InertSep mini AERO Cartridge Operation Manual

AERO DNPH, AERO DNPH-HR, AERO DNPH-LG, AERO Ozone Scrubber, AERO SC

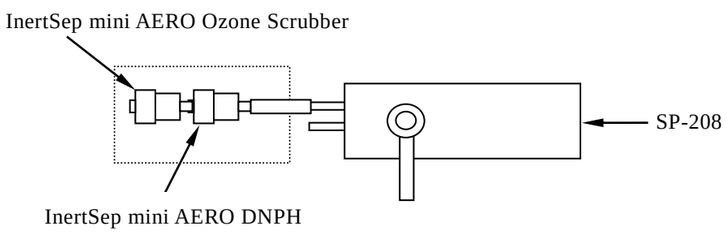
This cartridge is a superior active sampler for ventilation and trapping efficiency suitable for trapping and derivatization of aldehydes and ketones in environmental air, and it is complied with Odor control law, air pollution prevention method, EPA method. For bringing out the performance, read this operation manual.

Precautions

1. Keep unused DNPH cartridges in the refrigerator without opening the aluminum bag.
2. Necessarily keep AERO DNPH-HR cartridge in under -15 degrees C the freezer.
3. Prior to use, confirm the blank.
4. After sampling, perform extraction and analysis immediately since it is easy to be contaminated from the atmosphere.
   If the extraction work is delayed, stopper tightly the both ends of the cartridge with caps and keep it in the aluminum bag and then put it into the refrigerator.
5. When DNPH derivatization is dissolved from the DNPH cartridge, operate it at lower than 3mL/min. flow rate.
   If the flow rate was too fast, the recovery of DNPH derivatization can be worse.
6. When outside air was trapped, Ozone scrubber (packed with potassium iodide) is recommended to connect the front of DNPH cartridge to prevent ozone effect. The ozone scrubber must be kept in the aluminum bag and closed it since Potassium iodide has deliquescent.
7. When it is analyzed with GC, for removing unreacted DNPH effect, attach SC cartridge of conditioned strong cation exchange resin to the outlet of DNPH cartridge and then extract it.
   The conditioning method is refer to "Operation method -2 2.).
8. For the extraction, use of Acetonitrile for high purity analysis is recommended.
   Even HPLC grade Acetonitrile, it may have a lot of acetone, it may make high blank of acetone DNPH derivatization.

Operation method-1 (When it is used with HPLC)

1. Connect Ozone scrubber, DNPH cartridge, suction pump and flow meter, a given amount of sample is ventilated and trapped. must light shielding it with aluminum foil or etc. at sampling. (refer to fig.1) The connection or remove forms must be worked quickly, and then stopper tightly the both end of the DNPH cartridge with caps after sampling, and then keep it in the aluminum bag with a zipper and closed and put it in the refrigerator.
2. The extraction operation is to remove the both caps, extract it with 5mL Acetonitrile at 1-2mL/min. slowly with a syringe or GL-SPE manifold, and then it is test solution after measuring it up to 10mL. (refer to fig.-2)



Light shielding ※SP-208 is a sampling pump with flow meter function.

Fig.1 Sampling method

3. Operate 2 with using the unused same lot DNPH cartridge as blank test solution.
4. Analyze it with HPLC.

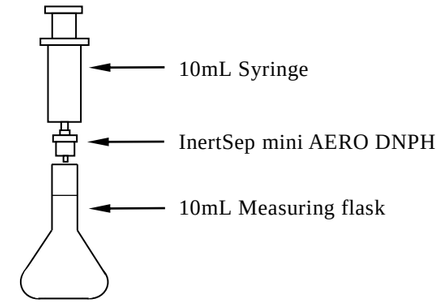


Fig-2 Extraction operation

Operation-2 (When it is analyzed with GC/FTD or GC/MS)

1. Connect Ozone scrubber, DNPH cartridge, suction pump and flow meter, a given amount of sample is ventilated and trapped. must light shielding it with aluminum foil or etc. at sampling. (refer to fig.1) The connection or remove forms must be worked quickly, and then stopper tightly the both end of the DNPH cartridge with caps after sampling, and then keep it in the aluminum bag with a zipper and closed and put it in the refrigerator.
2. Remove the caps, the SC cartridge of strong cation exchange resin which was conditioned in the order of 5mL Acetonitrile - 5mL ion exchange water - 20mL 0.1N Acidum hydrochloricum water solution - 5mL Acetonitrile, and then extract it with a syringe or GL-SPE manifold with 5mL Acetonitrile at 1-2mL/min. slowly. (refer to fig.3)

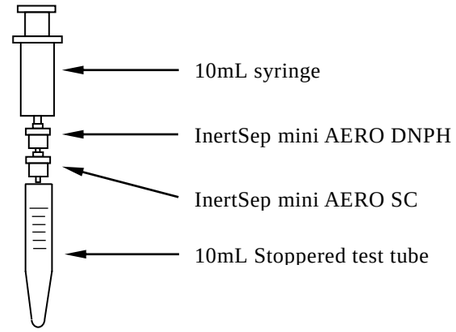


Fig-3 Extraction operation (GC/FTD and GC/MS)

3. 0.5g approx. Anhydrous sodium sulfate is added to the extracted acetonitrile and dewatered, decant off any supernatant liquid of acetonitrile to GL-SPE concentration tube.
   The settle out sodium sulfate is washed with Acetonitrile, and then mix up the supernatant liquid with the previous supernatant one.
4. Sweep nitrogen gas the extracted liquid in GL-SPE concentration tube from the top until it is concentrated to 50µL, then measuring it up to 1mL with ethyl acetate.
   If it is analyzed with GC/FTD, add 80µL (100µg/mL) diphenylamine as internal standard to be test liquid.
   If it is analyzed with GC/MS, add 80µL (10µg/mL) diphenylamine to be test liquid.
5. As blank test solution, perform the operation of 2, 3, 4 with the unused same lot DNPH cartridge.
6. Analyze it with GC/FTD or GC/MS.

GL Sciences Inc.
GL Sciences
22-1 Nishishinjuku 6-chome, Shinjuku-ku, Tokyo 163-1130, Japan
International Department TEL: +81-3-5323-6620 Fax: +81-3-5323-6621