INSTRUCTIONS: CASELLA CAS-4 RESPIRABLE DUST CYCLONE

Introduction:

This cyclone is intended to be used with any personal sampling pump capable of drawing 2.2 liters per minute through the cyclone and your filter of choice. This includes (in so far as we are aware) all commercially available personal samplers, except those specifically designed for low flow.

At the stipulated flow rate of 2.2 liters per minute, the instrument conforms to the new U.S., U.K. and European respirable dust curve with a 50% cut point of 4μm.

Operation:

Unscrew the knurled plastic cap from the top of the cyclone and remove it together with the plenum chamber, to which the flexible hose is attached. Remove the reusable cassette (if present) and secure it with the spring clip (metal or plastic) shown in figure 1. All cassettes, both 25 and 37mm, whether conducting plastic or metal (obsolete) may be loaded in the same fashion:

1. Lay the top of the cassette face up on the bench.
2. Place the support screen into the top of the cassette.
3. Lay the filter media disk on top of the support screen. (No filter support pad is used in the cassette design).
4. Place inverted cassette bottom in position and snap assembly together.
5. Snap spring clip into position to ensure cassette stays together and is sealed against dust.

When inserting a cassette into the cyclone, remove the spring clip and insert the cassette into the top of the cyclone. It will only fit one way and on plastic cassettes you should be looking at the work "top". Now place the plenum chamber over the cassette, and screw down the knurled ring.

The cyclone is clipped to the worker's lapel and the long hose is run under the worker's arm to the personal sampler appropriately situated on the worker's waist belt.

Proceed with sampling according to your experience, regulations, or the instructions for the personal sampler being used. The procedures are the same as for a routine dust sample, except that only the respirable fraction actually reaches the filter surface. Selection of filter materials varies with different countries and regulations.

Calibration:

Attach your calibration device (rotameter or preferably a soap film meter) to the inlet tube of the cyclone with a suitable section of 1/4 inch I.D. tubing. The cyclone should be set up for normal use with a fresh filter. Turn the personal sampler on and adjust the flow rate to 2.2 liters per minute. Because of the inlet tube used on this cyclone design, the old fashioned calibration jar is no longer necessary.
Cleaning:

Unscrew knurled ring, remove cassette and replace the spring clip. Remove the grit pot by pulling it off. Dispose of its contents and clean and dry it. If you are concerned about residue in the cyclone body, the options are to blow it out with compressed air or wash it out and then blow the internal passages dry with compressed air. The cassette may be washed and dried in a similar fashion. **CAUTION: USE NO SOLVENTS. ONLY SOAPY WATER IS RECOMMENDED FOR CLEANING.**

**WARNING:** Because of the almost infinite variety of dusts which may be sampled with this device, it is not possible to give specific recommendations for cleaning. Also, it must be noted to be careful not to re-aerosolize hazardous materials when using compressed air for cleaning. Utilize good hygiene practices at all time.

References: The Casella plastic cyclone has been tested by Health and Safety Executive. The confirmatory results of their work are in report form pending journal publication.


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**Figure 1 Reusable Filter Cassette**