

Sample Injector Kit

Warranty

WPI (World Precision Instruments, Inc.) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of one year* from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

Claims and Returns

- Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within 10 days after receipt of shipment. Claims for lost shipments must be made within 30 days of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim settles. In some instances, photographic documentation may be required. Some items are time sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container.
- WPI cannot be held responsible for items damaged in shipment en route to us. Please enclose merchandise in its original shipping container to avoid damage from handling. We recommend that you insure merchandise when shipping. The customer is responsible for paying shipping expenses including adequate insurance on all items returned.
- Do not return any goods to WPI without obtaining prior approval and instructions (RMA#) from our returns department. Goods returned unauthorized or by collect freight may be refused. The RMA# must be clearly displayed on the outside of the box, or the package will not be accepted. Please contact the RMA department for a request form.
- Goods returned for repair must be reasonably clean and free of hazardous materials.
- A handling fee is charged for goods returned for exchange or credit. This fee may add up to 25% of the sale price depending on the condition of the item. Goods ordered in error are also subject to the handling fee.
- Equipment which was built as a special order cannot be returned.
- Always refer to the RMA# when contacting WPI to obtain a status of your returned item.
- For any other issues regarding a claim or return, please contact the RMA department.

Warning: This equipment is not designed or intended for use on humans.

* Electrodes, batteries and other consumable parts are warranted for 30 days only from the date on which the customer receives these items.



Sample Injector Kit

*For use with WPI's Liquid Waveguide
Capillary Cell (LWCC)*

INSTRUCTION MANUAL

Serial No. _____



World Precision Instruments, Inc.

USA

International Trade Center, 175 Sarasota Center Blvd., Sarasota FL 34240-9258
Tel: 941-371-1003 • Fax: 941-377-5428 • E-mail: sales@wpiinc.com

UK

Astonbury Farm Business Centre • Aston, Stevenage, Hertfordshire SG2 7EG
Tel: 01438-880025 • Fax: 01438-880026 • E-mail: wpiuk@wpi-europe.com

Germany

Liegnitzer Str. 15, D-10999 Berlin
Tel: 030-6188845 • Fax: 030-6188670 • E-mail: wpide@wpi-europe.com

Internet

www.wpiinc.com • www.wpi-medical.com
www.nitricoxide.net • www.pipetter.com

www.wpiinc.com

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World Precision Instruments

Sample Injector Kit



The WPI Sample Injector Kit (**Part #58006**) components are:

Sample Injector Assembly

- Teflon PFA tubing (1/32-in. ID) shaped to facilitate its introduction and withdrawal from a variety of sample vessels
- PEEK nut and ferrule fitting for attachment to the fluid input port of the LWCC

Sample Output Assembly

- Silicon tubing (1.66 mm ID x 1.66 mm wall thickness): **Part #500320**
- Polypropylene male luer fitting for attachment to the fluid outflow port of the LWCC

Refer to the LWCC Instruction Manual for detailed information describing the operation of the LWCC.

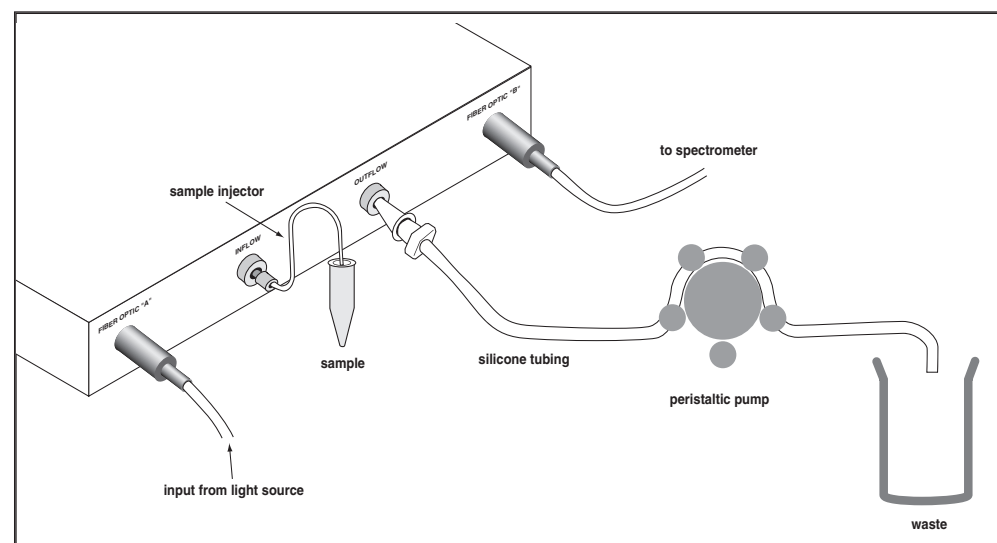
The Sample Injector Kit has been designed to minimize and, where possible, eliminate the most common problems associated with the introduction of samples into the LWCC:

- Fluid pressure fluctuations that occur with the use of a syringe,
- Cross-contamination of samples, and
- Introduction of air bubbles into the LWCC.

The use of the Sample Injector Kit, in conjunction with a pump connected to the outflow tubing of the LWCC, permits the continual draw of sample into and through the LWCC at a constant flow rate and pressure. The laminar flow of liquid thus produced eliminates the production of air bubbles often associated with the turbulent liquid flow caused by variations in syringe pressure. The replacement of the fluid input luer fitting with the PEEK nut and ferrule fitting greatly minimizes the area or “dead space” in which potential sample mixing can occur. In addition, the hydrophobic nature of the Teflon PFA tubing used for the Sample Injector Assembly minimizes sample retention and the possibility of cross-contamination when moving the tubing between one sample and another. Syringes used for sample injection are often a source of air bubbles despite repeated attempts to purge the syringe of air. The Sample Injector Assembly provides a bubble-free uptake into the LWCC due to the nature of the Teflon PFA tubing and the constant uptake pressure from the pump.

Set-up and Operation

During the set-up described below, the LWCC should be operating in a continuous scan mode. A full intensity scan indicates a filled cell free of air bubbles.



- Remove the standard luer fitting from the inflow port of the LWCC. Replace this with the Sample Injector Assembly by screwing the Peek nut into the inflow port. The loop should be positioned as shown in the diagram.
- Connect the silicon tubing from the Sample Output Assembly to the outflow port using the male luer fitting provided
- Place the open end of the Sample Injector tubing into the reference solution or de-ionized water. Turn on the pump to begin drawing sample into the LWCC. Fill the cell and outflow silicon tubing completely with this solution. Solution should be seen dripping into the waste container. **A flow rate of 2.0 mL/min was found optimal for minimizing the formation of air bubbles.**
- When moving from one sample to another, wipe off any excess liquid that remains on the end of the tubing to avoid cross-contamination.

Caution: If an air bubble is observed in the sample injector, remove it by placing a waste container under the sample injector and reversing the pump direction until the bubble is expelled.

- If the scan indicates low light, it is likely that an air bubble is trapped inside the cell. In that case, remove the silicon tubing from the *outflow port* and fill a 1-mL syringe with reference solution or de-ionized water. Inject this solution into the cell until the intensity scan reaches full range, indicating the elimination of any air bubbles. Replace the silicon tubing at the *outflow port*. Place the Sample Injector tubing back into the reference solution. Draw in at least two times the sample volume of the cell before initiating sample readings.

If stability problems cannot be resolved, contact the WPI Technical Support Group for assistance.

Maintenance

Refer to the Maintenance section of the LWCC Instruction Manual for maintenance and cleaning instructions.