

Processing guide for Multiflex™ TES BAS – SBS Based

Multiflex™ TES BAS are styrenics thermoplastic elastomers SBS based materials. Compatibility with polyolefins enables bi-material parts (continuous process or cold insert). Please find below some indications to follow for process Multiflex™ TES BAS series. Of course, this not replaces molder know-how, every tools having own specificity, but this document is useful for initial parameter choice.

Multiflex™ TES BAS can be transformed between their melting temperatures 150°C to 200-210°C. In this temperature range, materials are stable, above, thermal degradation occurs, resulting in yellowing and significant odor emanation.

On a general point of view, viscosity of SBS based material is principally dependant of applied shear, so Multiflex must be injected with high injection speed.

Pre-drying

As Multiflex™ TES BAS are not humidity sensitive, Pre-drying is not needed. In case of "incident", pre-drying at 40°C during 8 hours is sufficient.

Machinery cleaning

High flow thermoplastic must be used, PEHD, PELD or PP.

Coloring

Multiflex™ TES BAS are easy colorable by using color masterbatch based on PP, PE or ethylene copolymers (EVA).

Recycling

Due to the fact that Multiflex™ BAS are thermal sensitive, recycling can reduce product properties. We recommend a maximal level of 5% of recycling material in virgin material.

INJECTION

On a general point of view, viscosity of SBS based material is principally dependant of applied shear, so Multiflex must be injected with high injection speed.

Processing parameters

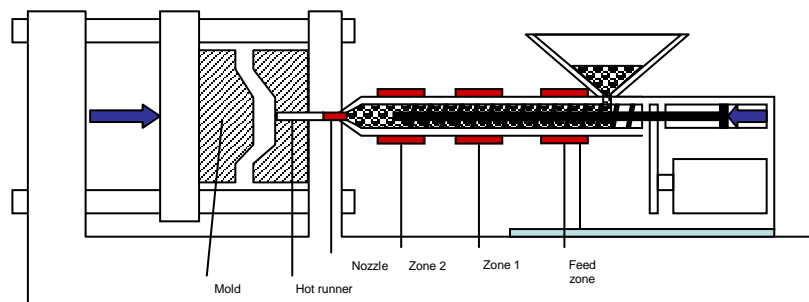
Screw:

Geometry: Standard injection machine, L/D > 20, Compression rate 2:1 to 3:1 (if higher, risk of thermal degradation)

Screw volume must be correctly designed according injected parts volume, to limit material heat exposure time, and so prevent any polymer thermal degradation. A volume corresponding to 3-4 part volume is recommended.

Temperatures (°C) :

Feed Zone	Zone 1	Zone 2	Nozzle
150 +/- 10	170 +/- 10	190 +/- 10	190 +/- 10



Injection speed:

Injection speed and fill time are highly dependent on part geometry, complexity and gate design. Faster speeds typically result in easier mold filling while lower speeds result in better surface appearance. Start with an injection speed equivalent to 60-70% of maximum speed.

Holding pressure

Start with a pressure equivalent to 30% of maximum injection pressure. Excessive holding pressure can result in distortion in the area of the gate due to elastomeric characteristics of the material

Holding time

3 second can be used to start to ensure sufficient time for gate freeze off.
Holding time can be slowly reduced until changes in part appearance or weight occur.

Mold

Use conventional mold design (venting, finish, draft)
Temperature: from 10°C to 60°C, but typically chosen in the range 20-30°C gives good results.

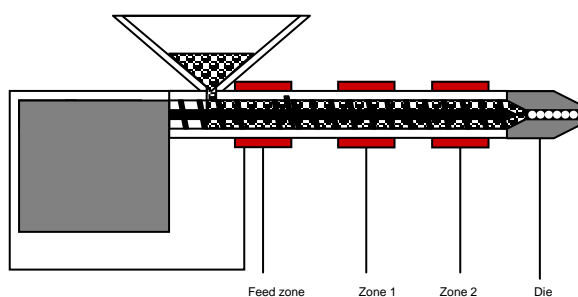
Hot Runners

Hot runner volume must be small comparing to parts volume ($V_{hr}/V_p=0.1$), to prevent material thermal degradation.
Apply a temperature of 190°C +/- 10.

EXTRUSION

Multiflex™ TES BAS series can be processed on all extrusion machines for PVC, polyolefin.
A screw, with a compression ratio of 3 is recommended.

<u>Temperature (°C) :</u>	Feed Zone	Zone 1	Zone 2	Die
	160 +/- 10	170 +/-10	180+/-10	190+/-10



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