

Determination of acidity in bread dough

Description

This application describes the determination of the acidity in bread dough and bread following the technical guideline BVL L 17.00-2. According to this technical guideline, the sample is triturated with acetone, then filled with water and titrated with sodium hydroxide solution. For most bread doughs, trituration with acetone can be omitted if the dough disperses well in water.

The result is expressed in mL NaOH 0.1M / 10g sample.

Instruments

Titration	TL 5000 or higher
Electrode	A 7780 NTC30 DIN N, A 162 2M DIN ID or similar
Stirrer	Magnetic stirrer TM 235 or similar
Lab accessory	Beaker 150 mL
	Magnetic stirrer bar 30 mm
	friction dish

Reagents

1	Sodium hydroxide – solution 0.1 mol/L
2	Acetone
3	Soda lime (CO ₂ absorbant)
4	Distilled water
All reagents should be of analytical grade or better.	

Titration procedure

Reagents

NaOH – solution 0.1 mol/L

NaOH 0.1 mol/L is available as a ready-to-use solution.

Caustic soda quickly absorbs CO₂ from the air and thus becomes unusable. The solution must therefore be protected from CO₂ with a CO₂ absorbent such as soda lime. For this purpose, a dry tube filled with soda lime is placed on the storage bottle.

The titer is determined as described in the application "Titer NaOH".

Cleaning and storage of the electrode

The electrode is cleaned with distilled water. The L300 electrolyte solution is suitable for storing the electrode.

The electrode must be calibrated regularly (weekly), e.g. with the buffers pH 4 and pH 7. Electrodes with a slope <95% must be replaced.

Sample preparation

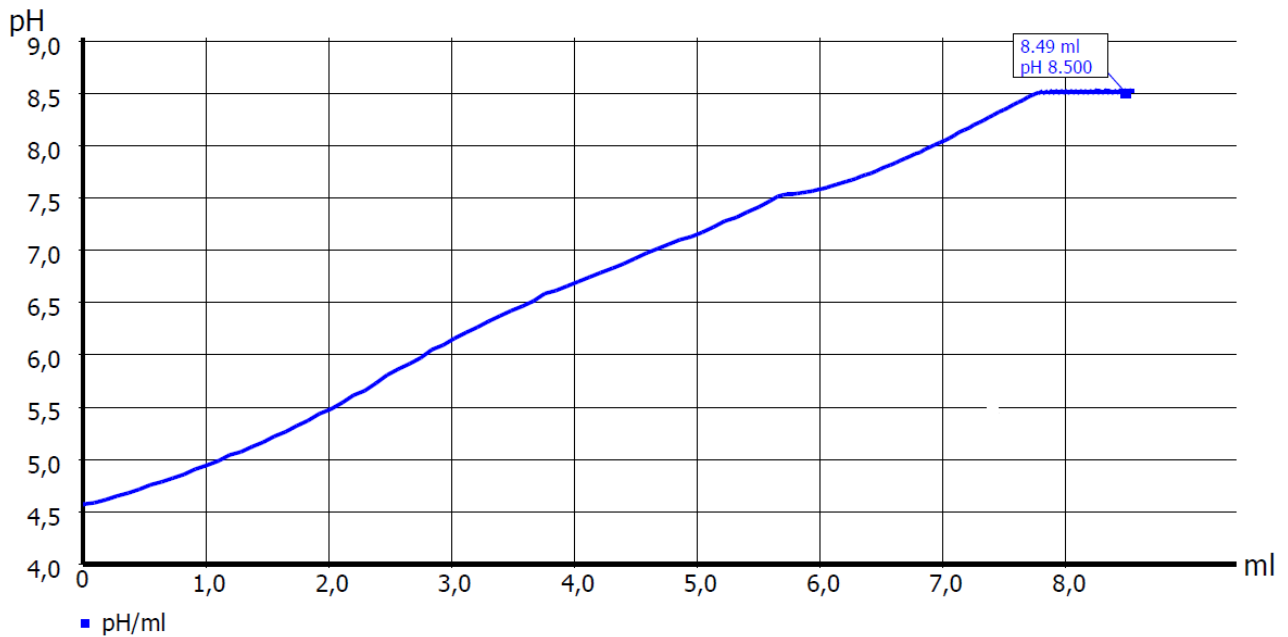
10.0g sample are weighed into a friction dish, 5 mL acetone and approx. 40mL dist. water are added. The sample is then triturated to a uniform slurry. The mass is transferred to a beaker, rinsed with some dist. Water and made up to approx. 100 mL. The sample is then titrated with NaOH 0.1 mol/L to pH 8.5. Stirring is required during the titration. The titration tip and electrode must be immersed in the sample. The diaphragm of the electrode must also be immersed in the liquid.

Simplified method without acetone:

10.0g sample are weighed into a friction dish and approx. 40mL dist. Water is added. The sample is then triturated to a uniform slurry. The mass is transferred to a beaker, rinsed with some dist. Water and made up to approx. 100 mL. The sample is then titrated to pH 8.5 with NaOH 0.1 mol/L.

Easily dispersible samples can also be weighed directly into a beaker and made up with dist. Water to approx. 100ml. The sample is finely dispersed by vigorous stirring; a disperser may have to be used. There should be no more lumps of dough in the solution. The sample is then titrated to pH 8.5 with NaOH 0.1 mol/L.

Titration parameter



Default method	Saeuregrad Brotteig		
Method type	Automatic titration		
Modus	Endpoint		
Measured value	pH		
Measuring speed / drift	normal	Minimum holding time	2 s
		Maximum holding time	15 s
		Measuring time	2 s
		Drift	20 mV/min
Initial waiting time	0 s		
Linear step size	0.05 mL		
Damping	none	Titration direction	increase
Pretitration	off	Delay time	0 s
Endpoint 1	8.50 pH	Delta Endpoint	0.4 pH
		Endpoint delay	25 s
Max. titration volume	50 ml		
Dosing speed	30% (12 mL/min)	Filling speed	30 s

Calculation:

$$\text{Acidity} = \text{EP1}$$

EP1		Consumption of titrant at EP1
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Any questions? Please contact the application team:

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