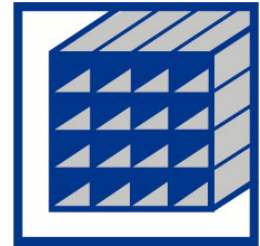


Thermoplastic injection moulding binders



SILIPLAST

Application

Injection moulding of ceramic powders allows an almost completely automatic production of complicated geometries in high quantities without the need for expensive finishing stages.

Through the addition of an injection moulding binder, the ceramic powder is transformed into a **flowing state under influence of temperature**, this being necessary for processing on conventional synthetic processing injection moulding machines. By intensively mixing the ceramic powder and the injection moulding binder, the **maximum possible homogeneous coating of the ceramic powder particles** should be achieved to also ensure the flow properties.

After moulding, and during cooling and solidification of the injection moulding binder, the green piece develops a bond which ensures an **appropriate strength for the subsequent processing steps** (such as for example transport to the debinding and/or sintering stages.)

Prior to sintering, the injection moulding binder is removed, either by extraction with solvent (e.g. water) or through regulated thermal decomposition. A small residual part remains in the moulded body to **ensure structural integrity until the onset of the ceramic bond**.

Mode of action

For optimum processing qualities, and to achieve a good quality finished product, injection moulding media must fulfil a large number of requirements.

By using injection moulding binders from Zschimmer & Schwarz, **optimum viscosity ranges** for injection moulding can be set up.

The viscosity of the feedstock (a mixture of powder and injection moulding binder) depends on the addition quantity necessary for moulding, and the determined temperatures. On account of a relatively wide processing field, the viscosity of the feedstock can be further varied in a particular range by temperature without starting the decomposition of the binder.

A sufficiently **wide processing range** is indispensable in securing the quality of the finished product, as well as accounting for raw material and technical process variations.

Specific lubricants included in the injection moulding binders from Zschimmer & Schwarz enable **low abrasion preparation of the powder**, as well as **good de-moulding capacity of the components** to be injected.

On account of the **good wetting properties**, the necessary addition for the injection moulding process can be reduced to a minimum. Additionally, good wetting properties act against possible separating phenomena.

To guarantee a **residue free removal** of the injection moulding medium, organic raw materials are used exclusively. The use of **toxicologically low-hazardous substances** ensures an **economic waste disposal**, combined with **low emission values**.