

Chemical recycling at lab scale

Chemical recycling is a process where plastics are degraded into monomers or other hydrocarbon compounds by using high temperatures and/or chemical reactions, to produce new polymers, chemicals, or fuels.



Pressure reactors, process pumps, filtration systems and dosing systems for lab & pilot plant for the recovery and production of high-quality raw materials

Chemical recycling of plastics is on the rise. With the EU's climate goals for a circular economy for plastics in 2050 in sight, several companies are fully engaged in developing and optimizing processes. The aim is to use plastic waste as a raw material to produce a wide range of new chemicals and plastics (e.g., naphtha) so that new fossil fuel deposits no longer need to be used.

What can Suurmond do in this process?

The process of chemical recycling takes place in different steps where several types of equipment are required. We start, in consultation with you, with an inventory of wishes and needs regarding the solution for your process. We then work from your P&ID and your process knowledge to a first sketch and price indication. Together we select the right components for your system, and the quotation will follow. After the agreement has been concluded, we will get to work on building the whole together.

Suurmond offers solutions in the form of pressure reactors, dosing systems, process pumps and filtration, but can also provide complete solutions in collaboration with you and selected partners.

- **Pressure reactors**

Pressure reactors are often used for the separation of substances. The heart of the installation!

We supply (high) [pressure reactors](#) from Büchi AG. The robust reactors are designed according to your process specifications. Demanding processes are the rule rather than the exception.



Büchi pressure reactor, type kiloclave

- **Dosing systems**

For the addition of, for example, solvents, additives, catalysts and/or chemicals in liquid form, dosing systems are often used. Suurmond supplies highly accurate, pulsation-free [dosing systems](#) from $\mu\text{l}/\text{hour}$ to $> 35 \text{ l}/\text{min}$!



suurDOS® dosing system for microliters per hour

With pulsation-free dosing, the quality and efficiency of your dosing process are guaranteed. Goals such as minimizing the volume of additives used, the increased control of a reaction or improving the homogeneity of mixing during the entire process, can only be achieved through highly accurate and pulsation-free dosing of additives.

- **Process pumps**

For the accurate dosing, transfer and circulation of liquids and lubricating oil, pumping from vacuum, and building pressure, we supply [pumps](#) specifically for the application. Gear pumps are also very suitable for demanding processes with extreme parameters, even under hazardous conditions.

- **Extrusion and filtration**

The MAAG [booster pumps](#), type extrex®, are used to overcome the pressure trap caused, for example, by fine filtration. In addition, these booster pumps ensure a constant and stable melting flow to provide excellent product quality.

Different types of MAAG [screen changers](#) can be used to increase the quality of your final product. MAAG has process-continuous and discontinuous screen changers in their portfolio. We can offer an economical and suitable solution for various production processes.



MAAG pump and screen changer