Ethanolamines/Glycol Ethers
In Plant Training (IPT)

Section Number :5A
Issue Number :1.2
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Ethanolamines - Water Removal
T-240

Answers:

1. **Physically locate:**
   - A. P-240 A/B
   - B. P-241 A/B
   - C. E-240
   - D. E-243
   - E. D-241
   - F. E-241
   - G. D-240
   - H. F-240 A/B
   - I. Reflux control loop
   - J. Overheads to Environmental Operations control loop
   - K. Rerun control loop
   - L. Overhead control loop
   - M. D-240 level control loop
   - N. Pressure control loop
   - O. E-244's

2. **State the function of T-240.**
   To remove water from crude amines.

3. **State the type reboiler T-240 has.**
   Forced fed, falling film reboiler.

4. **State what drives E-240.**
   235# steam.

5. **State what happens if you loose recirculation to the reboiler. State what should be done.**
   The reboiler would lose its main feed and the tubes could become fouled with baked on product. The steam to the reboiler should be blocked in when the recirculation drops off to prevent the tubes from getting fouled.

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6. **State where the condensate out of E-240 goes.**
High pressure condensate header.

7. **Explain what type trays or packing T-240 has.**
Bubble cap trays.

8. **Explain how the trays in T-240 work.**
Vapors rise - pushing up the caps, allowing the vapor to pass through the liquid level on top of the trays. The liquid travels down the tower through the downcomers.

9. **State where the reflux comes from. Is this internal or external reflux?**
Reflux comes from the P-241's which get suction from D-241 (the reflux pot). It is external reflux.

10. **State where the overheads on T-240 can go.**
    A. Back into the tower as reflux.
    B. Environmental Operations.
    C. CF-271 then back into the tower with the rerun.
    D. D-215.

11. **Explain why we send some overheads to Environmental Operations.**
To change out the water in the system.

12. **Explain what would cause you to loose the overhead flow to Environmental Operations. How would you reset it.**
When the pressure on the downstream side of the control valve to Environmental Operations is higher pressure, an air operated valve closes so that the flow doesn't back up into the line. Reset the solenoid after the pressure comes down and the valve will open again.

13. **Explain the purpose of D-241.**
Surge drum for T-240 overheads. Reflux pot - always have reflux as first priority flow.

14. **State how many feed points we have on T-240.**
Three.

15. **State where and through what the bottoms flow goes.**
The bottoms flow passes through the F-240's, the E-244's, and E-243 before making it to DV-243B.

16. **State what you do if F-240 A/B or E-244 plugs up.**
    A. F-240's - swap filters or bypass them.
    B. E-244's - bypass them till they can be repaired.
    C. If you bypass T-240 bottoms around E-244's you need to bypass T-250 feed also. Need to try to keep the pressure on both sides of the exchanger close.

17. State the purpose of E-243. Why is it important?
It cools down T-240 bottoms so that it doesn't stay hot in DV-243B. The longer it is hot the better its chances of having a higher color.

Revisions:

Revision No. 1	06-28-93	Yearly Review
Revision No. 2	12-12-94	Yearly Review
	12-12-94	Deleted #13 And Renumbered

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