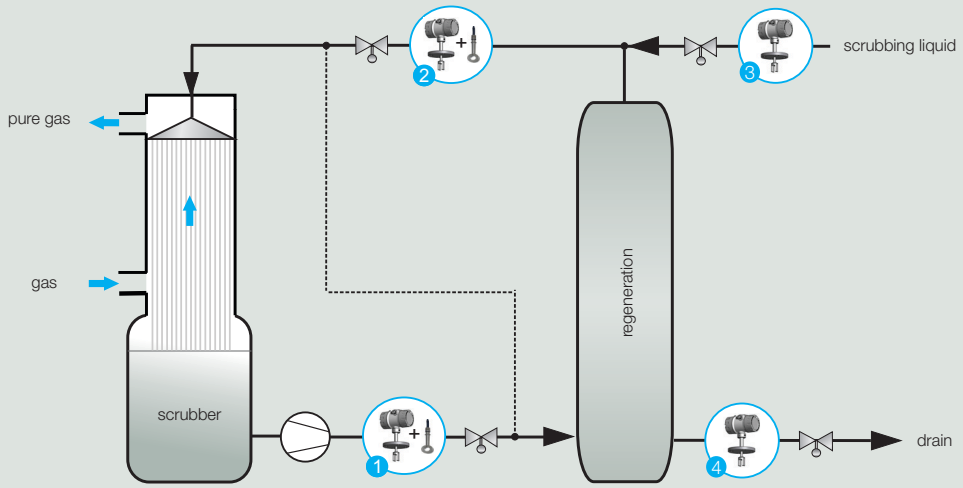
SensoTech
In liquids, we set the measure.



Measuring point	Installation	Measuring task
1,2	pipeline	control and monitoring of the concentration of scrubbing liquid and salt
3	pipeline	control and monitoring of the concentration of fresh srubbing liquid
4	pipeline	monitoring on breakthroughs in the treatment of salts

Emergency Vent Scrubber

Introduction

In the chemical industry, emergency vent scrubbers (EVS) are used to absorb toxic or environmentally hazardous gases and vapors.
In addition to traditional process gas scrubbers, the EVS provides continuous assurance of process and plant safety. Even in the event of an emergency, there is enough scrubbing liquid on hand to completely chemically bind the hazardous or toxic gases.
Typical applications of emergency vent scrubbers in chemical processes are to absorb emissions, such as chlorine, bromine, phosgene, sulfur dioxide, NO_x, HF and ammonia. For the neutralization of these gases, caustic soda and caustic potash solutions are used. The gas flow passes the scrubbing liquid and in case of emergency, the release of toxic or critical gases is prevented.
SensoTech inline analyzers are often used to monitor the scrubbing liquid, which improves the system stability and quality.

Application

The scrubbing liquid of an emergency vent scrubber circulates and is continually in contact with the gas stream to be cleaned. If toxic or environmentally hazardous chemicals are included in this stream, they will be absorbed. Even during standard operation (without emergency), certain components, e.g. CO_2, are chemically bound and the NaOH concentration decreases. In order to ensure an effective absorption in the event of an emergency and a sufficient volume of scrubbing liquid, the concentration of NaOH and salts (NaCl and Na_2CO_3) must be monitored.
If the NaOH content is under limit, it must be re-dosed. In case of too high salt content, the salt must be removed from the circulation stream, to prevent crystallization in the system and blocked nozzles.
The LiquiSonic® 40 analyzer allows the concentration measurement of 3-components-liquids, due to the parallel detection of two physical quantities such as sonic velocity and conductivity.

Customer value

The LiquiSonic® analyzer provides a precise inline concentration measurement with real-time monitoring. Due to automatic control, a sufficient level of scrubbing liquid is maintained, thus keeping the scrubber at its optimal absorption efficiency.

LiquiSonic® enables a reduction of labor cost through the elimination of manual process steps:

- time saving: 1 h per day
- cost per hour: 50 € (60 $)
- total cost savings: 10.000 € (12,000 $) per year

The prevention of an over- and underdosing leads to the reduction of material input for the scrubbing liquid:

- 1 % NaOH overdosing in the circulation flow corresponds to: approx. 27.000 € per year

The LiquiSonic® system ensures consistent plant and system safety, even in emergency case.

Investment: approx. 25.000 € (30,000 $)
Amortization: approx. 8 month

Installation

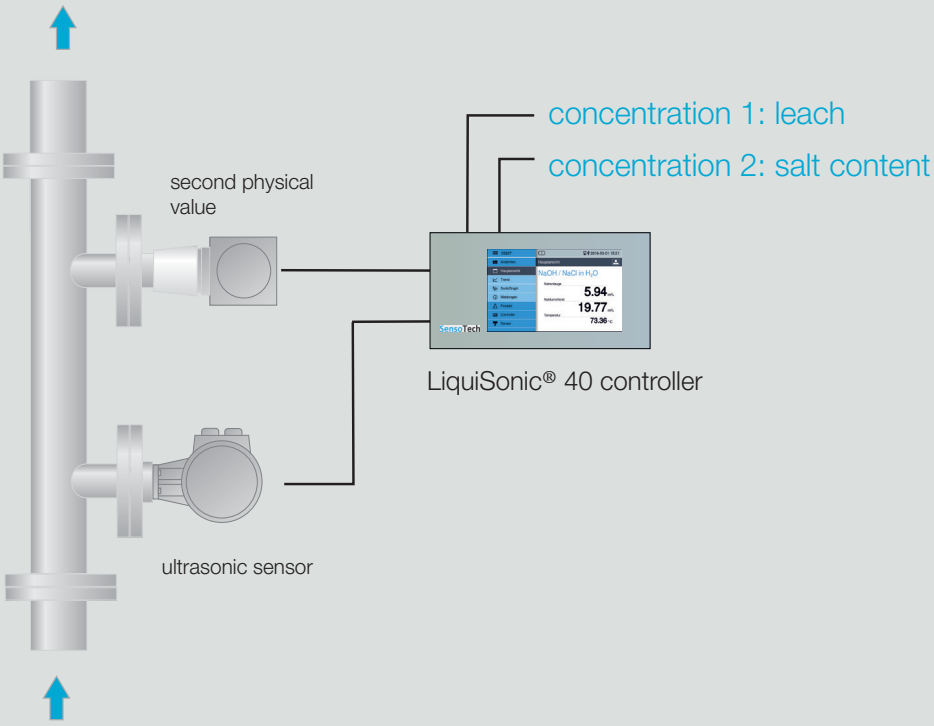
The LiquiSonic® immersion sensor is easily installed directly into pipelines. A typical installation point, combined with a conductivity meter, are DN 80 pipelines from the scrubber to the regeneration tank

The robust sensor construction and the optional special materials, like HC2000, promote long process life.

The LiquiSonic® controller 40 is connected to the LiquiSonic® ultrasonic sensor and the device for the second physical value (conductivity meter). The controller displays NaOH concentration and salt content.

Typical measuring range:
NaOH concentration range: 5 to 20 wt%,
Na_2CO_3/NaCl concentration range: 5 to 30 wt%
temperature range: 30 to 60 °C

Sonic velocity measurement with LiquiSonic® 40



LiquiSonic® 40

	21001411 LiquiSonic® Controller 40 V10
	21010138 Immersion sensor V10 40-40 Ex FM, ANSI 2“, L150, HC2000
	21006123 Inductive conductivity sensor CM42/CLS50 DN 50
BUS	21004435 BUS connection: Profibus DP
	21004449 Network integration
	21004110 High power sensor electronic
	21004202 Bus cable indoor (100m)
	21007846 Factory acceptance test (FAT) certificate

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