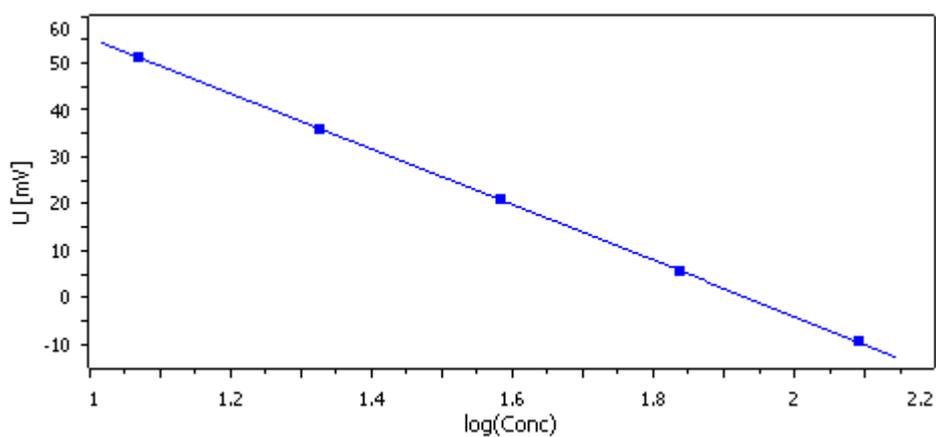


# Fluoride content of toothpaste



Fluoride is added to toothpaste because of its positive effect on dental enamel. The fluoride content in toothpaste can be easily determined by standard addition using the ion-selective Fluoride ISE as sensor.

# Method description

## Sample

Toothpaste (Fluoride content: 1300 µg/g)

## Sample preparation

5 g toothpaste is weighed into a 100 mL beaker. 5 mL deion. H<sub>2</sub>O and 5 mL conc. HCl are added, and the sample is homogenized. The suspension is heated to 90 °C for one minute. After cooling down to room temperature, the sample is quantitatively transferred into a 1 L volumetric flask. The flask is then filled up to the mark with deion. H<sub>2</sub>O.

## Configuration

906 Titrand	2.906.0010
801 Magnetic stirrer	2.801.0040
Exchange unit, 10 mL	6.3026.210
F ISE	6.0502.150
LL ISE Reference	6.0750.100

## Solutions

Fluoride standard	$\beta(F^-) = 1 \text{ g/L}$ 2.210 g NaF is weighed into a 1 L volumetric flask and the exact weight is written down. The NaF is then dissolved in deion. H <sub>2</sub> O, before the flask is filled up to the mark with deion. H <sub>2</sub> O.
TISAB IV	58 g NaCl is dissolved in approx. 500 mL deion. H <sub>2</sub> O. 5 g complexon IV is added and dissolved by dropwise addition of c(NaOH) = 8 mol/L. 57 mL glacial acetic acid is added and the pH of the mixture is adjusted to 5.5 with the above-mentioned NaOH solution. Finally, it is made up to 1 L with deion. H <sub>2</sub> O.

## Analysis

5 mL sample solution and 20 mL TISAB IV are pipetted into a plastic beaker. The standard addition is carried out with  $\beta(F^-) = 1 \text{ g/L}$ . In between each standard addition, the electrode is conditioned in TISAB IV for 5 min.

## Parameters

Mode	STDADD auto
Stirring rate	5
No. of additions	3
Volume auxiliary solution	20 mL
Dosing rate	Medium
Delta U	20 mV
Signal drift	0.5 mV/min
Max. waiting time	215 s

## Results

Mean result (n = 3)

F / (µg/g)	s(rel) / %
1422.1	1.46