

NR 1665

Date: 18-Jan-05

# Application Data Sheet

# Acidity, Carbonate & hydroxide

**Matrix**

NaCl or KCl Brine.

**Principle**

The acidity, carbonate and hydroxide are determined in acid/base titrations.  
 $H_3O^+ + OH^- \Rightarrow 2 H_2O$   
 $(CO_3)^{2-} + 2 H_3O^+ \Rightarrow CO_2 + 3 H_2O$

**Detection method**

Method:	Detector	Ion:	λ:
HCl	Titration - Acid/base	pH Glass electrode	n.a.
(CO3)2-	Titration - Acid/base	pH Glass electrode	n.a.
OH-	Titration - Acid/base	pH Glass electrode	n.a.

**Specification**

	Range	Standard Dev.	Repeatability	Inaccuracy	Analysis time
HCl	15 - 140 mg/l	< 0.7 mg/l	+/- < 2 mg/l	+/- < 2 mg/l	20 minutes
(CO3)2-	24 - 240 mg/l	< 1.1 mg/l	+/- < 3 mg/l	+/- < 3 mg/l	30 minutes
OH-	5 - 60 mg/l	< 0.4 mg/l	+/- < 1 mg/l	+/- < 1 mg/l	for OH- & (CO3)2-

**Interferences**

All other bases and strong acids.

**Reagents**

NaOH (0.1 M)  
 HCl (0.1 M)

**Procedure**

Acidity:  
 - clean the analysis vessel with water  
 - take 50 ml of sample  
 - perform DET titration with NaOH  
 - calculate result

Carbonate & Hydroxide:  
 - clean the analysis vessel with water  
 - take 50 ml of sample  
 - perform DET titration with HCl  
 - calculate result

**Remarks**

Use settler as preconditioning unit.  
 At Hydrogen peroxide (H2O2) when Hypochlorite is present in the sample.

**Possible Analyzer**

- 2040
- 2016
- 2018 HD
- 2019 HD
- 2019 Special
- 2003 Alert
- 2004 Alert

**Typical Wet Part layout**

( Other layouts may be realised in order to meet desired criteria, e.g measuring range. )

