Tefabloc™ by mcpp

Thermoplastic Elastomers injection process range

MITSUBISHI CHEMICAL

mcpp™ Power to Perform

Softness

Low density

Long term ageing

Elastic recovery

Multi material design

Abrasion resistance

Flame retardant

Food contact

Easy processing

The versatile Thermoplastic elastomer

INTRODUCTION

The TEFABLOC™ TPE's range is providing specific and suitable solutions in terms of cost and features: Elastic recovery, ageing, flexibility at low temperature, fire resistance, chemical compatibility, appearance, colour, food contact, medical etc...

MCPP - MITSUBISHI CHEMICAL PERFORMANCE POLYMERS aims to take a leading position in specialized markets for highly specific products designed for TPEs, such like seals and gaskets (automotive glazing systems, building windows, water drainage systems, fridge, dryers, washing machine, electrical equipment ...), airbag covers, insulation of automotive wiring looms and special cables, soft touch handle and choc protection ...

COMPREHENSIVE RANGE

The TEFABLOC™ range for injection process is made of several groups with performance, linked to design and final application:

- Single material parts and/or 2K overmolding on polyolefins
- 2K overmolding on engineering polymers
- Food contact applications
- Flame retardant grades
- Specialties

Single material parts & 2K overmolding on polyolefins

		UV resistance	Hardness	Multi material	Elastic recovery	Colouring	Shade	Abrasion	Food contact	Flow	Typical use
General purpose	TO..113	✓	27A<>35D	PP/PE	✓	✓✓	opaque	✓	NA	✓✓✓	Indoor or outdoor without UV exposure (black only). Limited service temperature.
Ultra soft Dry touching	TPSD202	✓✓✓	15A<>40A	PP/PE	✓✓	✓✓✓	translucent	✓✓	on request	✓✓	Outdoor, ultra-soft, bright colours, no tackiness
	TPSD203	✓✓✓	15A<>40A	PP/PE	✓✓	✓✓	opaque	✓	on request	✓✓	Outdoor, ultra-soft, all colours, no tackiness
Standard	TOSI212	✓✓✓	40A<>40D	PP/PE	✓✓	✓✓✓	translucent	✓✓	on request	✓✓✓	Outdoor, bright colours multi-purpose
	TOFI902	✓✓	40A<>90A	PP/PE	✓	✓✓✓	transparent	✓	on request	✓✓	Transparent multi purpose
	TOSI213	✓✓✓	40A<>40D	PP/PE	✓✓	✓✓	opaque	✓	on request	✓✓✓	Outdoor, all colours multi-purpose
High perform.	TO..623	✓✓✓	30A<>90A	PP/PE	✓✓✓	✓	opaque	✓✓	NA	✓	Outdoor, sealing function with excellent recovery at elevate temperature
	TO..823	✓✓✓	30A<>35D	PP/PE	✓✓✓	✓✓	opaque	✓	on request	✓✓	Outdoor, all colours, sealing function at elevate service temperature

mcpp

2K overmolding on engineering polymers

	UV resistance	Hardness	Elastic recovery	Colouring	Shade	Abrasion	Food contact	Flow
TESI 107	✓	50A<>80A	✓	✓✓✓		✓✓✓	on request	✓
TESI 117				✓✓	opaque	✓		
TESI 817	✓✓	40A<>90A	✓✓✓	✓✓	opaque	✓✓	NA	✓✓
TEFI 837							on request	
TEFI 847							on request	
TESI 744	✓✓	40A<>90A	✓✓	✓	opaque	✓✓	NA	✓✓✓
TESI 910	✓✓	50A<>80A	✓	✓✓✓	transparent	✓	on request	✓✓
TOFI 902	✓✓	40A<>90A	✓	✓✓✓	transparent	✓	on request	✓✓

(1) TESI 817 may be also offered like translucent.

TEFABLOC™ TPE product range also comprise thermoplastic elastomers, specifically designed for food contact applications. More information about TEFABLOC™ product range for food contact within next pages.

Bonding performance according to polymers

Bonding Performance							
	TE 107 & 117	TE 817- TE 837 - TE 847		TE 744		TE 910	TOFI 902
		<60 ShA>		<60 ShA>			
Commodity Polymers							
PE	✓✓	✓	✓	✓	✓	✓✓	○
PP	✓✓✓	✓	✓	✓✓	✓✓✓	✓✓	✓✓✓
PS	✓✓✓	✓✓	✓✓✓	✓	✓	✓	○
Engineering polymers							
SAN	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
ABS	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
PC	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
ABS/PC	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
ASA	✓✓✓	✓✓	✓✓✓	✓	✓	✓	○
DURABIO™	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
PMMA	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
SMMA	✓✓✓	✓✓	✓✓✓	✓	✓	✓	✓
PA6 / PA6.6 / PA11 / PA12	✓	✓	✓	✓✓	✓✓✓	✓	✓
PET	✓✓✓	✓	✓✓	✓	✓	✓	✓
PBT	✓✓	✓	✓	✓	✓	✓	✓
POM	✓✓	✓	✓✓	✓	✓	○	○

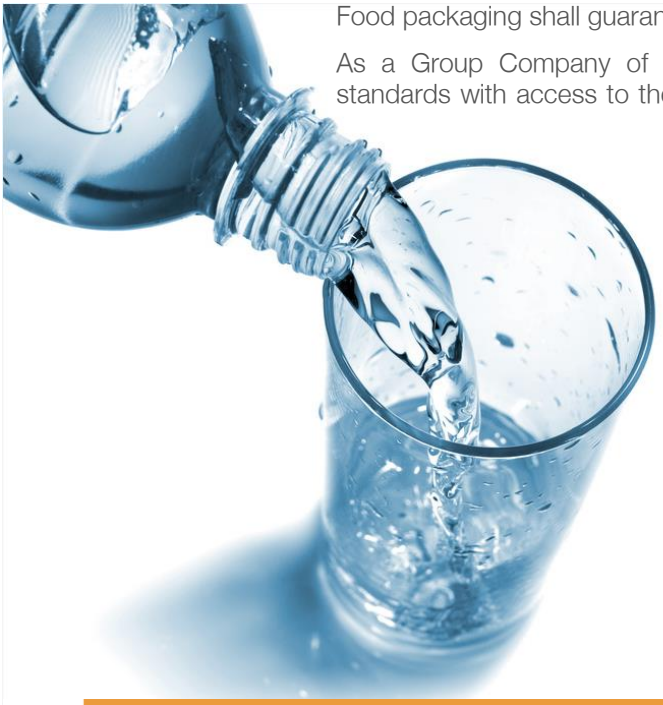
Bonding characteristics may vary according to hardness, rigid material origin and processing parameters.

Cohesive	✓✓✓	Peelable	✓
Good	✓✓	Not tested	○

What's DURABIO™ ?

DURABIO™ engineering polymer is a new generation of material offering a set of properties that no other plastic has simultaneously: exceptional optical quality, impact resistance, UV resistance and an outstanding surface hardness.
DURABIO™ also offers a low environmental footprint, considering the natural origin of some of its constituents.

food contact applications



Food packaging shall guaranty the highest level of safety, with full compliance to regulations.

As a Group Company of MITSUBISHI CHEMICAL, MCPP relies on the world highest standards with access to the best raw materials sources. Thanks to this knowledge and its compounding expertise, MCPP develops and produces high performance thermoplastic elastomers, specifically designed for food contact applications.

TEFABLOC™ range for food contact applications:

- TEFABLOC™ TO/TP
  Single material parts and 2K overmolding on polyolefins
- TEFABLOC™ TE
  2K overmolding on engineering polymers

		Hardness	Multi material	Elastic recovery	Colouring	Shade	Abrasion	Flow	Compliance (1)	Typical use
Standard performance	TOFI212	30A<>45D	PP/PE	✓✓	✓✓✓	translucent	✓✓	✓✓✓	EU 10/2011	bright colours multi-purpose
	TOFI210	30A<>45D	PP/PE	✓✓	✓✓✓	translucent	✓✓	✓✓✓	EU 10/2011 FDA 21 CFR	bright colours multi-purpose
	TOFI902	40A<>90A	PP/PE	✓	✓✓✓	high transparency	✓	✓✓	EU 10/2011 FDA 21 CFR	transparent multi-purpose
	TOFI213	40A<>35D	PP/PE	✓✓	✓✓	opaque	✓	✓✓✓	EU 10/2011 FDA 21 CFR	all colours multi-purpose
	TPFI310	50A<>90A	PP/PE	✓	✓✓✓	opaque	✓	✓✓✓	EU 10/2011 FDA 21 CFR	all colours multi-purpose
Ultra soft Dry touching	TPFI202	15A<>35A	PP/PE	✓✓	✓✓✓	translucent	✓✓	✓✓	EU 10/2011 FDA 21 CFR	ultra-soft no tackiness
	TPFI203	15A<>35A	PP/PE	✓✓	✓✓	opaque	✓	✓✓	EU 10/2011 FDA 21 CFR	ultra-soft, no tackiness
High performance	TOFI823	35A<>30D	PP/PE	✓✓✓	✓✓	opaque	✓	✓✓	EU 10/2011 FDA 21 CFR	sealing function hot temperature
	TOFI631	60 ShA	PP/PE	✓✓✓✓	✓✓	opaque	✓	✓✓	EU 10/2011	sealing function hot temperature
	TOFI242	60 ShA	PP	✓	✓✓✓	translucent	✓✓	✓	EU 10/2011	high mechanical properties
	TOFE828 (extrusion)	40A<>75A	PP/PE	✓✓✓	✓✓	opaque	✓	NA	EU 10/2011 FDA 21 CFR	all colours, hoses for hot liquids
2K engineering materials	Adhesion to : PS – PC – ABS – SAN – ASA – PBT – PET – PCTG – SMMA – PMMA – DURABIO™									
	TEFI837	50A<>90A		✓	✓✓	opaque	✓	✓✓✓	EU 10/2011 FDA 21 CFR	seals for caps & closures
	TEFI847									grips
	Adhesion to : PP – PS - PC – ABS – SAN – ASA – SMMA – PMMA – PET – PCTG – DURABIO™									
	TEFI910	65 ShA (52A-80A)		✓	✓✓✓	high transparency	✓	✓✓✓	EU 10/2011 FDA 21 CFR	transparent parts

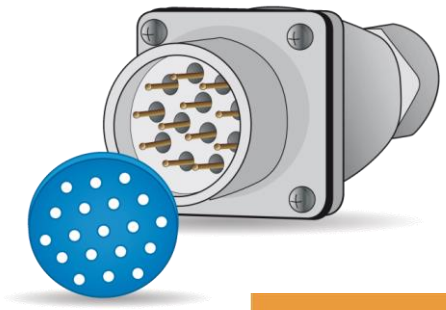
(1) please consult us prior to assign material

mcpp

Flame retardant solutions

TEFABLOC™ flame retardant series describe here after are designed for injection process. However, the range is also including specific products for the insulation and sheathing of electric wires

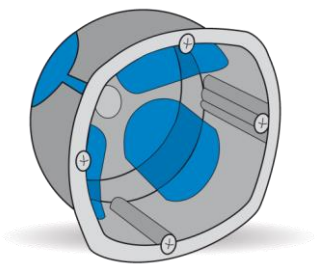
Thanks to softness and elastic memory, the flame retardant TEFABLOC™ grades are often used for waterproof feature of electrical devices.



In the low hardness range, temperature has a very low influence on mechanical properties and the flexibility remains consistent within a wide range of temperature like in winter and summer seasons.

In addition to the following list, the TEFABLOC™ range also includes a group of material, specifically designed for insulation and sheathing of electrical cable, used in automotive (under bonnet) and various industries.

INJECTION PROCESS	Flame Retardant			HFFR
	TO 034	TO 035	TO 036	QU3550E
typical properties	Flame retardant (standard)	Flame retardant (medium)	Flame retardant (high)	Flame retardant low smoke
Hardness - Shore A(*)	20<>80	40<>80	40<>90	85
UV resistance	✓	✓	✓	indoor
Zero halogen				✓
Glow wire test	750°C	850°C	960°C	960°C
UL94 (3.12 mm)	V-0	V-0	V-0	V-0
Smoke density				low
2K compatibility	PP	PP	PP	PP
Sealing at 23°C	✓	✓	✓	✓
Sealing at 70°C	✓	✓	✓	✓
Sealing at 100°C				
Processability (flow)	✓✓	✓✓	✓✓	✓✓
(*) other hardness on request				



Specialties

TEFABLOC™ TPE product range includes many specialties for which some of the characteristics have been maximized and match the expectations for designed applications.

This non exhaustive list provides an overview of some possibilities. Would you look for some other features, please ask your local contact, it will be our pleasure to do our best and satisfy your expectations.

ABRASION RESISTANCE

TEFABLOC TPSI 666 85A offers an extremely good performance vs abrasion, without staining when in contact with other materials, even under high pressure at the surface of contact.
Main characteristics: Hardness
Typical application: wheel tread, castor

SCRATCH & MAR RESISTANCE

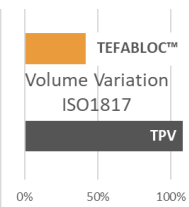
TEFABLOC™ TOSI 546 series is specifically designed for parts requiring a smooth durable visual aspect while being exposed to rubbering and risk of scratch.
Main characteristics: Hardness 70 ShA – 85 ShA, chemical adhesion to PP, low VOC
Typical application: handle, skin effect surface

HIGH MECHANICAL STRENGTH

High tensile strength is the key characteristic for **TEFABLOC™ TOFI 242 60A**, which might be also suitable for food contact (consult us)
Main characteristics: Hardness 60 ShA – elongation modulus 1.9 MPa, tensile strength at break 14 MPa.
Typical application: perforable stopper.

OIL CONTACT

The TEFABLOC™ TOSI 018 60A, offers oil resistance that makes it suitable for applications in mechanical environment.
Main characteristics: Hardness 60 ShA – heat resistance.
Typical application: sealing.



ABOUT US

The Mitsubishi Chemical Performance Polymers business (MCPP) is one of the top growing businesses at Mitsubishi Chemical Group. MCPP delivers innovative solutions based on consistent chemistry based technology, polymer design, and thermoplastic compounding expertise.

CUSTOMER ORIENTED

Our commitment is to be your global specialty partner by developing and delivering solutions which satisfy a variety of needs.

GLOBAL

Worldwide, we deliver high quality, thermoplastic resins for automotive applications. These applications include safety parts, seals, under the hood, interior and exterior components. As a reliable partner, we also provide global thermoplastic solutions for consumer goods, packaging, medical, building industries, wire and cable, and other industrial applications.

www.mcpp-global.com

mcpp™
Power to Perform

ASIA

JAPAN (HQ)	+81-3-6748-7131
CHINA	+86 (0)512 52 69 22 22
INDIA	+91-124-469-9820
INDONESIA	+(62)21-521-0480
SINGAPORE	+65 6423 1308
SOUTH-KOREA	+82 (0)31 479 6676
THAILAND	+(66)3483-1261

AMERICAS

USA	+1- 866-955-1660
BRAZIL	+55-11-4417-4060

EUROPE

FRANCE	+33 (0)2 51 65 71 43
GERMANY	+49 (0)211 52054 10
POLAND	+48 (0) 46 863 13 60
TURKEY	+90 (0)216 651 8670

MITSUBISHI CHEMICAL