

TMT 15[®] - ANALYTICAL PROCEDURE

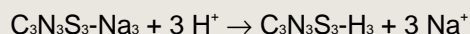
Info 3 E - Determination of the content, density and pH-value

The analysis should be performed on a clear and, if necessary, filtered sample.

1. DETERMINATION OF CONTENT

The trimercaptotriazine tri-sodium-salt (TMT-Na₃) is determined by potentiometric titration with 0.5 Mole/l sulphuric acid. 5 ml TMT 15[®] are added to a 150 ml beaker using a pipette, diluted with about 100 ml deionised water and titrated with 0.5 mole/l sulphuric acid.

The trend of the pH is measured during the titration using a pH electrode (e. g. Schott, H 61) and plotted by a chart recorder. A titration curve results with three points of inflexion, which correspond to the three necessary acid equivalents to transfer the TMT-Na₃ into the so called H-form (Diagram on page 3)



For the calculation of the content, only the first point of inflexion (at pH 10.1) and third point of inflexion (at pH 4.0) are used, since these enable the best calculation.

CALCULATION

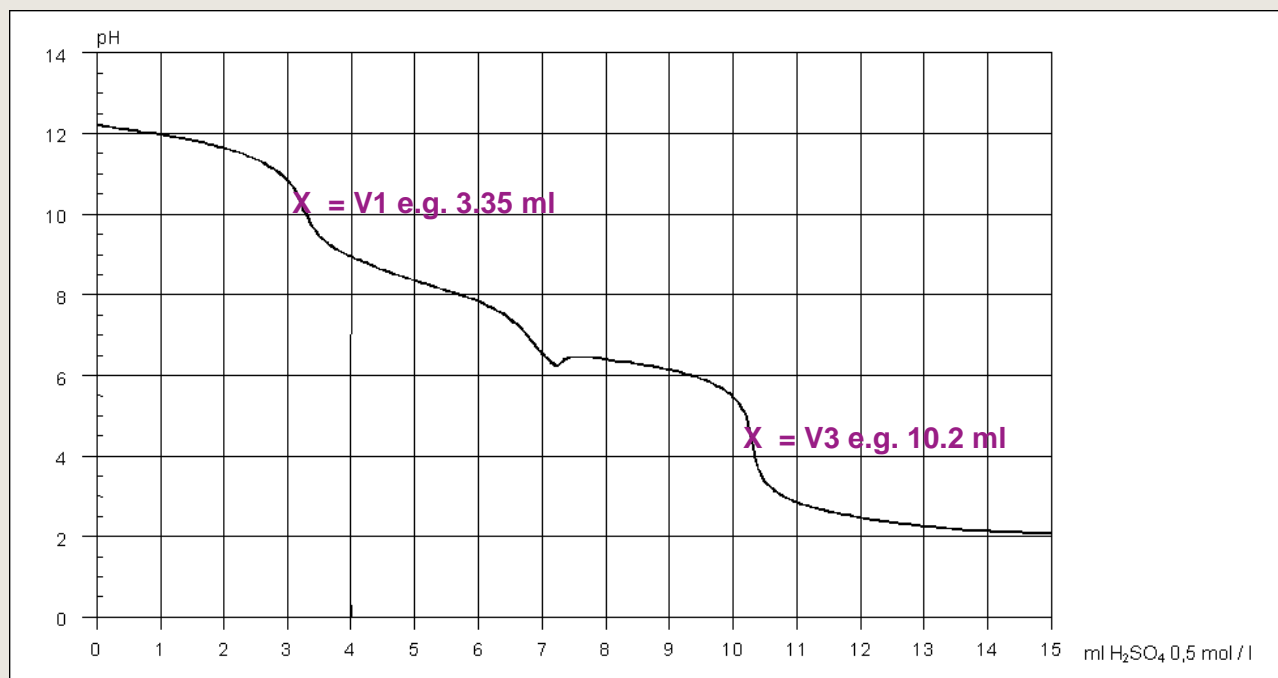
$$\frac{(V_3 - V_1) \times 243,22 \times 0,01}{D} = \% \text{TMT-Na}_3$$

- V₃ = ml 0.5 mol/l H₂SO₄ at 3rd point of inflexion (pH 4.0)
- V₁ = ml 0.5 mol/l H₂SO₄ at 1st point of inflexion (pH 10.1)
- D = Density (approx. 1.12 g/ml für TMT 15[®])
- 243.22 = molecular weight of TMT-Na₃ (g/mole)
- 0.01 = calculation factor for %

EXAMPLE FOR CALCULATION

$$\frac{(10,3 - 3,35) \times 243,22 \times 0,01}{1,12} = 15,1 \% \text{TMT-Na}_3$$

Diagram: Potentiometric Titration of TMT 15[®] with Sulfuric Acid



2. DETERMINATION OF DENSITY

The density of TMT 15[®] is measured in a 250 ml graduated cylinder using an aerometer. It is approx. 1.12 g/ml.

3. pH-VALUE

The pH of TMT 15[®] is measured using a pH-meter with a combined electrode system. The electrode is calibrated with buffer solutions (e.g. pH 7 and pH 10). The pH-value of TMT 15[®] is approx. 12.3.

Disclaimer

This information and all further technical advice are based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

Sales & Marketing
Evonik Performance Materials GmbH
Paul-Baumann-Straße 1
45772 Marl, Germany
PHONE: +49 2365 49 7653
tmt@evonik.com
www.tmt15.com

Applied Technology
Evonik Performance Materials GmbH
Rodenbacher Chaussee 4
63457 Hanau, Germany
PHONE: +49 6181 59-2854
tmt@evonik.com
www.tmt15.com