

Ethanolamines/Glycol Ethers

In Plant Training (IPT)

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Issue Number :1.2
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Section Test :4B

Ethanolamines - Ammonia System T-230/E-230/D-230

Answers:

1. **Physically locate.**
 - A. P-230 A/B.
 - B. E-211.
 - C. E-230.
 - D. D-230.
 - E. T-230 level control loop.
 - F. E-230 steam control loop.
 - G. D-230 condensate control loop.
2. **State what type steam we use on E-230.**

We use flash steam from D-510 with 235# steam injected to bring the pressure up. If this is not enough we use straight 235# steam.
3. **State what the inside of T-230 is made up of.**

T-230 has trays.
4. **State where the overheads go.**

T-230 overheads goes to E-211 where it is condensed.
5. **State what the overheads is made up of.**

T-230 overheads is mostly ammonia with small amounts of water.
6. **State where the bottoms goes.**

T-230 bottoms goes to T-240 as feed.
7. **State what the bottoms flow is made up of.**

The bottoms flow is crude ethanolamines (MEA, DEA, TEA, and highers) and water. Should be no ammonia.
8. **Explain when we use the bottoms pumps.**

- At startup when the pressures are not high enough to push the flow to T-240.
9. **Explain the main function of T-230.**
To remove ammonia.
 10. **Demonstrate how to bypass T-230.**
Show out in the field.
 11. **State what type trays or packing T-230 has in it.**
Bubble cap trays.
 12. **State what type reboiler T-230 has and how it works.**
T-230 has a thermosiphon reboiler. It is positioned on the tower so that the top of the level in the tower is the same height as the top head of the reboiler. This means that when there is no heat on the reboiler the liquid level in the reboiler and the tower are the same. When heat is applied to the reboiler some of the liquid in the reboiler vaporizes lowering the level in the reboiler. When the level in the reboiler drops the level from the tower flows into the reboiler to try to equalize the levels again. This creates a circular motion through the reboiler and tower.

Revisions:

Revision No. 1	06-09-93	Yearly Review
Revision No. 2	12-09-94	Yearly Review