

How to do Regeneration of GB-3

Date: 16 June 2021

1. Connect a full nitrogen gas cylinder to glove box.
2. Connect a forming gas cylinder to the regeneration knob. In general, the forming gas cylinder to the pipe connector screw will connect in anticlockwise i.e. opposite rotation compare to nitrogen gas connector.
3. Connect the regeneration gas pipe to the forming gas cylinder and regeneration out to the input of condenser. Then connect the output of condenser to the fume hood, keep the condenser in a ice bath (75% filled of the thermocol box)
4. Connect the flow meter properly and keep it vertical.
5. Turn off the box light if needed.
6. Make box pressure high to 6 mbar then turn off Analyzer and Circulation purifier.
7. Turn on the Regeneration —> Press OK —> Open forming gas cylinder and flow meter knob and maintain constant flow of gas 20 NL/min Air —>Go to PLC board and press OK —>[Turn on fume hood till forming gas flowing.]
8. Don't press END. (If you press then follow step 9)
9. If you want to go to Regeneration menu then press RKM.
10. Wait for 960 minutes or 16 hours for complete regeneration.
11. During regeneration, at step 3, flowing of gas through flow meter might get stop out don't worry regeneration will be still going on. At the last step 7, the all the step over and gas flow will over so flow meter will show zero reading. A complete regeneration consumes a whole forming gas cylinder 135Kg/sq.cm.

12. After complete regeneration you should have more than 35 ml of liquid in the condenser. If you get the same, it means your regeneration is completely done.
13. Once regeneration over, do box purging of a complete nitrogen cylinder more than 100 Kg/sq.cm. Remove forming gas cylinder and connect new nitrogen cylinder.
14. Turn on circulation purifier and wait 2 hours and then turn on Analyzer. Meanwhile measure the liquid in the condenser; you should expect more than 35 ml. Through the liquid in the fume hood and clean with water.

Regeneration details

1. Date: 15/12/2018; Kashi/Gangadhar

- Regeneration start: 6 pm (15/12/2018)
- Regeneration end: 10 am (17/12/2018)
- Problem: Flow meter Brocken and an intense bad and smell there in the lab.
- Regeneration time: 960 minutes.
- Forming gas used: $135 - 105 = 30$ kg/sq.cm
- Forming gas ramined: 105 kg/sq.cm
- After regeneration box purging of 100 kg/sq.cm of nitrogen gas.
- Water collected at the condenser equals to 17 ml
- Final $O_2 < 0.1$ ppm and $H_2O < 0.1$

2. Date: 16/03/2019; Kashi/Gangadhar

- Regeneration start: 4 pm (16/03/2019)
- Regeneration end: 10 am (17/03/2019)
- Regeneration time: 960 minutes.
- Forming gas used: $135 - 60 = 75$ kg/sq.cm
- Nitrogen gas for box purging 130kg/sq.cm.
- Water collected at the condenser equals to 57.5 ml
- Final $O_2 < 0.1$ ppm and $H_2O < 0.1$

3. Date: 26/10/2019; Kashi

- Regeneration start: 5 pm (26/10/2019)
- Regeneration end: 9 pm (27/10/2019)
- Full cylinder used 135 kg/sq.cm of forming gas.
- Liquid got = 15 ml only.
- Gas leakage was there so very bad was there.

