



Urea in Milk

Method: Photometric determination with diacetyl monoxime in the sample clarified with trichloroacetic acid

Reagents:

Trichloroacetic acid GR, Cat. No. 1.00807.0100
 Water GR, Cat. No. 1.16754.9010
 ortho-Phosphoric acid 85% GR, Cat. No. 1.00573.1000
 Sulfuric acid 95-97% GR, Cat. No. 1.00731.1000
 Iron(III) chloride hexahydrate GR, Cat. No. 1.03943.0250
 Diacetyl monoxime GR, Cat. No. 1.02918.0025
 Thiosemicarbazide GR, Cat. No. 1.08156.0025
 Blank cells with screw caps, Cat. No. 1.14724.0001

Trichloroacetic acid solution:

Mix 20 g of trichloroacetic acid GR and 80 ml of water GR and dissolve.

Reagent 1:

Mix 100 ml of phosphoric acid 85% GR, 100 ml of sulfuric acid 95-97% GR, and 0.45 g of iron(III) chloride hexahydrate GR and dissolve.

Reagent 2:

Mix 27 g of diacetyl monoxime GR and 0.77 g of thiosemicarbazide GR and homogenize.

Sample pretreatment:

Pipette 50 ml of milk into a 100-ml volumetric flask. With swirling add 20 ml of trichloroacetic acid solution, make up to the mark with water GR, and mix. Centrifuge this mixture for 15 minutes (4000 rpm). Also filter the supernatant through a fluted filter. The result is a slightly turbid solution; dilute this solution 1 + 49 with water GR. The total dilution is 1 + 99.

Analysis:

Mix 5 ml of the clarified and diluted solution with 2 ml of reagent 1 and 50 mg of reagent 2 and heat in the closed blank cell in a boiling water bath or the thermoreactor to 100 °C for 6 minutes. Subsequently immediately cool the blank cell to room temperature in an ice-water bath and leave to stand for 10 minutes. In the presence of urea the solution turns red. Swirl the sample and measure the absorbance at 525 nm against a blank solution prepared using the respective reagents.

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Evaluation:

Determine the concentration of urea by means of a calibration curve prepared using urea solutions of known concentrations in water.