

Reagents

1	Anolyte/Katholyt: 600 ml glacial acetic acid + 260 ml Methanol + 140 ml 1 mol/L Potassium bromide solution.
2	Cyclohexen
3	Toluene

Standard preparation

1000 mg/100g Standard:

A glass vessel with lid is placed on the balance and tared. Then approximately 38.52 g of toluene are weighed in. The lid is screwed down and the exact weight is noted. Using a syringe with a needle, approximately 0.2 g of cyclohexene is weighed in without pressing the tare button. The lid is screwed back on and the exact weight is noted. The weighed amount of cyclohexene is calculated from the difference between the weighed-in amount of toluene and the total amount.

The exact bromine index is calculated according to the following formula:

$$BI [mg/100 g] = \frac{amount_{Cyclohexen}[g] \cdot 194531,95}{amount_{Gesamt}[g]}$$

100 mg/100g Standard:

A glass vessel with lid is placed on the balance and tared. Then approximately 18 g of toluene are weighed in. The lid is screwed down and the exact weight is noted. Using a syringe with a needle, weigh in approximately 2 g of the 1000 mg/100g standard without pressing the tare button. The lid is screwed back on and the exact weight is noted. Since this is a 1 in 10 dilution, the bromine index can be calculated using the rule of three. The calculated bromine index of the 1000 mg/100 g standard is taken into account accordingly.

Titration procedure

Sample measurement

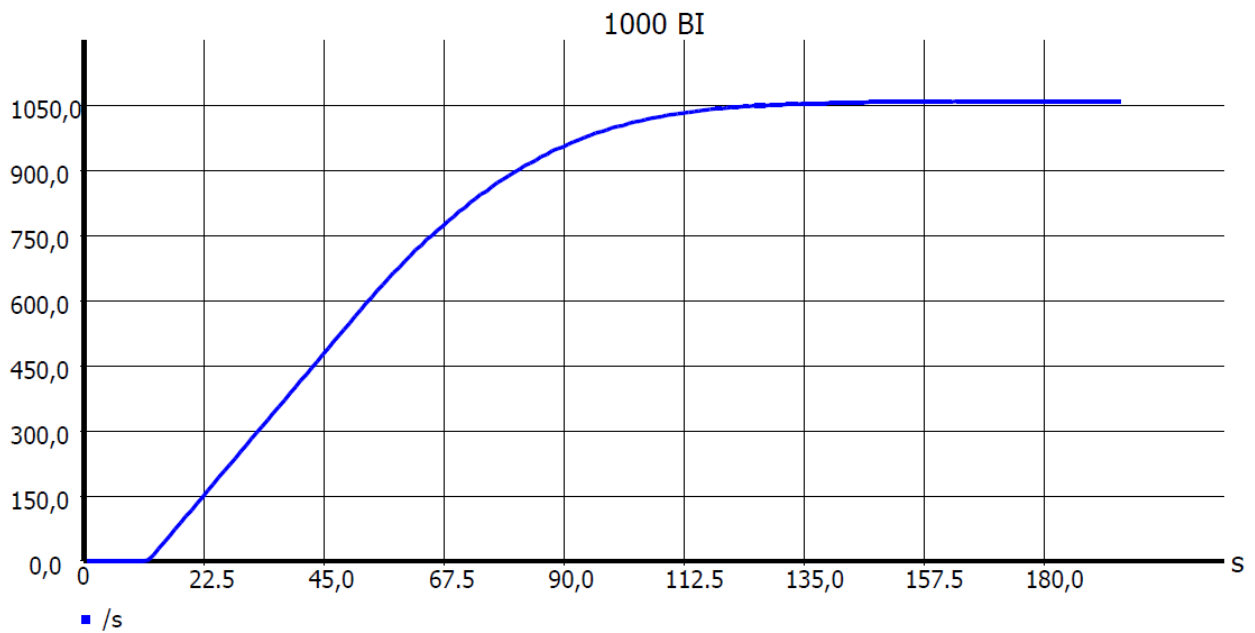
The titration cell is filled halfway with Anolyte/Catolyte reagent (approx. 140 ml) and the coulometer is switched on. The reagent is initialized with a few drops of standard solution until a drift increase is observed. As soon as the drift has returned to a constant value, the sample can be added using a syringe with a cannula. The exact amount of sample is determined by differential weighing. The amount weighed in depends on the expected bromine index and reactivity, so that the resulting titration time is in the range of 3 to 15 min. For samples with a very low content below 10 BI, 5 to 10 g can be weighed in. After adding a total of 10 to 20 ml of sample, the reagent should be renewed.

Note on the working point

With the standard setting <Working point: 300 mV>, it may happen that the titration is terminated slightly too early. This may be caused by sluggish samples, low or very high bromine index contents or a high sample load in the titration cell. In this case, the operating point can be set to 400 mV, which will increase the end point of the titration, causing the titrator to end the measurement later.

Titration parameter

Sample titration



Default method	Bromine index (coul.)
Start drift	20.0 µg/min
Interval	30 seconds
Stability:	0.5 µg/min
Stop drift (delta):	2.0 µg/min
Stop drift tolerance:	0.02 µg/min ²
Stirrer control	free
Min. titration time:	60 seconds
Max. titration time:	1500 seconds
Working point:	300 m
Control factor	4

Calculation:

$$Result [ppm] = \mu\text{g} \cdot M \cdot F1 / (F2 \cdot W)$$

μg		Titrated water amount absolute
M	0.88783	Molecular weight to convert μg water into Bromine
W	man	sample weight in g
F1	1	Conversion factor
F2	1	Conversion factor

$$Result [\%] = \mu\text{g} * M * F1 / (F2 * W)$$

μg		Titrated water amount absolute
M	0.88783	Molecular weight to convert μg water into Bromine
W	man	sample weight in g
F1	1	Conversion factor
F2	1	Conversion factor

Any questions? Please contact the application team:

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