

GOLLUM round robin cylinder protocols



Upon receipt of a set of cylinders:

1. Immediately email Andrew Manning (a.manning@uea.ac.uk) to notify receipt of shipment. You now have a maximum of **5 weeks** to complete all your analyses.
2. Position the cylinders horizontally in your laboratory, preferably in a temperature-insulated environment. This **horizontal placement is a requirement** not a suggestion. Failing to do so may result in adjusting the actual O₂/N₂ ratio in the cylinder when air is taken out, thereby compromising the programme for all other participants. Also, please ensure that there are no significant heat sources near the cylinders (for example, cryo-chillers, air conditioners, heaters).
3. Remove cylinder plugs with a 5/16" Allen key. Note: these plugs have been installed both to prevent and test for leaks. A leak could be present if you have severe difficulty removing any of these plugs. In such a case, please inform Andrew Manning immediately.
4. Install regulators on the 3 cylinders, and open the cylinder to the high pressure side of the regulator.
5. Record the pressure in each cylinder.
6. Make a leak check of the CGA cylinder fitting. We prefer if this is done not only with *Snoop*, but by looking for a pressure drop (over at least **half a day** time period) on the high pressure side of the regulator (with the cylinder head valve closed).
7. If you have problems making the CGA fitting leak-tight, please **do not overtighten!** Instead, we recommend to place a small piece (one layer only) of Teflon tape on the CGA nipple, as shown in the photo.
8. After positioning horizontally, installing regulators and leak checking, wait a minimum of **5 days with the cylinders in the same lab where the analyses will take place** (with the high pressure side of the regulator at cylinder pressure) before the first analysis from the cylinders. This 5-day waiting time in the analysis lab in a horizontal position is also a **requirement** of the programme – if you do not have enough regulators available, you can observe the 5-day horizontal requirement without regulators attached.
9. After waiting 5 days, do a “pressure flush” of the regulators 4 times.
10. Each laboratory should then follow their normal procedures for analysis from a high pressure cylinder. Some workers recommend waiting an additional 24 hrs after the pressure flushes before analysis.
11. Each laboratory may conduct more than one analysis from the cylinders, but we ask that no laboratory (with the exception of Princeton University) remove more than a total of 40 Litres of air from each cylinder.
12. If a laboratory conducts more than one analysis, we encourage to do them on different days.
13. After the final analysis, remove your regulators, first noting again the cylinder pressures, and reinstall the cylinder plugs.
14. Email the next recipient (cc’ed to Andrew Manning) to confirm their shipping address, customs agent, shipping company used, and that they are ready to receive the cylinders. Ship horizontally on a pallet.
15. Send a completed Excel logsheet to Andrew Manning once you have processed your data. This should be done within 4 weeks of your analyses.

