

TO-11 Sampling of Aldehydes with DNPH Cartridges

Please Read The Following Important Information before Starting

- *The pumps will generate heat over a 24-hour period, so they should be run with the door open unless noise is a problem.*
- *Be sure to record the Flow Rate from the Rotometer (or other flow measuring device) and the Time so EAS can calculate the sample volume. Be sure to include the units.*
- *If you have any questions please call Steve Hoyt at (805) 801-5660*

PROCEDURE:

- The sampling system is assembled and should be similar to that shown in Figure 2. The coated cartridges can be used as direct probes and traps for sampling ambient air when the temperature is above freezing. Two types of sampling systems are shown in Figure 2. For purposes of discussion, the following procedure assumes the use of a dry test meter.
- Prior to sample collection the entire assembly, including a sampling cartridge, is installed and the flow rate checked at a value near the desired rate. In general flow rates of 500-1500 mL/minute should be employed. The flow rate should be adjusted so that no more than 1000 liters of air is collected over the desired sampling period. Generally, calibration is accomplished using a soap bubble flow meter or calibrated wet tester meter connected to the flow exit, assuming the system is sealed. [Note: ASTM Method 3686 describes an appropriate calibration scheme not requiring a sealed flow system downstream of the pump.]
- Ideally a dry gas meter is included in the system to record total flow. If a dry gas meter is not available, the operator must measure and record the sampling flow rate at the beginning and end of the sampling period to determine sample volume. If the sampling period exceeds two hours, the flow rate should be measured at intermediate points during the sampling period. Ideally a rotometer should be included to allow observation of the flow rate without interruption of the sampling process.

- Using polypropylene gloves, remove the coated cartridge from the glass tube and connected to the sampling system. The cartridge should be connected to the sampling train so that its short end becomes the sample inlet. Record the following parameters on the sampling data sheet: date, sampling location, time, ambient temperature, barometric pressure (if available), relative humidity (if available), dry gas meter reading (if appropriate), flow rate, rotometer setting, cartridge batch number, and dry gas meter pump identification numbers.
- The sampler is turned on and the flow is adjusted to desire flow rate. Typical flow rate through one cartridge is 1.0 L/min.
- The sampler is allowed to operate for the desired period, with periodic recording of the variables listed above. The total flow should not exceed 1000 liters.
- At the end of the sampling period, the parameters 10.5 are recorded and the sample flow is stopped. If a dry gas meter is not used, the flow rate must be checked at the end of the sampling interval. If the flow rate at the beginning and end of the sampling period differ by more than 15% the sample should be marked as suspect.
- Immediately after sampling, remove the cartridge (using polypropylene gloved) from the sampling system. The tube is then capped, and sent to the Lab.

When Done:

Ship the cartridges in a cooler with blue ice back to Environmental Analytical Service, Inc.

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