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Find the *Harrick Scientific Products Cyclops* at our website: ***Click HERE***

HARRICK

Date: 10/16/98

Cyclops™

Harrick Scientific's innovative six-pass gas cell, Cyclops™, provides an intermediate pathlength of 0.421m in a low volume (0.134 l) cell. Cyclops™ has a stainless steel body which is sealed with Viton o-rings and fits conveniently into the sample compartment of most spectrometers. Two ports permit easy access to the cell for static or flow-through applications.

The beam is directed from the spectrometer into the cell via two mirrors. The beam enters the cell through a ZnSe hemispherical window and then reflects from a gold-coated mirror at the far interior of the cell to another gold-coated mirror near the entrance window. This second gold-coated mirror directs the beam back to the first gold-coated mirror and then through the ZnSe window. This optical configuration of the gas cell provides six reflections through the sample. Two additional mirrors direct the beam exiting the cell back toward the detector of the spectrometer.

INSTALLATION

To install the Cyclops™, remove any existing accessories from the sample compartment. Mount the supplied rails directly onto the floor of the compartment. Then loosen the thumb screw (on the Cyclops™) that holds the purge seals in place and slide the purge seals in to retract them. Install the Cyclops™ onto the mounting slot of the rails. Position the accessory so the spectrometer focal point is in the center of the attachment. Turn the knob near the bottom of the Cyclops ™ to hold the Cyclops ™ against the rails.

ALIGNMENT

The optical path for the Cyclops™ shown in Figure 1. The alignment procedure for this attachment follows the beam path through the accessory.

Alignment of the mirrors should be done with a visible light source, either the sample beam, visible light, or a laser. If one is not available in the sample compartment, pre-alignment of the system on an optical bench (such as our Visible Light Alignment Bench, VLB-XXX) is recommended.

1. Remove the four thumb screws from the top cover of the accessory.
2. Lift the two sections of the top cover off the base.
3. Rotate and tilt mirror M2 to direct the beam through the cell to the center of M3.
4. Rotate and tilt mirror M3 to center the beam in the purge seal aperture.
5. Reinstall the top cover and fasten it with the four thumb screws.
6. Snap the two caps off the top cover to expose the turn and tilt knobs for M2 and M3.
7. If pre-aligning the system, install the attachment into the spectrometer at this point.
8. Further rotate and tilt mirror M3 to maximize the signal on the detector.
9. Then make small adjustments to M2 and M3, in sequence, to maximize the throughput.
10. The Cyclops™ must be aligned relative to the focal point of the spectrometer. This is accomplished by moving the accessory along the beam path. Slide the unit left and

right along the rails. When the energy is maximized, turn the knob near the bottom of the accessory to clamp the Cyclops™ to the rails.

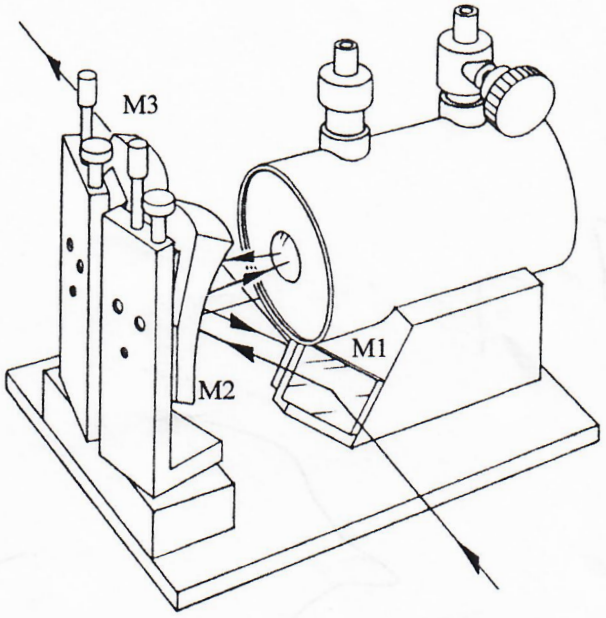


Figure 1. Schematic of the Cyclops Gas Cell.

11. Extend the purge seals by sliding them until they firmly contact the sides of the sample compartment. Tighten the thumb screw to lock them in place. Note that a purge inlet is also provided on the Cyclops™ for more complete purging of the system. This inlet should be closed off when not in use.

Proper alignment of this system is achieved when the signal on the detector is maximized.

REMOVAL AND REPLACMENT OF THE GAS CELL FOR CLEANING, O-RING REPLACEMENT AND WINDOW REPLACEMENT

Removal of the Gas Cell

1. Remove the four thumb screws from the top cover of the accessory.
2. Lift the two sections of the top cover off the base.
3. Turn the wheel below the gas cell until it disengages.
4. Lift the gas cell straight up and off of its pins.
5. Please contact the factory for detailed instructions on disassembly of the cell itself.

Replacement of the Gas Cell

1. Locate the mounting block at the rear of the gas cell over the guide pin on the optics base.
2. Lower the gas cell until it seats securely onto the mounting pins.
3. Tighten the wheel below the gas cell to secure the cell.
4. Reinstall the top cover of the accessory.

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