

DensiCheck TX

In-line determination of Sodium Hydroxide (NaOH) concentration.

Industries: Chemical production, cellulose industries, pulp & paper, textiles, soaps & detergents, biodiesel production, brewing and beverage, scrubbing processes.

Data sheet : DENSI_TX_NaOH/2012

Introduction

Sodium hydroxide is produced (along with chlorine and hydrogen) via the chloralkali process. This involves the electrolysis of an aqueous solution of sodium chloride. The sodium hydroxide builds up at the cathode, where water is reduced to hydrogen gas and hydroxide.

Uses

Sodium hydroxide is the principal strong base used in the chemical industry. In bulk it is most often handled as an aqueous solution, since solutions are cheaper and easier to handle. It is used to drive chemical reactions and also for the neutralization of acidic materials. It can be used also as a neutralizing agent in petroleum refining. It is also used for heavy duty and industrial cleaning.

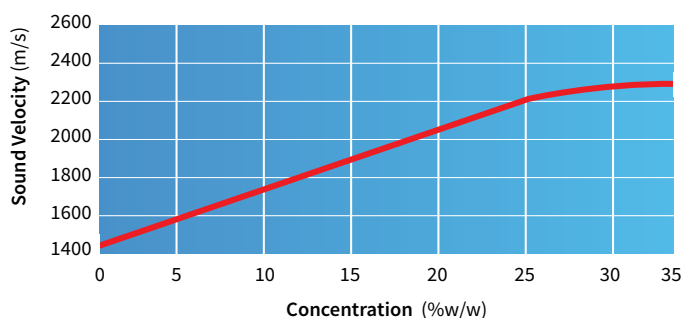
Measurement Precision

In the range 0..25%wt, DensiCheck TX delivers an accuracy of +/- 0.01%wt and a resolution of 0.002% NaOH. This superb accuracy is possible due to the large change in sound velocity across the concentration range.

Measurement Issues

Good mixing is required to remove the possibility of concentration gradients in NaCl solutions. In some concentration/temperature ranges, the effect of entrained gas can cause issues with the measurement. In this case, pressure should be increased at the measurement point.

Sodium Hydroxide (20 Deg C)



Scrubbing Applications

In scrubbing applications DensiCheck TX can be used with other sensors (e.g. conductivity) to monitor three-component liquids. So by measuring three physical values (sound velocity, temperature and conductivity) the system, can display concentration levels of two parameters (e.g. NaOH and NaCl)

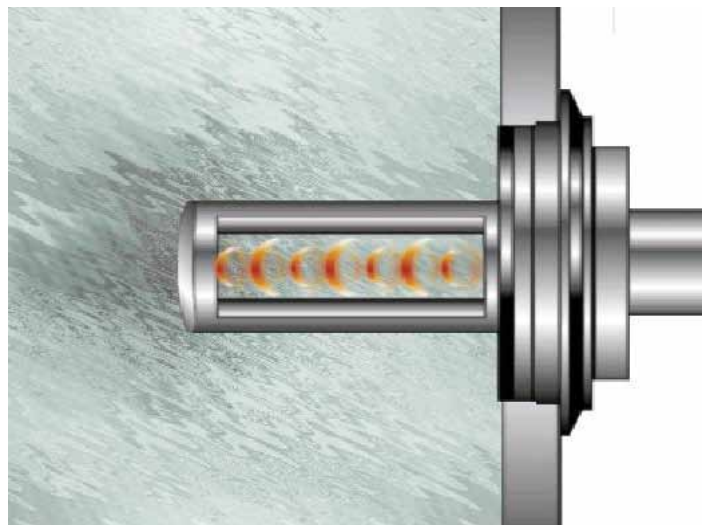


Benefits of Ultrasound

Ultrasound offer many benefits when compared to other measurement technologies when monitoring NaCl solutions. As can be seen there is a massive change in the velocity across a small concentration range with unrivalled precision in terms of speed if sound measurement, DensiCheck TX is the unit of choice.

Other benefits include:

- Unaffected by line pressure
- In-line measurement meaning no recirculation or by-pass lines
- Wetted parts available in many different materials
- Maintenance-free so low cost of ownership



Other Liquids

DensiCheck TX is being used in many different industries to measure the concentration of numerous different liquids including:

Substance	Chemical Formula	Substance	Chemical Formula
Acetone	C_3H_6O	Hydrogen Peroxide	H_2O_2
Ammonia	NH_3	Nitric Acid	HNO_3
Ammonium Sulphate	$(NH_4)_2SO_4$	Phosphoric Acid	H_3PO_4
Calcium Chloride	$CaCl$	Sodium Chloride	$NaCl$
Ethanol	C_2H_6O	Sodium Hydroxide	$NaOH$
Ethylene Glycol	$C_2H_6O_2$	Sodium Nitrate	$NaNO_3$
Fluorine	F	Sulphuric Acid	H_2SO_4
Glycerin C3H8O3 Toluene C7H8	$C_3H_8O_3$	Toluene	C_7H_8
Hydrochloric Acid	HCl	Tryptophan	$C_{11}H_{12}N_2O_2$



Excellence the World can Measure™

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