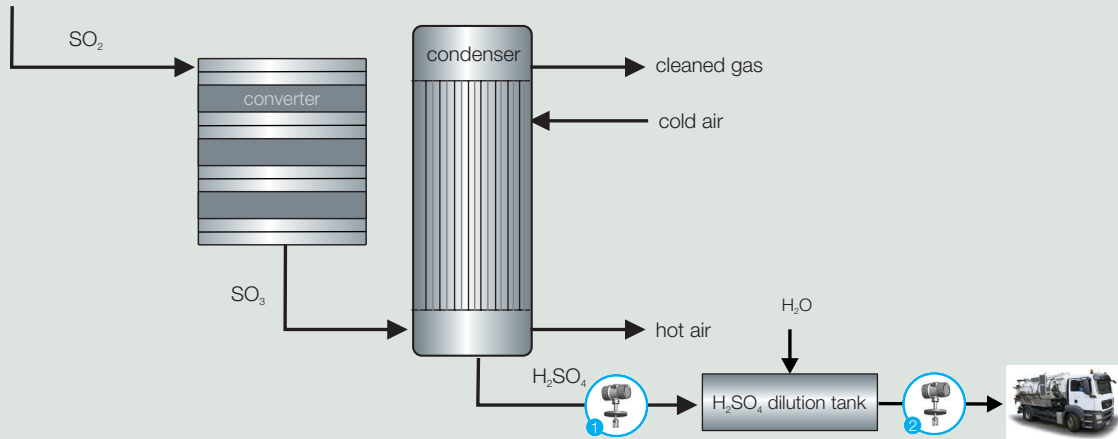


raw materials:

- exhaust SO₂ gas from metallurgical processes
- spent acid or sludge from alkylation process
- H₂S and SO₂ from various other chemical processes



Measuring point	Installation	Measuring task
1	pipeline	monitoring of the sulfuric acid concentration
2	pipeline	control and monitoring the blending to the desired concentration

WSA Process (H₂SO₄)

Introduction

The WSA process (wet gas sulphuric acid) combines compliance with emission regulations and profitable handling of sulfurous exhaust gases. Actually, the wet catalytic sulfuric acid process is one of the most important gas cleaning processes. As it ensures ecological safety and economical benefit in the form of saleable sulphuric acid.

The WSA process is common in the petrochemical industry, especially for:

- Treatment of H₂S from the amine regenerator (MDEA scrubber)
- Regeneration of spent sulfuric acid from alkylation
- Purification of exhaust gases from the Claus plant
- Cleaning of flue gases from the combustion of highly sulfurous fuels, e.g. petroleum coke

Application

In the first step of the wet catalytic process, the sulfur component H₂S from the exhaust gases is catalytically converted to SO₂. In a subsequent step at 400°C, the conversion to SO₃ takes place, which then reacts with the atmospheric moisture to produce sulfuric acid. By using the heat of the reaction and the exhaust gases, this process can be operated without additional thermal energy even at low exhaust gas concentrations (S-components < 0.2 Vol%).

LiquiSonic® ensures an accurate concentration measurement of sulfuric acid, even at high acid concentrations. Each process step can be both monitored continuously with the inline LiquiSonic® analyzer and be optimally set. Sonic velocity changes significantly with minor changes in sulfuric acid concentration, allowing the LiquiSonic measurement to reach an accuracy of +/- 0.05 wt%.

Customer value

The LiquiSonic® analyzer provides a precise inline H₂SO₄ and oleum concentration measurement with real-time monitoring.

The robust sensor construction and the optional special materials, like Hastelloy C2000, promote long process life.

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

In comparison to conductivity and density measurement, LiquiSonic® generates a clear signal in the 80 to 100 wt% concentration range and provides reliable process information.

Investment: approx. 18.000 € (22,000 \$)

Amortization: approx. 2 years

Installation

The LiquiSonic® immersion sensor is easily installed into pipelines after the condenser in sulfuric acid production as well as at the blending station.

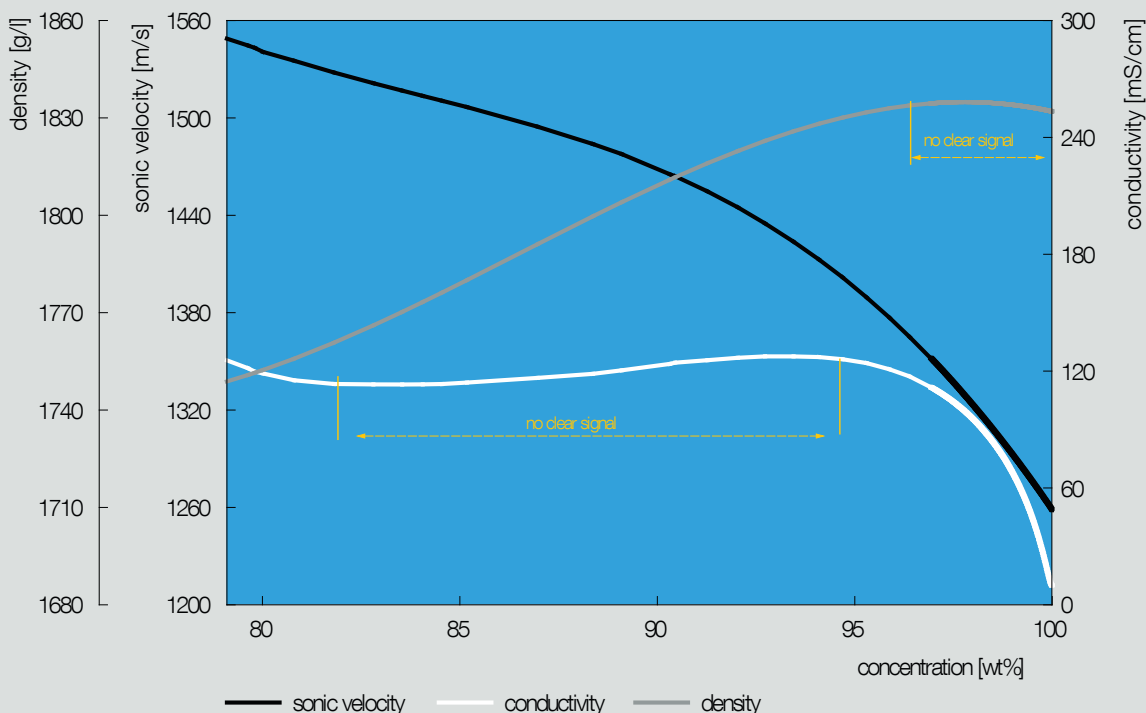
By using the LiquiSonic® controller 30, up to four sensors can be connected, allowing the simultaneous monitoring of several measuring points.

Typical measuring range:

concentration range from H₂SO₄: 80 to 100 wt%

temperature range: 20 to 90 °C

LiquiSonic® sonic velocity measurement



LiquiSonic® 30



21001311
LiquiSonic® Controller 30 V10



21010109
Immersion sensor V10 40-14, ANSI 2", L092, HC2000

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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