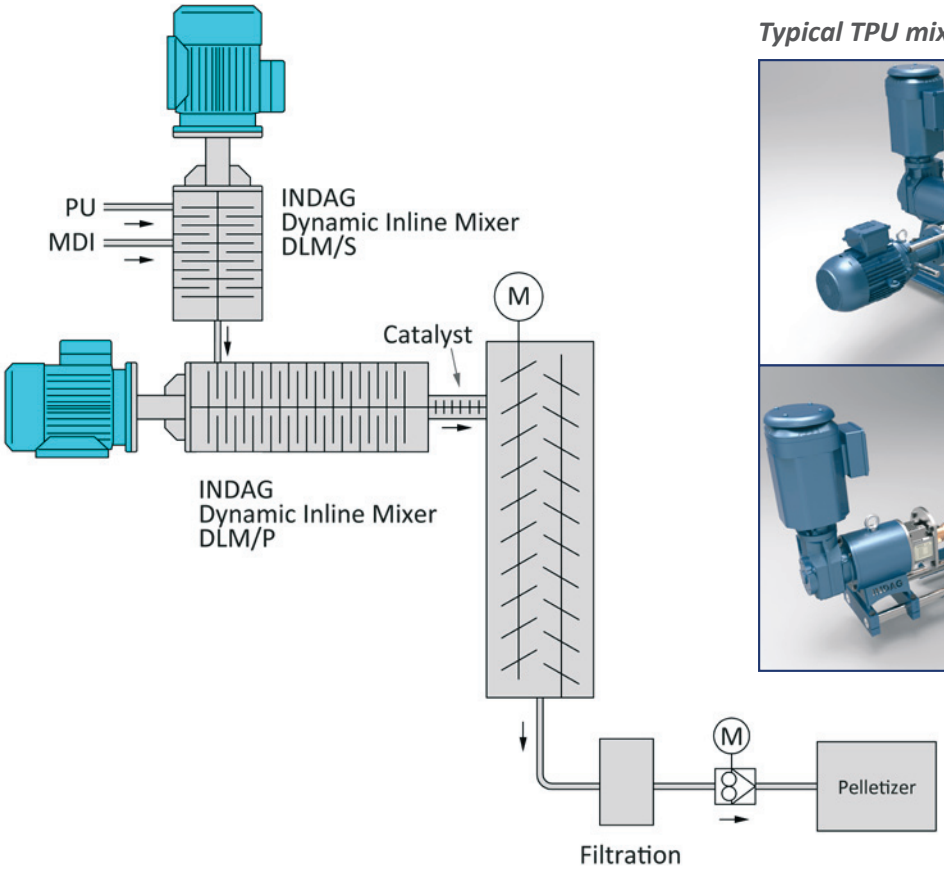
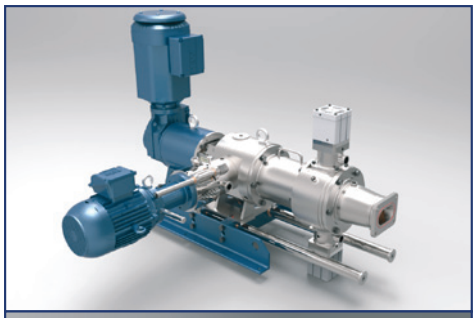
Case No. 102A
TPU Processing: Polyol with Isocyanate and Catalyst



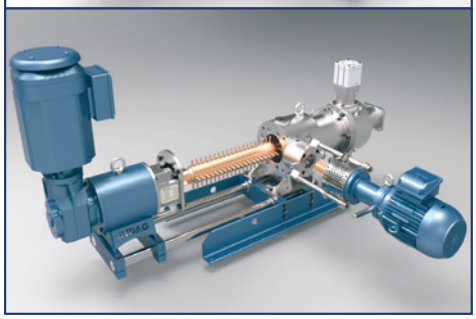




Typical TPU mixing set up:



View on mounted machines



View on open machines

Example for TPU processing with INDAG Dynamic Inline Mixers

Process Description

Polyol or the individual components of polyol are homogeneously mixed with isocyanate in the first mixer. In a second mixer a residence time is created to pre-react the components before entering the extruder. The crosslinker, which leads to an abrupt increase in viscosity, is added only at the end of the mixing process or optionally into the extruder inlet.

For some very high crosslinked products with a high isocyanate content, the first mixer can also be connected directly to the extruder. Ideally, an extruder side inlet is used. INDAG manufactures the appropriate adapters between the extruder and our mixers.

Advantages

- **No gel building. Products gets immediately and homogeneously mixed within parts of a second, when they join together.**
- **Product could be 80% reacted before entering the extruder. After extruder the TPU is completely reacted.**
- **The extruder is not used for reaction anymore. This increases the production capacity.**
- **Closed system, less introduction of air and air-moisture.**

Case No. 102A
TPU Processing: Polyol with Isocyanate and Catalyst



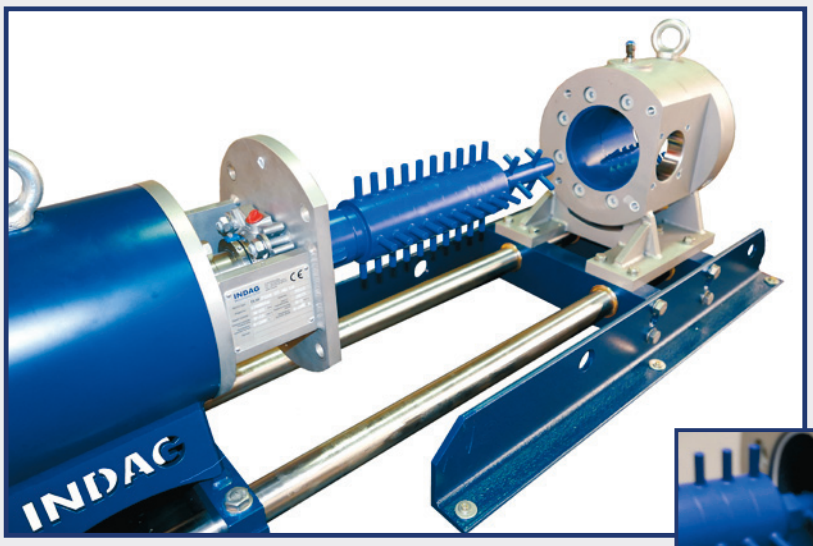


The process temperatures are usually between 120°C-180°C, whereby the product reacts faster at higher temperatures.

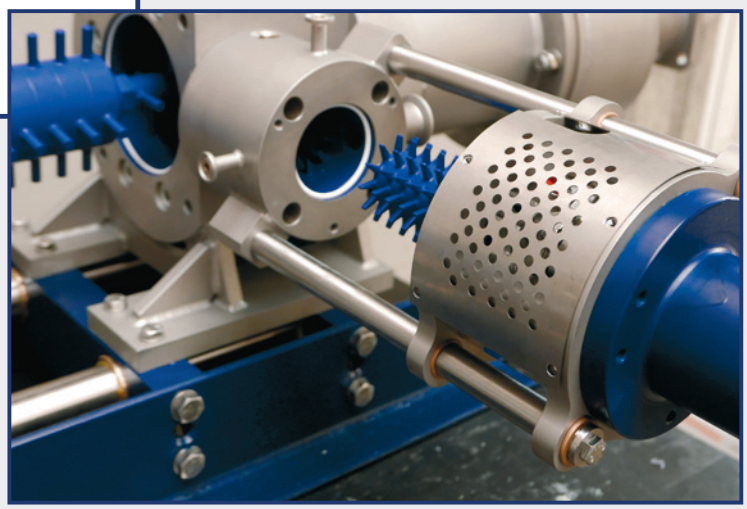
The mixers are completely heated by a double jacket to bring the mixer to the production temperature before the process starts.

For best cleaning, the mixers are coated with Teflon in contact with the product. Furthermore, the mixer housings are mounted on slides for easy disassembly. After a production cycle, the mixer is rinsed with pure polyol and then, after opening, cleaned manually with a cloth and compressed air gun. Damage to the coating due to age can be recoated at any time.

Our mixers are suitable from laboratory scale of 20kg/h to production scale of > 1,5t/h



View on open residence time mixer



View on open intensive mixer

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