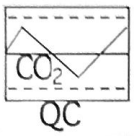

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Certificate of Analysis

Titration acid for alkalinity measurements

(BATCH A14 – Bottled May 17, 2018)

This material consists of an aqueous solution of hydrochloric acid (~0.1 mol kg^{-1}) in a sodium chloride background (~0.6 mol kg^{-1}). (Note: these are amount contents expressed in moles per kilogram of solution.)

Analysis Results

The procedures used for these analyses are detailed overleaf.

Hydrochloric acid concentration	0.100 183 ± 0.000 006 mol kg^{-1}	(12; 5)

The precision given here is the standard deviation of the analyses of this batch of acid. Figures in parentheses are the number of analyses made (total number of analyses; number of separate bottles analyzed).

The overall uncertainty (expressed as a standard deviation) is believed to be less than 0.000 020 mol kg^{-1}, *i.e.* a relative standard uncertainty of about 0.02%.

The density of this acid was measured at 4 temperatures (15, 20, 25, 30 °C) and the results fit to the expression:

$$\frac{\rho}{\text{g cm}^{-3}} = 1.02900 - 1.233\times10^{-4}\left(t/°C\right) - 3.70\times10^{-6}\left(t/°C\right)^2 \quad .$$

At 22 °C, the density is thus 1.02450 g cm^{-3}. The uncertainty in this density is believed to be less than 1 part in 10,000.

STORAGE: The bottles should be stored out of direct sunlight, and preferably at or below room temperature (25 °C). They should not be allowed to freeze!

Andrew Dickson

Andrew G. Dickson
July 09, 2018