

Measuring point	Installation	Measuring task
1	incoming pipe	monitoring of incoming solvents
2	transport pipe	monitoring of the solvent mixture concentration
3	return pipe	monitoring of the distilled solvents

# Solvent recovery (distillation)

## Introduction

Organic or aqueous solvents are used in many fields in the chemical industry. After their use they can be disposed, what is normally very expensive, or they can be distilled and afterwards can be reused in the process.

Sometimes even fresh solvents do not fulfill the requirements in purity or concentration. They can also be distilled to reach the expectations.

There are existing different distillation methods. Each method differs in their results, e.g. columns assure a high purity and vacuum distillation is used for sensitive fluids.

Typical solvents are acetone, ethanol, toluene, n-hexane or ethyl acetate. It exists a wide variety of distillable solvents.

## Application

It is important that the recycled solvents reach the same qualities as the raw materials have. So, the product quality in the process remains constantly high.

Ideally the recyclates do not differ from the fresh solvents. Then the clean distilled fluid can be returned right to the production process.

The surveillance of the distillate concentration during the recycling is an important step to reduce costs during the distillation and to increase the availability of the solvent.

The removal of solvents (or other chemicals) which were impurified in the process is highly expensive. Often solvents can be regenerated easily at the site. This reduces costs because of the reduced of raw material buying, minimizing of storage space, less effort in handling the chemicals and much lesser costs for disposal and transport.

## Customer Value

LiquiSonic® provides a precise inline concentration measurement with real-time monitoring of the quality of the recycled solvent. Using sonic velocity, the concentration can be monitored directly in the process. This enables a reproducible product quality. Extensive sample measurement in the lab is not necessary.

The robust sensor construction promotes long process life. All measured data are saved in a long-term data memory, so that they can be used in audits and for analysis of process disturbances. Special materials as Hastelloy C2000 are available if needed. The sensors can be certified as ATEX or FM.

Advantages for the customers are:

- optimum line control and reliable process data
- appropriate for explosion proof areas
- optimizing of working processes
- reduced sampling and lab analyze
- minimize risk and error potential for the employees

## Installation

The LiquiSonic® sensors are easily installed in the pipelines to determine the concentration level of the semi-finished and final product. The installation point has to be chosen in a way that it is guaranteed the sensor is constantly immersed in the fluid. The installation in rising pipes is recommended.

The compact sensor construction without gaskets or moving parts assure a stable long-time measurement. The LiquiSonic® Controller 30 can be connected with up to four sensors. So, it is possible to measure at several points with one device.

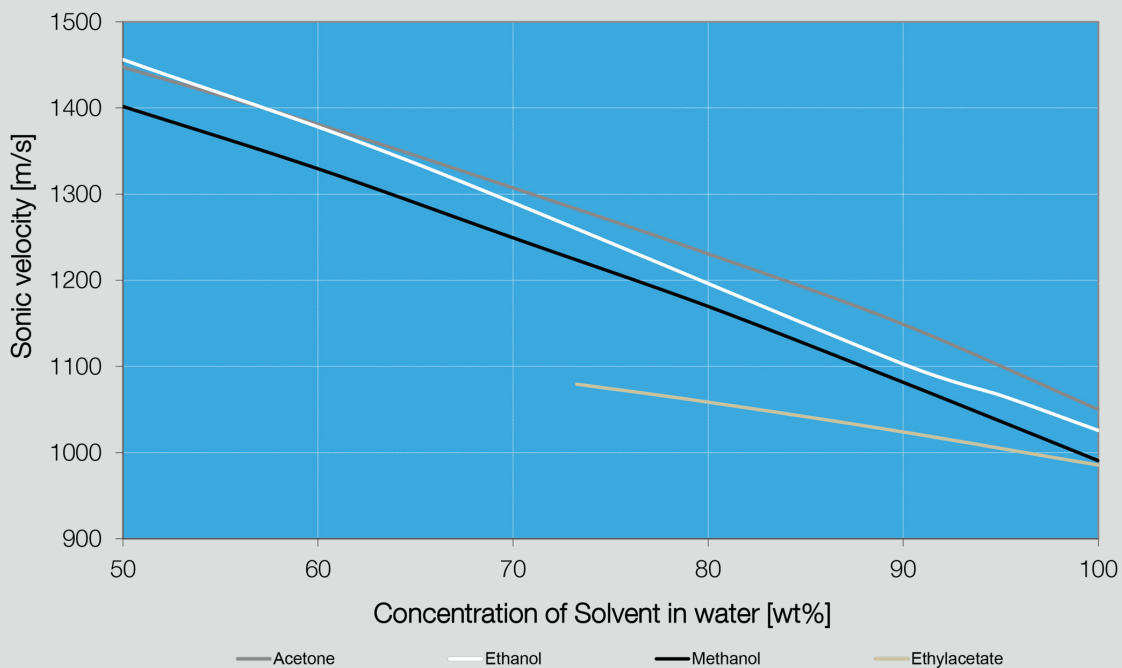
Alternatively, the LiquiSonic® Lab system provides the possibility for sample measurements in the laboratory.

Possible measuring range (depending on the fluid):

Concentration range: 0 to 100 wt%

Temperature range: -20 to 140 °C / -4 to 212 °F

## LiquiSonic® monitoring installed in solvent distillation



## LiquiSonic® 30



21001311  
LiquiSonic® Controller 30 V10



21010102  
Immersion Sensor V10 40-40 Ex FM, ANSI 2", L150



21004352  
T-piece for Immersion Sensors DN80-50-80 PN16

BUS

21004435  
BUS Connection: Profibus DP



21004449  
Networkintegration



21004110  
High power sensor electronic



21004202  
Bus cable indoor (100m)



21007846  
Factory acceptance test (FAT) certificate



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