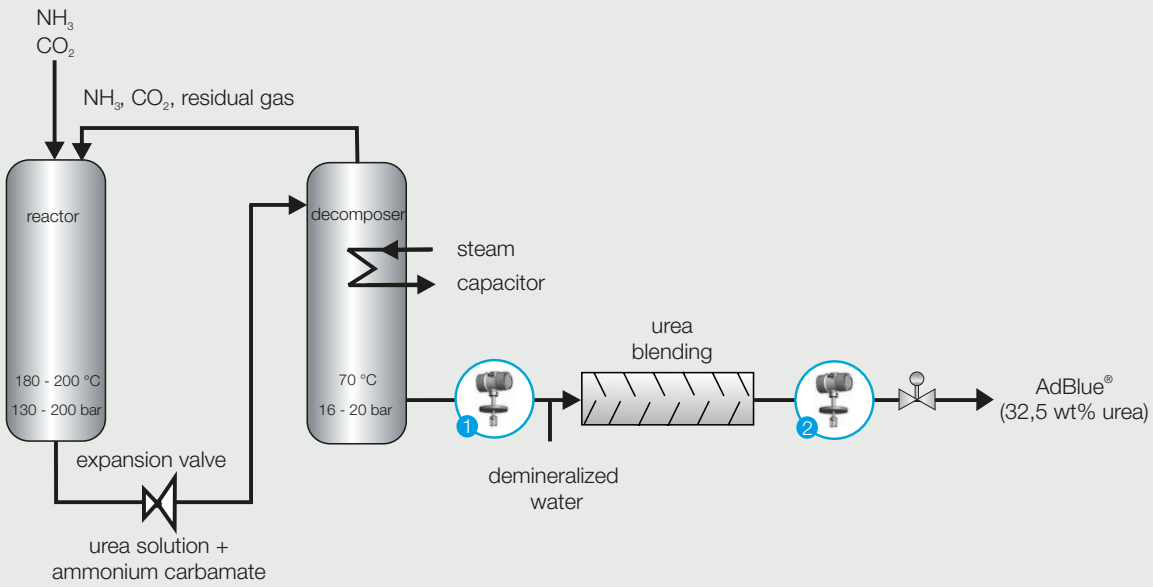
SensoTech
In liquids, we set the measure.



Measuring point	Installation	Measuring task
1	pipeline	Control of urea concentration to adjust the set point
2	pipeline	Control of urea concentration in the final product AdBlue®

AdBlue® Production

Introduction

Selective catalytic reduction (SCR) catalysts has proven to be an efficient and cost-saving method to reduce the content of nitrogen oxide (NOx) in the exhaust fumes of diesel-powered vehicles.

In this type of exhaust after-treatment, liquid AdBlue® is injected into a catalyst to convert nitrogen oxides to nitrogen and water vapor. AdBlue® is a registered trade mark for synthetically produced ultrapure 32.5 wt% solution of urea in demineralized water.

AdBlue® is characterized by an higher purity level compared to technical urea. It has to be stored in a separate tank in the vehicle. During operation, the AdBlue® is transfered out of the tank to the catalyst. Through specific pumps and nozzles, it will be sprayed into the exhaust fumes.

Application

Pure urea is a synthesis product, usually made from natural gas. In large-scale, it is produced from ammonia and carbon dioxide (urea synthesis). The intermediate product ammonium carbamate is produced under high pressure and then transformed endothermically under low pressure into urea.

AdBlue® is a blending product of urea. The 32.5 wt% urea solution is produced out of ultrapure, synthetic urea through demineralized water. Isolated road tankers or intermediate bulk container (IBC) are used for tranport.

The quality control of the final product AdBlue® is of enormous importance. The maintenance-free process analyzer LiquiSonic® is ideally suited for this inline measuring task. The risk of product crystallization is minimized.

Customer value

A high-precision concentration monitoring is essential for urea and AdBlue® production and quality control. LiquiSonic® determines the urea concentration inline for consistent product quality. This enables immediate intervention, in case of malfunctions and deviations.

LiquiSonic® optimized synthesis and blending:

- productivity increase: at least 0.1 %
- urea production: 1000 t per day (220 € / 240 $ per ton, 200 production days per year)
- benefit: 44.000 € / 48,000 $

Further LiquiSonic® benefits at a glance:

- precise determination of mixing ratio
- constant and defined product quality
- complete, gap-free documentation
- integrated temperature measurement and warning limits indicate under-/overruns
- avoid product crystallization

Investment: approx. 13.000 € (16,000 $)
Amortization: < 6 month

Installation

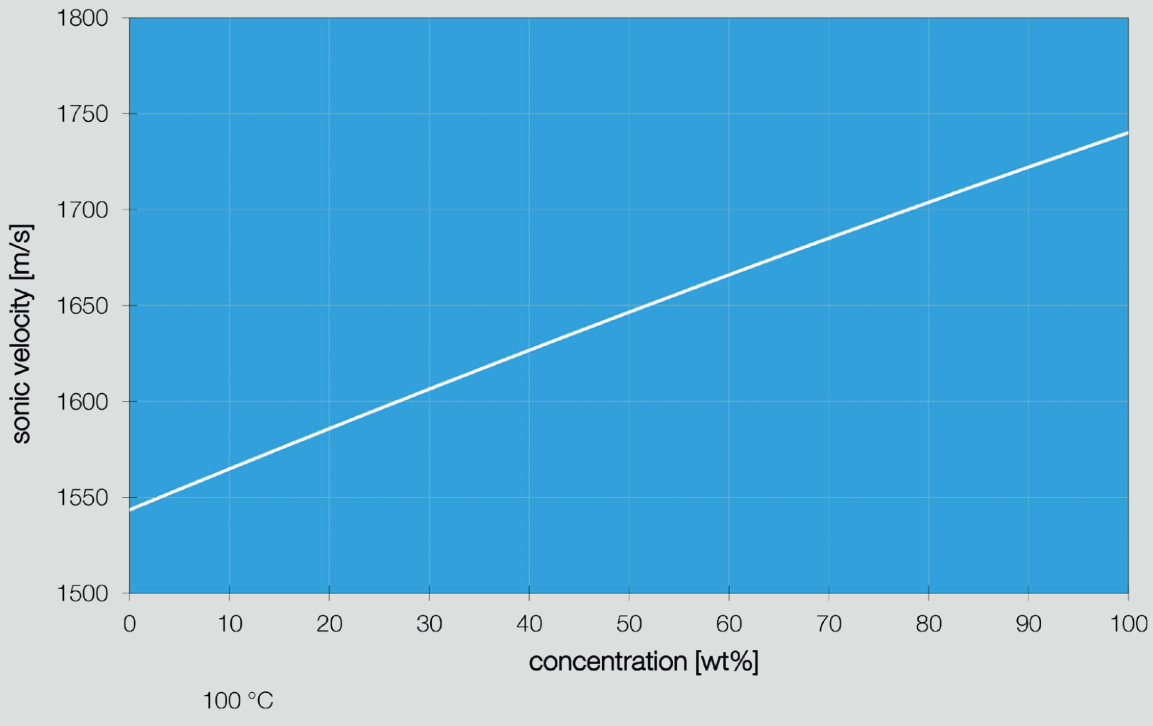
The LiquiSonic® immersion sensor is easily installed into the transport pipeline after the decomposer or blending station. The robust sensor construction and optional special materials, promote long process life.

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

LiquiSonic® Lab enables discontinuous measurements (spot checks). Incoming goods and samples are tested in a matter of seconds.

Typical measuring range:
concentration range: 0 to 100 wt%
temperature range: -10 to 140 °C (15 to 280°F)

LiquiSonic® sonic velocity measurement in Urea



LiquiSonic® 30

	21001311 LiquiSonic® Controller 30 V10
	21010112 Immersion sensor V10 40-14, DIN DN50, L092
	21004352 T-adapter for immersion sensor DN80-50-80 PN16
BUS	21004431 BUS connection: Profibus DP
	21004449 Network integration
	21004110 High power sensor electronic
	21004230 Bus cable indoor / outdoor
	21007846 Factory acceptance test (FAT) certificate

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