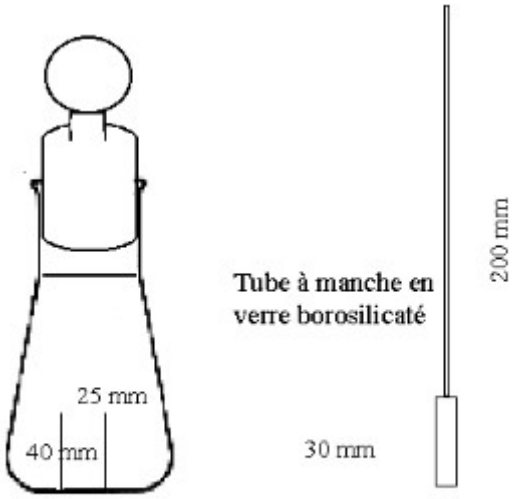
COEI-2-IBROME Bromine index

The bromine index is the quantity of bromine expressed in grammes, that 100 g of the substance can set.

1. Apparatus

A graduated flask of 300 to 400 ml with an interior tube welded at the bottom, an emery stopper and a tube with a handle, compliant with the following diagram

Bromination flask 300 ml in borosilicate glass.
Stopper with ground-glass joints standardised 24/40.



2. Solutions

2.1. Potassium bromate solution 0.016 M

This solution contains for 1000 ml:

Potassium bromate KBrO3	2.783 g

Weigh exactly 2.783 g of potassium bromate and introduce into a 1000 ml graduated flask containing about 500 ml of distilled water; shake in order to dissolve and complete to 20°C with distilled water the volume of 1000 ml of solution. Mix and store in a flask with a glass stopper.

2.2. Iodine solution 0.05 M

Iodine I	12.69 g
Potassium iodide de KI	18 g
Water q.s.p	1000 ml

Weigh exactly 12.69 g of iodine, then 18 g of potassium iodide and introduce into a 1000 ml graduated flask with about 200 ml of distilled water. Allow the dissolution to operate in cold conditions with the flask being sealed. Add about 500 ml of distilled water, then shake to absorb the iodine in a vapour state and complete to 20°C with distilled water, the volume to 1000 ml of solution. Mix and store in a coloured glass flask with a glass stopper.

2.3. Sodium thiosulphate solution 0.1 M

The 0.1 M sodium thiosulphate solution contains for 1000 ml:

Sodium thiosulphate $Na_2S_2O_35H_2O$ 24.82 g

Weigh exactly 24.82 g of sodium thiosulphate and introduce into a 1000 ml graduated flask containing about 600 ml of boiled distilled water. Shake to dissolve and complete to 20°C with boiled distilled water, the volume to 1000 ml of solution. Mix. Store away from light. Control the titre of this solution using the 0.05 M iodine solution.

3. Technique

Using a tube with a handle, put about 0.50 g of potassium iodide in the recipient inside the flask; (it is convenient to make a circular mark on the tube corresponding to the salt's weight so as not to have to weigh each dosage). Caution has to be taken so as not to introduce iodide on the external part of the flask. Then introduce the measured volume of the solution of the product to be measured, dissolved in neutral or alkaline water, in the external part of the flask, then 25 ml of potassium bromate solution 0.016 M measured with a pipette, and 2 g of pure potassium bromide. Rinse the sides with water to come to a total volume of about 100 ml, then add 5 ml of concentrated hydrochloric acid (R); quickly close the flask with the stopper, the joint being humid with distilled water; by a circular movement homogenise the content and allow to stand the prescribed time. Shake the flask *vigorously* so as to put the potassium iodide in contact with the liquid so as to enable the vapour bromine to react; open the flask while rinsing the joint and the stopper with a spray of distilled water, and determine iodine using 25 ml of sodium thiosulphate solution 0.1 M; titrate the excess of sodium thiosulphate with the iodine solution 0.05 M in the presence of starch paste;

Let *n* be the volume used:
Quantity of bromine (in mg) set by the substance to be dosed = *n* □ 0.008