

# Product Information

## Automotive and Transportation



DOW CORNING

# Multiflex<sup>®</sup> A1004 65A 520 FXT 16780 Thermoplastic Elastomer

## FEATURES & BENEFITS

- Soft touch
- Aesthetics
- Black
- Compatibility: ABS, ABS/PC, ASA, PMMA

## APPLICATIONS

- Multiflex<sup>®</sup> A1004 65A 520 FXT 16780 is designed for use in injection molding/extrusion.

## TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test*	Property	Unit	Result
ISO 868	Hardness	Sh.A	65
ISO 1183/A	Density	g/cm <sup>3</sup>	1.02
MDA 179	Spiral flow condition B	cm	30
ISO 37 Type 1 v = 500 mm/min	Tensile strength at 100% elongation cross direction	MPa	2.4
ISO 37 Type 1 v = 500 mm/min	Tensile strength at break cross direction	MPa	5.2
ISO 37 Type 1 v = 500 mm/min	Elongation at break cross direction	%	570
ISO 34	Tear strength cross direction	kN/m	31

\*ISO: International Standardization Organization

MDA (Méthode d'Analyse): Issued from ISO Standards

## GUIDELINES FOR INJECTION MOLDING

Drying		4–6 hrs @ 90–100°C
Barrel temperature °C	Feed Zone	170 +/- 10
	Transition	180 +/- 10
	Front	190 +/- 10
	Nozzle	200 +/- 10
Melt temperature °C		190 +/- 10
Back Pressure bars		15 +/- 5
Injection Speed		60 +/- 10% max
Holding Pressure		30 +/- 10% of max injection pressure
Mold Temperature °C		30 +/- 20
Hot runner °C		190 +/- 10

## GUIDELINES FOR EXTRUSION

Drying		4–6 hrs. @ 90–100°C
Temperature °C	Feed Zone	160 +/- 10
	Zone 1	170 +/- 10
	Zone 2	180 +/- 10
	Adaptator/Die	190 +/- 10
Melt temperature °C		190 +/- 10

### PROCESSING GUIDE

*Multiflex*® brand series TEA/A1004 are alloys based on SEBS designed for overmolding on technical polymers like PC/ABS/ASA/SAN.

Please find below some indications to follow to transform the product. This does not replace molder experience, every mold having its own specificity, but this document is useful for initial parameter choice.

#### Background

*Multiflex*® TEA/A1004 alloys are sensitive to temperature above 220°C. To avoid any retention zone, mold must be correctly dimensioned and geometry must be optimized.

#### Pre-drying

To obtain maximal product efficiency, humidity in raw material must be below 0.1% before injection. This level is obtained by an efficient pre-drying under hot air venting, between 90 to 100°C, during 4 to 6 hours. Ideally, a mechanical mixing during pre-drying speeds up humidity extraction. Timing between pre-drying and injection must be limited, and ideally material must be protected from ambient air.

#### Machinery cleaning

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

#### Coloring

*Multiflex*® TEA/A1004 alloys are easily colorable by using color masterbatch based on PE or ethylene copolymers (EVA).

#### Recycling

Due to the fact that *Multiflex*® TEA/A1004 alloys are thermal sensitive, recycling can reduce product properties. We recommend a maximal level of 5% of recycling material in virgin material.

### INJECTION

*Multiflex*® series TEA/A1004 alloys are viscous material and high pressure is needed to inject them. Whole tooling, meaning screw, mold, and runner must be well designed to limit material stagnation at high temperature. Total material volume in the tool must be limited to 3–5 molding volumes.

#### Processing parameters

Screw:

Geometry: standard injection machine, L/D > 20, compression rate 2:1 to 3:1 (if higher, risk of thermal degradation). Ideally, screw volume must be limited to 3–5 mold volume, to limit material stagnation under heat. A screw speed upper 150 rpm, combined with a high counter-pressure ensures thorough melting of the material without excessive temperature generation.

#### Back pressure

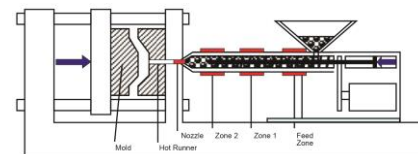
Must be higher than 10 bars. This will ensure a uniform melt without severe shear heating.

#### Temperatures (°C)

See Figure 1.

- Feed Zone: 170 +/- 10
- Zone 1: 180 +/- 10
- Zone 2: 190 +/- 10
- Nozzle: 200 +/- 10

**Figure 1: Injection molding processing temperatures**



#### 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 but limits adhesion, while lower speeds result in better surface appearance but needs high injection pressure. Start with an injection speed around 60% 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

Three seconds 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) with temperatures from 10 to 60°C. In the range of 20–30°C typically gives good results.

### Hot Runners

Limit hot runner temperature below 190°C to enhance material degradation. Furthermore, if hot runner volume is too high (volume upper than 2 volume shot), limit hot runner temperature below 180–185°C.

### EXTRUSION

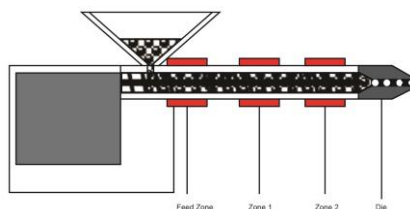
*Multiflex*® TEA /A1004 alloys can be processed on all extrusion machines for PVC, polyolefin. A screw, with a compression ratio of 3 is recommended.

### Temperatures (°C)

See Figure 2.

- Feed Zone: 160 +/- 10
- Zone 1: 170 +/- 10
- Zone 2: 180 +/- 10
- Die: 190 +/- 10

**Figure 2: Extrusion processing temperatures**



### HANDLING

### PRECAUTIONS

### PRODUCT SAFETY

**INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEBSITE**

**FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.**

### USABLE LIFE AND STORAGE

Refer to product label for storage temperature conditions. Containers should be kept tightly closed and kept in cold storage at all times to extend shelf life. Shelf life is indicated by the “Use Before” date found on the product label.

### PACKAGING INFORMATION

This product is available in a variety of container sizes. Contact your local Dow Corning sales representative for information about container sizes available in your area.

### LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

### HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

### LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

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