

PARTICULATE C & N FILTRATION PROCEDURE (aka CHN)

(FOR STABLE ISOTOPES OF C and N AS WELL)

GET IT TOGETHER:

- square PP bottles for measuring sample volume
- pre-combusted 25mm GF/F filters – 450°C for 5 hours
- 25mm screw together filtration towers
- forceps
- new/clean/unused 20ml glass scint vials
- Sharpie & tape

SAMPLE COLLECTION:

- Use a square PP bottle to measure sample volume – volumes are noted on bottom of log sheet.
- Rinse bottle and cap 3 times with water from the 4L carboy.
- Fill bottle to brim and cap.
- Filter samples immediately.

SAMPLE FILTERING:

Blank Preparation:

- Place a blank pre-combusted filter (25mm GF/G) in a new/clean 20ml glass scintillation vial. Label the packet using the date and “BLANK”. Do a blank for every box of filters. Treat blanks as samples are treated.

Sample Preparation:

- Rinse 25mm filter towers with Nanopure and shake to remove excess water
- Place filter on base with tweezers; do not use fingers.
- Carefully place tower on base, do not crease filter, and twist together.
- Shake/swirl sample container, then pour seawater sample into filter funnel. If the sample bottle is filled to the brim, samples are usually the same volume.
- Turn vacuum pump on; vacuum should be around 10 mm Hg. Pump only until filter dries, do not maintain vacuum on dry filters.
- Using forceps, carefully fold filter in quarters and place in labelled 20ml glass scint vial.
- Place all vials in a deep covered Pyrex dish, put dish in fume hood with the lid on it. Place caps labeled side up on a piece of tin foil in front of the dish – use the lids as a “map” for the placement of the vials in the “acid fumer”.
- Place a 25ml beaker containing ~20ml of concentrated HCl in the centre of the pyrex dish and put the lid on. Allow to sit fuming overnight.
- Place caps in vials and place in 65°C drying oven. Do not cap tightly, just sit the caps on the vials. If you cap them or leave them in the oven too long the caps will crack.
- When dry, remove from oven, cap tightly and submit to the MSI analytical lab for analysis.

LOG EVERYTHING:

Record ALL information to log sheet. Make a note on the log sheet if any problems were encountered during filtration; i.e. a torn filter, leaking funnel - ANYTHING. Fill out entire log sheet – it may take a little time now, but it’s worth it in the long run! Check your labeling.

CLEAN EVERYTHING:

Rinse all sample bottles 3X with Nanopure.
Rinse all filter towers and frits 3x with Nanopure.