biological agents, take all suitable protective measures, such as wearing protective clothing, glasses and gloves resistant to the substances used. Follow local and/or national regulations for safe operation and maintenance of Industrial UV Flow Cell.



### WARNING

Wear protective glasses at all times when in the vicinity of the equipment.

## Flammable liquids and explosive environment



### WARNING

**Flammable liquids.** This product is **not approved** for handling flammable liquids.



### WARNING

**Explosive environment.** The product is **not approved** for work in a potentially explosive atmosphere, in areas classified as Zone 0 to Zone 2 according to IEC 60079-10 2002. The product does not fulfill the requirements of the ATEX Directive.

## Installing and moving the instrument



### WARNING

Only personnel authorized by Cytiva may open the cabinet doors. There is high voltage inside the cabinet that can cause human injury or death.



### CAUTION

Handle the optical fibers with care, do not bend excessively.



### CAUTION

Do not touch the tips of the optical fibers with your fingers, as this will result in poor monitor performance. If you accidentally touch the fiber tip, it can be wiped with 30% isopropanol using lens paper.

## Operation



### WARNING

**High intensity UV light.** This product uses high intensity ultra-violet light. Do not disconnect the optical fibers while the lamp is on.

## Maintenance



### WARNING

**Use only approved parts.** Only spare parts and accessories that are approved or supplied by Cytiva may be used for maintaining or servicing the product.



### WARNING

**Corrosive substance.** NaOH is corrosive and therefore dangerous to health. When using hazardous chemicals, avoid spillage and wear protective glasses and other suitable Personal Protective Equipment (PPE).

## 2 Safety Instructions

### 2.1 Safety precautions



#### **CAUTION**

Do not attempt to dry the flow cell using compressed air. Oil aerosols from the compressor will stain or damage the flow cell. The flow cell may be dried with a stream of clean nitrogen.



#### **CAUTION**

Do not touch the fiber tips with anything other than lens paper.

## 2.2 Labels

### Introduction

This section describes the label found on the product and associated equipment, and explains its meaning.

### Instrument Label

The system label is located on the side of the Industrial UV Flow Cell instrument. The system label identifies the product and shows electrical data, regulatory compliance, and warning symbols.

Text	Description
Instrument Serial Number	Identifies the unique instrument installation

# 3 Description

## About this chapter

This chapter gives an overview of the Industrial UV Flow Cell, and a brief description of its function.

## In this chapter

Section		See page
3.1	Configuration	15
3.2	Illustrations	16

## 3.1 Configuration

### Introduction

The Industrial UV Flow Cell is used for measurement of UV absorbance use in pilot or industrial scale liquid chromatography systems.

The flow cell housing is made of stainless steel or PEEK. The optical path length is adjusted with shim plates.

The O-rings in the flow cell are replaceable.

Use of Industrial UV Flow Cell together with a monitor is described in UV monitor Operating Instructions.

Note that Industrial UV Flow Cell has a flow path that is perpendicular to the optical path.

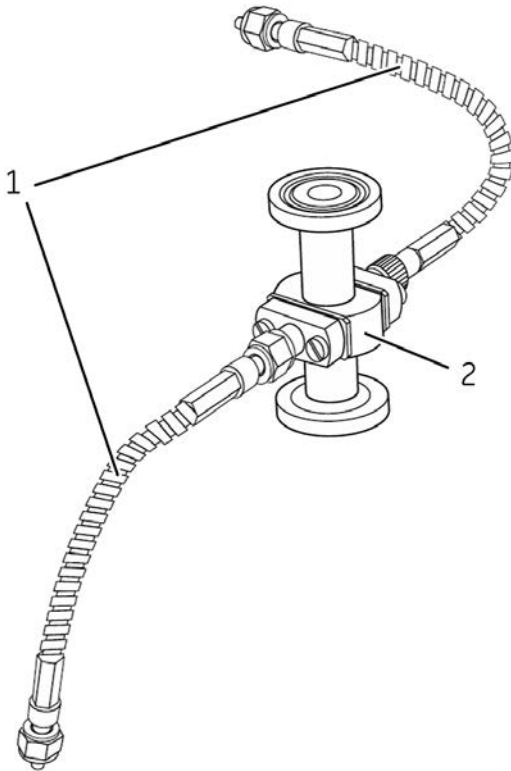
### Components and features

The Industrial UV Flow Cell features:

- Three optical path lengths: 1, 2 and 5 mm. Also possible to adjust to 3 and 4 mm.
- Operating pressure up to 20 bar (dependent on specific cell).
- Available in different diameters.
- Housing made of stainless steel or PEEK.
- O-rings made of EPDM or FPM/FKM.
- Glass lenses made of Quartz (synthetic fused silica).
- Glass lens holder made of titanium.
- Optical fibers available in two standard lengths; 200 and 500 mm.

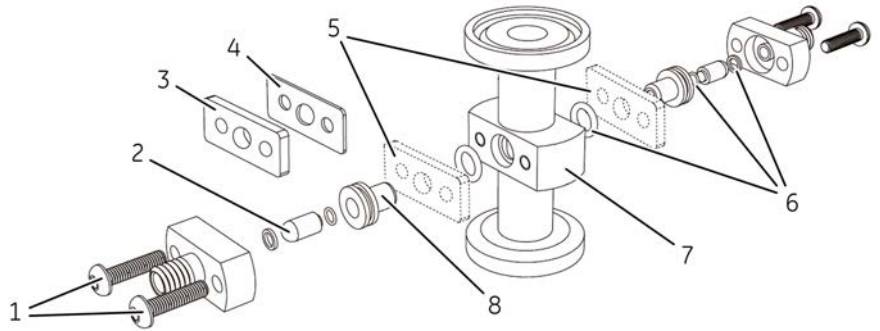
## 3.2 Illustrations

### Industrial UV Flow Cell with short optical fibers connected



Part	Function
1	Optical fibers
2	Industrial UV Flow Cell

## Exploded view of the Industrial UV Flow Cell



Part	Function
1	Attachment screws (4×)
2	Glass lens (2×)
3	Thick shim plate (2 mm)
4	Thin shim plate (0.5 mm)
5	Shim plate positions
6	O-rings (6×)
7	Flow cell housing
8	Glass lens holder (2×)

# 4 Installation

## About this chapter

The Industrial UV Flow Cell is delivered pre-installed in BioProcess™ systems, mounted in the flow path and with the optical fibers connected to the UV monitor.

## In this chapter

Section	See page
4.1 Setting the optical path length	19

## Precautions



### CAUTION

Handle the optical fibers with care, do not bend excessively.



### CAUTION

Do not touch the tips of the optical fibers with your fingers, as this will result in poor monitor performance. If you accidentally touch the fiber tip, it can be wiped with 30% isopropanol using lens paper.

## 4.1 Setting the optical path length

### Introduction

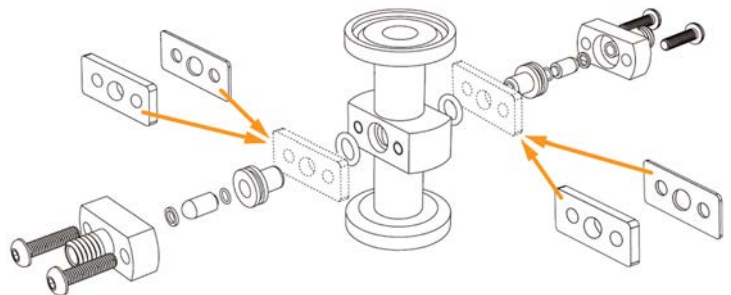
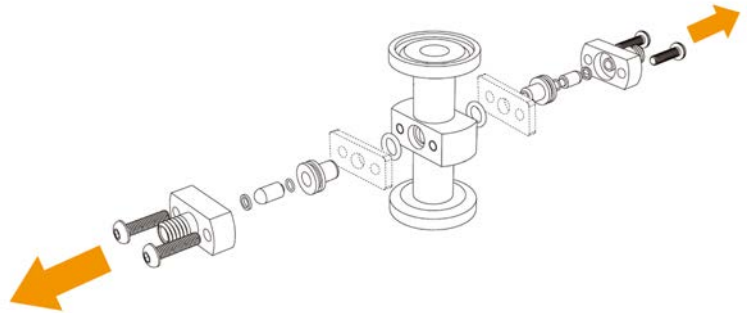
The cell is delivered with the optical path length set at 5 mm. The optical path length may be changed to either 1 mm or 2 mm by removing or changing shim plates (as described in the following section).

- For 1 mm path length, do not use any shim plates.
- For 2 mm path length, use 0.5 mm shim plates.
- For 5 mm path length (default configuration) 2 mm shim plates should be used.

**Note:** 0.5 mm shim plates are ordered separately in packs of two. For ordering information contact your local Cytiva representative.

### Changing or removing shim plates

Step	Action
1	Remove the four attachment screws on the flow cell and take it apart.
2	Remove or change the shim plates to the appropriate path length.
3	Reassemble the flow cell, using the four attachment screws.

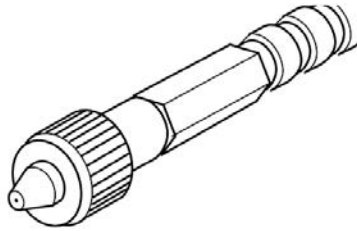


## 4 Installation

### 4.1 Setting the optical path length

## Connecting the optical fibers

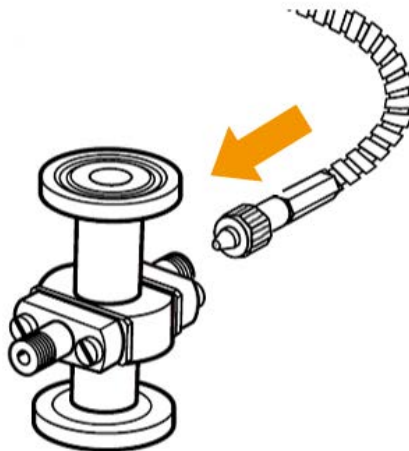
Step	Action
1	Remove the protective caps from the optical fiber connectors.
2	Identify the fiber connector with a ridged nut. This is the transmitter fiber.



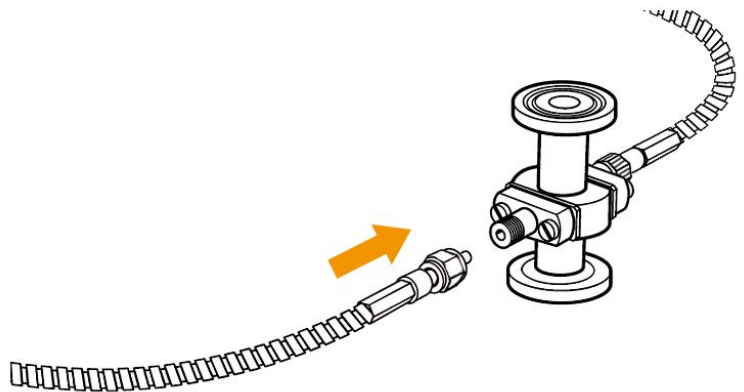
- 3 Attach the transmitter fiber connector to the flow cell by carefully inserting it into the socket and tightening the nut so it is finger tight. The connector fits only one of the two sockets.

**Note:**

*The optical fiber with the knurled nut is the transmitter fiber and must not be mixed up with the other fiber, the receiver fiber.*



Step	Action
4	Connect the receiver fiber to the empty socket on the flow cell. The other ends of the optical fibers are connected to the appropriate sockets on the UV monitor inside the electrical cabinet of the BioProcess system.



# 5 Operation

## About this chapter

This chapter provides the information required to safely operate the Industrial UV Flow Cell.

## In this chapter

Section	See page
5.1 Controlling the flow cell	23
5.2 Adjusting the optical path length	24
5.3 Storage	25

## Precautions



### **WARNING**

**High intensity UV light.** This product uses high intensity ultra-violet light. Do not disconnect the optical fibers while the lamp is on.

## 5.1 Controlling the flow cell

Refer to UV monitor Operating Instructions for a description of how to operate the monitor and connected Industrial UV Flow Cell.

## 5.2 Adjusting the optical path length

The optical length is adjusted before operation by inserting shim plates. See [Section 4.1 Setting the optical path length, on page 19](#) for a description of this procedure.

**Note:** *The pressure drop through the flow cell depends on the path length and the flow rate. See [Chapter 8 Reference information, on page 33](#) for more information.*

## 5.3 Storage

### Precautions



#### **NOTICE**

**Keep UV flow cell clean.** Do not allow solutions containing dissolved salts, proteins or other solid solutes to dry out in the flow cell. Do not allow particles to enter the flow cell, as damage to the flow cell may occur.

### Overnight storage

Fill the flow cell with buffer.

### Weekend and long term storage

Flush the flow cell with distilled water and then fill it with 20% ethanol.

# 6 Maintenance

## About this chapter

This chapter provides information to enable users and service personnel to clean, maintain, calibrate and store the Industrial UV Flow Cell.

## In this chapter

Section	See page
6.1 Periodic maintenance	27
6.2 Cleaning the flow cell in-place	28
6.3 Cleaning the flow cell off-line	29
6.4 Cleaning the optical fiber connectors	30
6.5 Changing the O-rings	31

## Precautions



### WARNING

**Use only approved parts.** Only spare parts and accessories that are approved or supplied by Cytiva may be used for maintaining or servicing the product.



### WARNING

**Corrosive substance.** NaOH is corrosive and therefore dangerous to health. When using hazardous chemicals, avoid spillage and wear protective glasses and other suitable Personal Protective Equipment (PPE).

## 6.1 Periodic maintenance

### Cleaning before planned maintenance/service

To ensure the protection and safety of service personnel, all equipment and work areas must be clean and free of any hazardous contaminants before a Service Engineer starts maintenance work.

Please complete the checklist in the *On Site Service Health and Safety Declaration Form* or the *Health and Safety Declaration Form for Product Return or Servicing*, depending on whether the instrument is going to be serviced on site or returned for service, respectively.

### User maintenance schedule

Interval	Action
Annually or as needed	Clean the flow cell and the optical fiber connectors
	Replace the O-rings

## 6.2 Cleaning the flow cell in-place

Pump a cleaning or sanitizing agent through the flow cell. The standard recommendation is to pump 1 M NaOH for 30 minutes and then wash out with buffer.



### **WARNING**

**Corrosive substance.** NaOH is corrosive and therefore dangerous to health. When using hazardous chemicals, avoid spillage and wear protective glasses and other suitable Personal Protective Equipment (PPE).



### **CAUTION**

Do not attempt to dry the flow cell using compressed air. Oil aerosols from the compressor will stain or damage the flow cell. The flow cell may be dried with a stream of clean nitrogen.

## 6.3 Cleaning the flow cell off-line

A clean flow cell and optical connectors are essential for ensuring proper operation of the UV monitor.



### NOTICE

**Keep UV flow cell clean.** Do not allow solutions containing dissolved salts, proteins or other solid solutes to dry out in the flow cell. Do not allow particles to enter the flow cell, as damage to the flow cell may occur.

Step	Action
1	Flush 10 flow cell volumes of distilled water through the flow cell.
2	Fill a syringe with a 10% surface active detergent solution (e.g., Decon™ 90, Deconex™ 11, RBS™ 25 or equivalent) and squirt through the flow cell.
3	Flush 10 flow cell volumes of the detergent solution through the flow cell.
4	Leave the last volume of the detergent solution in the flow cell for 0.5 to 2 hours.
5	Rinse the flow cell thoroughly with distilled water.

## 6 Maintenance

### 6.4 Cleaning the optical fiber connectors

## 6.4 Cleaning the optical fiber connectors

The fiber tips may be cleaned with 30% isopropanol using lens paper.



#### **CAUTION**

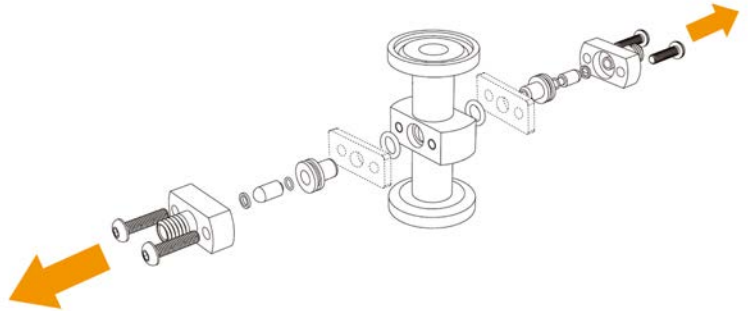
Do not touch the fiber tips with anything other than lens paper.

## 6.5 Changing the O-rings

The spare part kit includes six O-rings. Change the O-rings as follows:

Step	Action
------	--------

- |   |   |
|---|---|
| 1 | Remove the four attachment screws on the flow cell. |
|---|---|



- |   |  |
|---|--|
| 2 | Take the flow cell apart completely. Be careful when taking the glass lenses out of the holders. |
| 3 | Replace the O-rings.   |
| 4 | Reassemble the flow cell, using the four attachment screws.                                      |

# 7 Troubleshooting

## Faults and actions

If the suggested actions do not correct the fault, call Cytiva.

Fault	Possible cause	Corrective action
Noisy UV-signal, signal drift or instability	The buffer may be impure	Check with water if the signal is still noisy
	Dirt in the flow cell or fiber connectors	Clean the UV cell, see <a href="#">Section 6.2 Cleaning the flow cell in-place, on page 28</a>
	There may be air in the flow cell	Allow buffer mixtures to stabilize before use (1 to 2 h)
		If there is a lot of air in the buffer, make sure the air trap de-gas function works correctly. Refer to the system Operating instructions. Allow buffer mixtures to stabilize before use (1 to 2 h)
	Check the connections of the UV cell optical fibers.	
Ghost peaks	Air in the eluents	Make sure the air trap de-gas function works correctly. Refer to the system Operating instructions.
	Dirt or residues in the flow path from previous runs	Clean the flow cell and flow path
	Residues in the column from previous runs	Clean the column in accordance with the column instructions
	Bad mixing of the eluents	Check that the mixer is functioning correctly and that the correct chamber volume is being used
Error in external chart recorder	The recorder not properly set up	Check the chart recorder in accordance with its manual
	UV monitor is not properly set up	Check the UV monitor in accordance with its manual

# 8 Reference information

## About this chapter

This chapter lists the technical specifications of Industrial UV Flow Cell, including information about wetted materials, chemical resistance information and Health and Safety Declaration forms for service are also included.

## In this chapter

Section	See page
8.1 Technical specifications	34
8.2 Wetted materials	35
8.3 Chemical resistance	36
8.4 Example: Pressure drop through 8 mm PEEK Industrial UV Flow Cell (in bar)	37
8.5 Example: Pressure drop through 22 mm PEEK Industrial UV Flow Cell (in bar)	38
8.6 Recycling information	39
8.7 Regulatory information	40
8.8 Health and Safety Declaration Form	41

## 8.1 Technical specifications

Property	Value
Path length	1, 2 and 5 mm
Volume	Dependent on cell size and path length
Band broadening	Dependent on cell size and system configuration.
Max. pressure	Up to 2 MPa (20 bar, 290 psi)
Max. back-pressure	Typical 0.1 bar, water velocity 1.5 m/s at 25°C
Wavelength range	206 to 700 nm
Wavelength accuracy	Refer to UV monitor Operating Instructions
Wavelength precision	Refer to UV monitor Operating Instructions
Static noise Long term Short term	Refer to UV monitor Operating Instructions
Dynamic noise Long term Short term	Refer to UV monitor Operating Instructions
Linearity	Refer to UV monitor Operating Instructions
Drift	Refer to UV monitor Operating Instructions
Temperature drift	Refer to UV monitor Operating Instructions
Absorbance range	Refer to UV monitor Operating Instructions
Environment	Refer to UV monitor Operating Instructions

## 8.2 Wetted materials

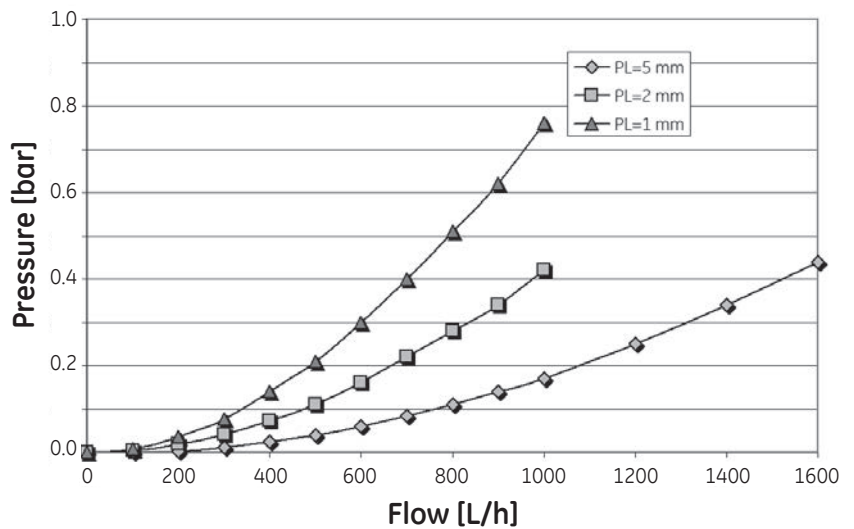
Property	Value
Wetted materials	Quartz (synthetic fused silica)
	Titanium
	PEEK (polyetheretherketone) or stainless steel (either EN 1.4404, EN 1.4432, EN 1.4435 or combinations of those).
	EPDM (ethylene propylene dieneor) or FPM/FKM (fluorinated propylene monomer)

## 8.3 Chemical resistance

Property	Value
Chemical resistance	The wetted parts are resistant to organic solvents and salt buffers commonly used in chromatography of biomolecules, except 100% ethylacetate, 100% hexane, 100% tetrahydrofuran (THF) or 15% THF in acetonitrile.

## 8.4 Example: Pressure drop through 8 mm PEEK Industrial UV Flow Cell (in bar)

Flow [L/h]	Path length (PL)		
	1 mm	2 mm	5 mm
100	0.008	0.004	0
300	0.077	0.041	0.011
600	0.300	0.160	0.060
800	0.510	0.280	0.110
1000	0.760	0.420	0.170

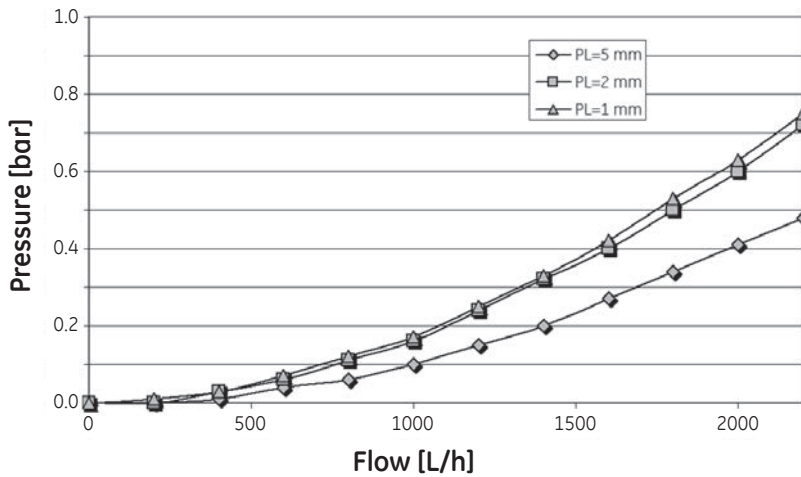


## 8 Reference information

8.5 Example: Pressure drop through 22 mm PEEK Industrial UV Flow Cell (in bar)

### 8.5 Example: Pressure drop through 22 mm PEEK Industrial UV Flow Cell (in bar)

Flow [L/h]	Path length (PL)		
	1 mm	2 mm	5 mm
200	0.001	0	0
600	0.007	0.006	0.004
1000	0.017	0.016	0.010
1600	0.042	0.040	0.027
2000	0.063	0.060	0.041



## 8.6 Recycling information

### Introduction

This section contains information about the decommissioning of the product.



#### **CAUTION**

Always use appropriate personal protective equipment when decommissioning the equipment.

### Decontamination

The product must be decontaminated before decommissioning. All local regulations must be followed with regard to scrapping of the equipment.

### Disposal of the product

When taking the product out of service, the different materials must be separated and recycled according to national and local environmental regulations.

### Recycling of hazardous substances

The product contains hazardous substances. Detailed information is available from your Cytiva representative.

## 8.7 Regulatory information

### Introduction

This section lists the directives and standards that are fulfilled by Industrial UV Flow Cell.

### Contact information for support

To find local contact information for support and sending troubleshooting reports, visit [cytiva.com/contact](https://www.cytiva.com/contact).

### Manufacturing information

The table below summarizes the required manufacturing information.

Requirement	Information
Name and address of manufacturer	Cytiva Sweden AB Björkgatan 30 SE 751 84 Uppsala Sweden
Telephone number of manufacturer	+ 46 771 400 600

### Biological and chemical compatibility

The Wetted parts of the Industrial UV Flow Cell instrument meet the material requirements of the following standards and regulations:

Requirement	Description
USP <88> Class VI	Material requirements from United States Pharmacopeia. Biological Reactivity Tests, "In Vivo".
EMA/410/01	Guidance on minimising the risk of transmitting animal spongiform encephalopathy agents via human and veterinary medicinal products. Animal origin-free material.
21 CFR 177	Indirect food additives: Polymers

## 8.8 Health and Safety Declaration Form

### On site service



### On Site Service Health & Safety Declaration Form

<b>Service Ticket #:</b>	
--------------------------	--

To make the mutual protection and safety of Cytiva service personnel and our customers, all equipment and work areas must be clean and free of any hazardous contaminants before a Service Engineer starts a repair. To avoid delays in the servicing of your equipment, complete this checklist and present it to the Service Engineer upon arrival. Equipment and/or work areas not sufficiently cleaned, accessible and safe for an engineer may lead to delays in servicing the equipment and could be subject to additional charges.

Yes	No	Review the actions below and answer "Yes" or "No". Provide explanation for any "No" answers in box below.
<input type="radio"/>	<input type="radio"/>	<b>Instrument has been cleaned of hazardous substances.</b> Rinse tubing or piping, wipe down scanner surfaces, or otherwise make sure removal of any dangerous residue. Make sure the area around the instrument is clean. If radioactivity has been used, perform a wipe test or other suitable survey.
<input type="radio"/>	<input type="radio"/>	<b>Adequate space and clearance is provided to allow safe access</b> for instrument service, repair or installation. In some cases this may require customer to move equipment from normal operating location prior to Cytiva arrival.
<input type="radio"/>	<input type="radio"/>	<b>Consumables, such as columns or gels, have been removed or isolated from the instrument and from any area that may impede access to the instrument.</b>
<input type="radio"/>	<input type="radio"/>	<b>All buffer / waste vessels are labeled.</b> <b>Excess containers have been removed from the area to provide access.</b>
<b>Provide explanation for any "No" answers here:</b>		
<b>Equipment type / Product No:</b>		<b>Serial No:</b>
I hereby confirm that the equipment specified above has been cleaned to remove any hazardous substances and that the area has been made safe and accessible.		
<b>Name:</b>		<b>Company or institution:</b>
<b>Position or job title:</b>		<b>Date (YYYY/MM/DD):</b>
<b>Signed:</b>		

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For local office contact information, visit [cytiva.com/contact](http://cytiva.com/contact).  
28980026 AD 04/2020

## Product return or servicing



## Health & Safety Declaration Form for Product Return or Servicing

<b>Return authorization number:</b>		<i>and/or</i> <b>Service Ticket/Request:</b>	
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To make sure the mutual protection and safety of Cytiva personnel, our customers, transportation personnel and our environment, all equipment must be clean and free of any hazardous contaminants before shipping to Cytiva. To avoid delays in the processing of your equipment, complete this checklist and include it with your return.

- Note that items will NOT be accepted for servicing or return without this form
- Equipment which is not sufficiently cleaned prior to return to Cytiva may lead to delays in servicing the equipment and could be subject to additional charges
- Visible contamination will be assumed hazardous and additional cleaning and decontamination charges will be applied

Yes	No	Specify if the equipment has been in contact with any of the following:
<input type="radio"/>	<input type="radio"/>	Radioactivity (specify) _____
<input type="radio"/>	<input type="radio"/>	Infectious or hazardous biological substances (specify) _____
<input type="radio"/>	<input type="radio"/>	Other Hazardous Chemicals (specify) _____

**Equipment must be decontaminated prior to service / return. Provide a telephone number where Cytiva can contact you for additional information concerning the system / equipment.**

<b>Telephone No:</b>			
<b>Liquid and/or gas in equipment is:</b>	<input type="checkbox"/>	Water	
	<input type="checkbox"/>	Ethanol	
	<input type="checkbox"/>	None, empty	
	<input type="checkbox"/>	Argon, Helium, Nitrogen	
	<input type="checkbox"/>	Liquid Nitrogen	
		<input type="checkbox"/>	Other, specify _____

<b>Equipment type / Product No:</b>		<b>Serial No:</b>	
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**I hereby confirm that the equipment specified above has been cleaned to remove any hazardous substances and that the area has been made safe and accessible.**

<b>Name:</b>		<b>Company or institution:</b>	
<b>Position or job title:</b>		<b>Date (YYYY/MM/DD)</b>	
<b>Signed:</b>			

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**To receive a return authorization number or service number, call local technical support or customer service.**

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