

## Range of applications **PSA (solvent-free)**



### **THE CHALLENGE.**

**When it comes to successfully producing and compounding pressure-sensitive adhesives (PSA), there are several decisive factors:** the targeted meltability of different formulation components, the precise control

of reactions, an extruded material of equal homogeneity and viscosity, effective cooling of the adhesive mass and high degassing quality to optimise subsequent processing.

### **THE SOLUTION: the ENTEX Planetary Roller Extruder.**

**PSA stands for pressure-sensitive adhesives that form a permanent bond with the application of even slight pressure.**

With the continuous direct extrusion of pressure-sensitive adhesives, the challenge lies in combining various substances with different chemical and physical properties (or thermal and mechanical stress limits) according to a specific formulation.

To do this, many established adhesive manufacturers employ the reliable compounding technology offered by the ENTEX Planetary Roller Extruder (PRE).

Thanks to its individually configurable modular construction, the Planetary Roller Extruder can also handle the complex compounding processes required for pressure-sensitive adhesives.



#### **Typical areas of application**

- Adhesive tapes and films, sealing tapes
- Retaining adhesives for composite materials
- Assembly adhesives
- Self-adhesive equipment
- Labels and price tags
- Book-binding adhesives



## ADHESIVES

# Benefits of producing and compounding.

### Targeted melting of various formulation components

efficient

It is efficient: substances with different temperature dependencies can be deliberately conveyed into narrowly defined temperature zones. In this way, for example, even

demanding materials can be melted without flocculation or adhesion, something that requires a considerable period of time with other systems.

### Precise control of reactions

With the Planetary Roller Extruder's individually controlled process zones, it is possible to allow chemicals to react under pressure or to intentionally trigger, control and interrupt reactions in individual process zones. Depending on the requirements of

the process, it is also possible for a chemical reaction to span multiple process zones as it runs through different pressure and temperature conditions to precisely control the progress of the reaction.

### Extremely short compounding times of just a few minutes

The heating, cooling and melting of solid materials and admixture of fluids is performed over a relatively short distance with efficient heat exchange through large surface areas. In conjunction with a special

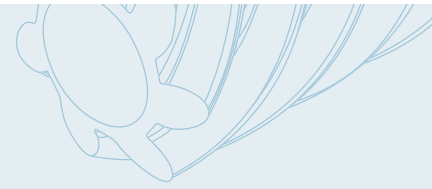
mixing chamber design and targeted control of the dwell times in the individual process zones, it is possible to achieve outstanding extrusion results with a short throughput time.



HIGH THROUGHPUT



IMPROVED PRODUCT QUALITY



### Stable homogeneity and viscosity of the extruded material

The outstanding mixing and effective tempering in the PRE ensure that the homogeneity and viscosity of the extruded material remain constant.

In this way it is possible to maintain the consistent high quality of the product.

### Effective cooling of the adhesive mass

the key

Effectively cooling the adhesive mass to the required target temperature/viscosity during the compounding process makes it possible

to continue processing the material directly without the use of static cooling units.

### Solvent-free mastication and homogenisation

impressive

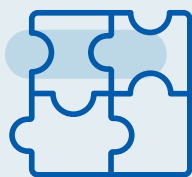
Solvent-free mastication and homogenisation of rubber, resin or filler masses make subsequent processing of the product easier

while delivering better and more consistent quality. They also reduce costs and health risks.

### High degassing quality optimises subsequent processing

The combination of extremely efficient degassing of as much as 1 mbar with large contact surface areas for energy exchange

allows the outstanding evacuation of volatile components such as solvents, degradation products and odours.



SIMPLIFIED PROCESS CHANGES



A SECURE INVESTMENT

## Precision extrusion A system concept that delivers.

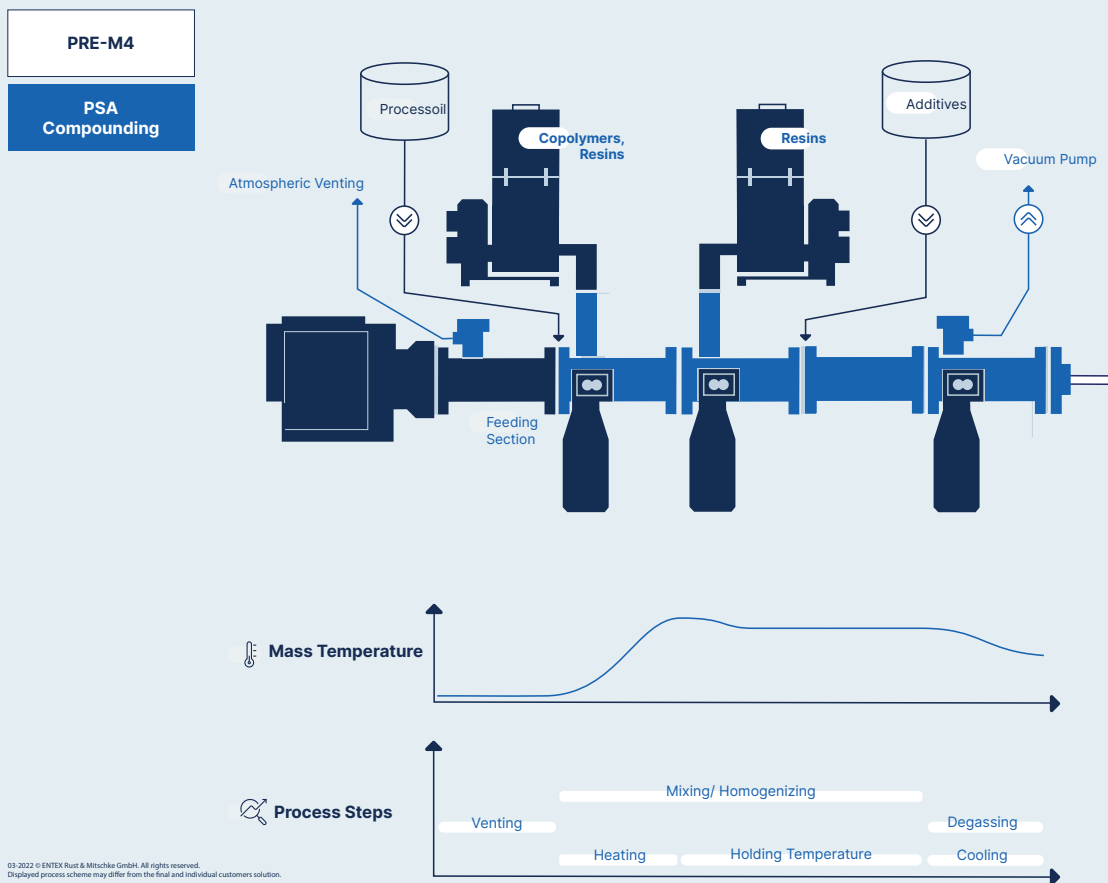
This system's combination of a targeted, process-oriented feed of various fluids and solid materials in defined process zones with mechanical configurability and efficient tempering allows it to conduct

gentle, low-shear compounding to produce extrudates with outstanding homogeneity. Every single step in the process can be controlled individually.



### PRE-M4

## Pressure-sensitive adhesive compounding process.



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