

Ethanolamines/Glycol Ethers

Tier 3 Procedure

Section Number :619
Issue Number :1.3
Original Date :12-17-91 Author: David Avera/Mike Viator
Revision Date :12-29-95
Title :Apparent equivalent weight and assay using buret
References :Glossary of equipment identification (text # 114)

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619. Apparent Equivalent Weight And Assay Using Buret

1.0 Objective:

1.1 To instruct the operator in this analysis and to provide consistency among all users.

2.0 Responsibility:

2.1 This responsibility falls in the hands of the person analyzing ethanolamines products for shipment.

3.0 Safety Notations:

3.1 Safety glasses are required in the lab at all times.

4.0 Procedure:

- 4.1 Draw up 1.0cc of sample using a 1.0cc disposable plastic syringe.
- 4.2 Place the syringe on the analytical balance.
- 4.3 Tare the balance by pressing the red bar on the bottom of the display panel.
- 4.4 Fill a beaker with 100 mls of deionized water.
- 4.5 Inject sample into the beaker of water. Replace syringe on the balance to record weight.
- 4.6 Place a stir bar in the solution and place beaker on the stir plate at the buret station.
- 4.7 Add 3-4 drops of bromocresol green indicator to the solution and let stir a few seconds to get complete mixture.
- 4.8 Using 1.0 n hcl, fill buret with acid. Move stir plate under buret for titration.
- 4.9 Open the stopcock to allow acid to titrate the solution.
- 4.10 Slowly titrate until the first color change. (from blue to yellow) close the stopcock.

4.11 Calculate the apparent equivalent weight as follows:

4.11.1 $Aew = \text{smpl wgt} / (\text{mls acid used} \times \text{normality of acid}) \times 1000.$

4.0 Procedure: Cont'd.

4.12 Calculate assay as follows:

4.12.1 $\text{Assay} = \text{mls hcl/smpl wgt} \times \text{normality of acid} \times \text{molecular wgt}/10.$

4.13 Molecular weights of ethanolamines products:

4.13.1 Monoethanolamines	61.08
Diethanolamines	105
Triethanolamines	149

4.14 Calculate assay for low freeze grades as follows:

4.14.1 $\text{Low Freeze Grade Assay} = \text{Molecular Weight/AEW} \times 100$

5.0 Mixing of aew standard

5.1 Refer to section 622

6.0 Revisions

			Rev
Revision No. 1	07-20-93	Yearly Review	
Revision No. 2	01-19-94	Added Section 619.5	
Revision No. 3	12-29-95	Yearly Review	