

Particular objectives of the chemical industry

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Optimisation of a process (energy, productivity, out-of-specific material, time, productivity...)

A chemical process is often influenced by many factors as feed rates, classifier settings, filter settings and so on. In order to optimise such a process it is necessary to sensible adjust and control the different factors. The MTS ParticleScan in-line measurement devices take an important role in the chemical manufacturing and process optimisation due to its real-time observation of the process and the influence of the different factors, allowing to increase productivity and to reduce the amount of time and energy leading to more profit and better products: Under **PAT** conditions (**P**rocess **A**nalytical **T**echnology)

- Save time and energy by automatically steering the different factors with the output of the MTS in-line measurements device (e.g. at a start-up)
- Increase productivity by directly controlling the products of the process (particle size distributions, homogenisation) allowing to adjust the factors to the optimised product.
- decrease amount of recycling material, due to a better product outcome control
- cover up and solve process problems using strategic points as sampling points looking directly into the process.
- MTS in-line Sensors are highly compatible with almost every application and can be modified to meet your specific demands.

Enumeration of the products:

Today the chemical industry is called to specify their products to the individual needs of the customers due to the fact of a tighter competition. This enumeration of products can be achieved using **MTS in-line** measurement devices, controlling for example the homogenisation, higher particle concentration and a maximum of a specific particle size and so keeping you on top of the market.





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Optimize your start-up process at the example of milling.

A start-up of a milling process will always require several changes to the different factors, until the particle size specifications are met by the process.

This costs time and energy!

With a real-time measurement system from MTS you can minimize that effort and therefor save money and time.

Over the years working with the Sued Chemical company, which runs the milling control since 1997 we have made good experience comparing on- and off-line measurement systems:

off-line measurement (blue line):

When using an off-line measurement technique changes to the process demand a certain amount of time containing the time to wait for stable conditions, then sampling the product in the laboratory, communicating the result to the plant operator and adjust the new settings.



The blue line is the d50-size of the product outcome, measured when using an off-line measurement system.

in this example it took 1:20h to stabilize the process with the correct particle size of the product within the particle size specification.

in-line measurement (green line):

When using an on-line measurement technique you can take samples everytime, in real-time without preparing it in any way or wait for the results to arrive from the laboratory or elsewhere. It is your eye into the process which comes with a resolution of under one second and the changes will therefore directly be recognized by the system allowing you to dynamically and even automatically adjust the different factors to the specific needs as fast as the equipment will allow optimizing the start up of the mill. We have made good experience at the sue chemie companies start up process by saving energy and time consumed and furthermore making it unnecessary to reprocess or downgrade out-of-specification material.



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The blue line is the d50-size of the product outcome, measured when using an off-line measurement system.

The green line is the d50-size of the product outcome, measured when using a real-time measurement system

The yellow dots are the measurement results from the offline system while using the real-time measurement to tune in the process.

The time difference is a result of the different measurement techniques at the sued chemie company using an off-line and an in-line measurement system.

The real-time measurement of MTS was able to gain 60 minutes of time, which was wasted at every startup for product change as well as for cleaning or irregular shutdowns.

Sued Chemie gained more yield, saved energy during the 77 760 hours the sensor was running without any need of service or irregularities.

If you like to know more - We d' like to send you the proof! Please do not hesitate to contact us: <u>www.mts-duesseldorf.de</u>, <u>mts@mts-duesseldorf.de</u>, Tel. ++49 (0)203 742140; Fax: ++49 (0) 203 7421444