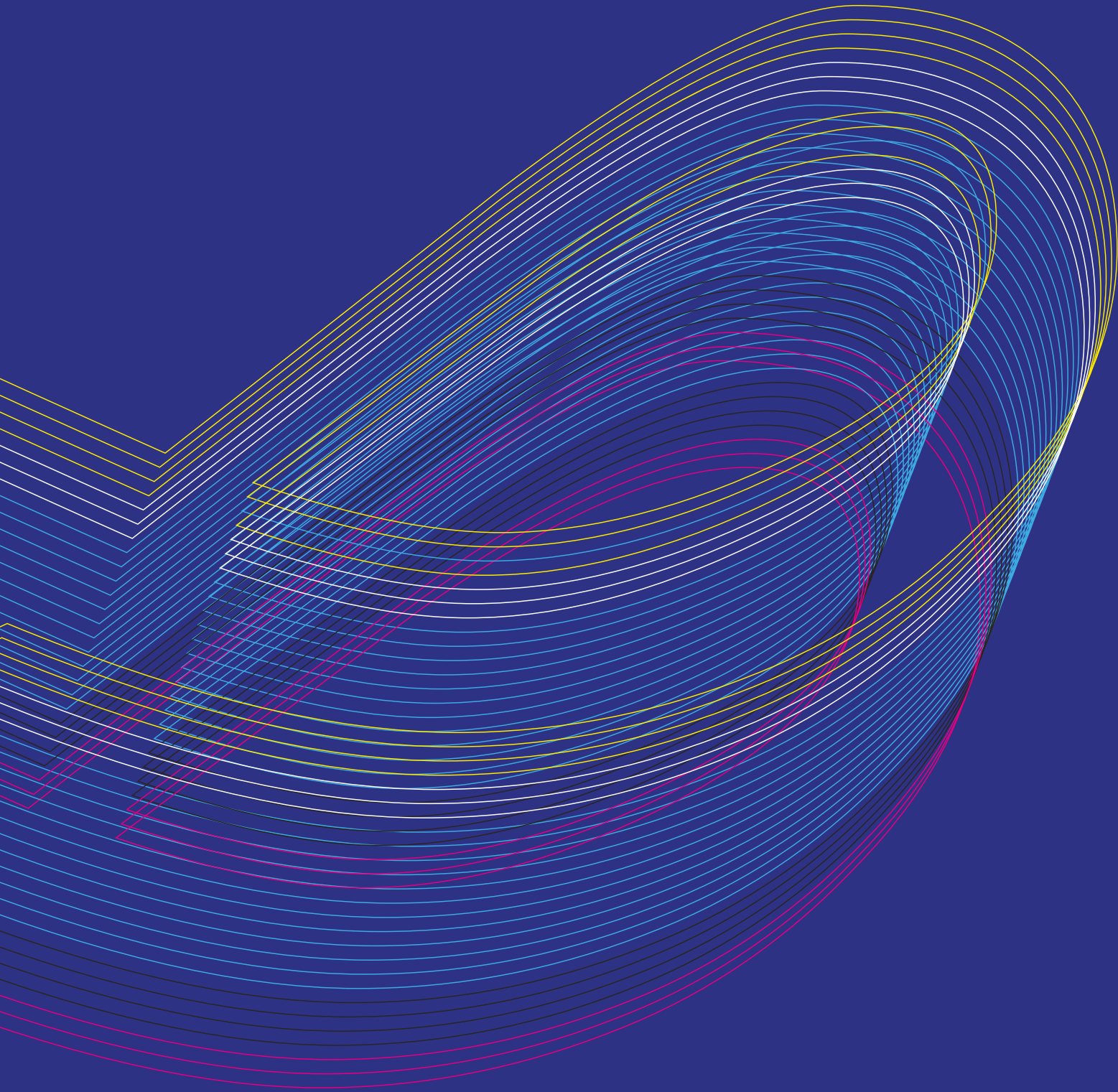


# ELASTRON THE TPE SPECIALIST



T H E R M O P L A S T I C E L A S T O M E R S





**elatron**

### **A WORLD CLASS R&D CENTER**

Elastron R&D is the pioneer for delivering innovative solutions to TPE market. We introduce long-term value to our customers by continuous investing in resources and people for creating solutions and high value added products. Our aim is to be known as a 'solution center' and 'value innovation' R&D in the polymer industry.

### **TECHNICAL SUPPORT**

Over the years, we have given technical support for our customer's processes by traveling around the world thousands of miles. With the help of our experienced technical support team, we aim to provide our customers the highest benefit from Elastron products.

### **WORLDWIDE PRESENCE**

Elastron is serving over 50 countries in 6 continents. Offices and distributors deliver Elastron quality from global scale to local networks.

### **UNIQUE EXPERIENCE**

After founded in 1980, Elastron has focused only on manufacturing thermoplastic elastomers.

### **REFERENCE**

Elastron is in cooperation with the market leaders in many different industries.

### **ADVANCED TECHNOLOGY IN PRODUCTION**

Production of Thermoplastic Elastomer requires experience, specially designed equipments. We have been combining our technical knowhow with a high tech automatic control system.

### **CERTIFICATED QUALITY**

The Quality Management System (ISO 9001:2015) ensures that Elastron supplies all products with consistent quality that meet customer requirements. Elastron is also accredited by the Automotive Quality System (IATF 16949) ensuring high quality production and supply to the automotive market.

### **A RESPECTFUL COMPANY**

Achieving the certification of ISO 14001:2015 Environmental Management System demonstrates our strong commitment to the environment.

Elastron has implemented and maintains a health and safety management system in accordance with OHSAS 18001:2007

# AUTOMOTIVE

Elastron develops not only products but also solutions for special applications according to automotive industry needs.

As a result of this focus Elastron is certified with IATF 16949. With its specialized grades Elastron offers solutions for weatherseal, interior, exterior, under the hood applications. We are in close cooperation with OEMs to track down the needs closest way to serve our partners. The grade selection is not limited. As we are eager to serve our customers as a solution provider, thus we are flexible to develop tailor made products for our partners. Not limited with this list but main applications you can face at an automobile are;

## WEATHERSEALS

- Inner&Outer Belt Line Seals
- Glass Run Channels
- Sun Roof Seals
- Glass Encapsulation
- Corner Molding
- Slip Coat
- End Caps

## EXTERIOR

- Bumper Spoiler
- Wiper Spoiler
- Mud Flaps
- Antenna Bezels
- Wheel Housing Parts
- Fuel Entrance Cover Seal





## INTERIOR

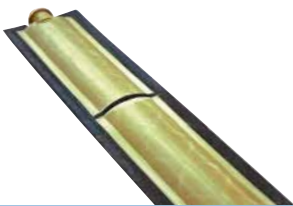
- Pad Heel
- Pads & Cup Holders
- Hvac Door Seals
- Floor Mats
- Seat Gaskets
- Glovebox Cover & Housings

## UNDER THE HOOD & CHASSIS

- Clean Air Duct
- Suspension Bellows
- Radiator Seals
- Steering Bellows & Dust Boots
- Grommets & Plugs
- Fuel Line Hose
- Mechanism Cable Covers
- Brake Conduit

## ELASTRON PRODUCTS FEATURES AT A GLANCE;

- Excellent UV and ozone resistance
- Abrasion resistance
- Available products for adhesion to PP,PE, etc and engineering plastics. (ABS,PC,PA, etc.)
- High temperature resistance
- OEM approved grades
- Excellent compression set
- Low temperature resistance
- %100 recyclable



# CONSUMER & CARE

Elastron offers high quality TPE compounds to designers and producers of consumer goods with a wide range of applications.



## APPLICATIONS

- Grips & Soft Touch & Handles
- Lids & Covers & Caps
- Bed Support
- Wheel & Trolley & Tyre
- Toy Applications
- Razors
- Toothbrushes
- Bathroom Applications
- Vacuum Cleaner Parts
- Gaskets For Consumer Goods
- Sporting Goods Applications
- Carpet Backing

## FEATURES

- Food contact approved grades available
- Antistatic grades available
- EN 71-3 toy safety conformity
- No human skin irritation
- UV and Ozone resistance
- Resistance to chemicals and oils
- Peeling strength
- Availability of very soft grades
- Excellent surface appearance
- Excellent bonding to many plastics
- Easy to color
- Colored compounds available
- 100% recyclable

## BONDABLE GRADES FOR CONSUMER

Elastron Bondable Grades are SEBS based TPEs which are designed to overmold onto many engineering plastics. They are suitable for both multi-shot and insert molding processes. These grades are used in various applications with ergonomic and flexible design advantages.

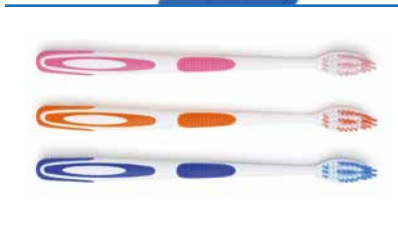
Elastron grades can be overmolded on to:

- PP
- ABS
- PET
- PS
- PA
- PETG
- PE
- PC

## PERSONAL CARE GRADES FOR CONSUMER GOODS

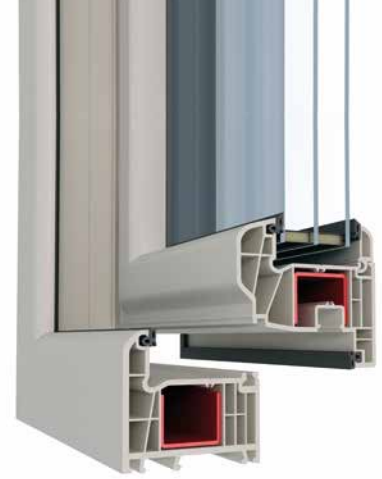
Elastron food contact grades for consumer goods have particularly been designed for bondable applications like toothbrush, razor...

- Overmolding onto many plastics
- Excellent scratch and peeling resistance
- Contains no hazardous substances for human skin
- FDA approval
- 10/2011/EC approval
- PVC, phthalate, bisphenol, metal free



# CONSTRUCTION

Elastron TPE grades specifically designed for construction industry applications are based on EPDM/PP and SEBS.



## APPLICATIONS

- Window Seals
- Pipe Seal Applications
- Dilatation Expansion Seals
- Door & Garage Applications
- Hose & Tube Applications
- Other Seal Applications
- Flame Retardant Applications
- Power Tools



## FEATURES

- RAL GZ 716/1 approved
- CSTB QB 36 approved
- Compliant with EN 681/2 (Waste Water Pipe Seals) standard
- Excellent weathering resistance
- Perfect UV resistance
- Colored compounds
- Excellent compression set
- Resistant to high temperatures
- Excellent low temperature resistance
- Co-extrusion with many plastics
- Excellent surface appearance
- 100% recyclable
- Halogen free flame retardant grades (HFFR)
- Meets ASTM F477 Pipe Specification



# ELECTRICAL PARTS & CABLES

Elastron provides flexible and high performance TPE solutions for electric and cable applications.



## APPLICATIONS

- Wire & Cables
  - Primary Insulation
  - Cable Jacketing
  - Welding Cables
  - Coaxial Cables
  - Mechanical Tool Cables
  - Instrumentation Cables
- Cable Multigates And Grommets
- Industrial Plugs And Switches
- Electrical Seals And Other Accessories



## FEATURES

- Excellent surface appearance
- Resistance to high temperatures
- UL 94 HB / V0 / V1 listed products
- Halogen Free Flame Retardant (HFFR)
- 100% recyclable
- Copper stabilized grades
- Low dielectric constant and high oxygen index
- High dielectric strength, surface and volume resistivity
- Ease of extrusion
- Excellent low temperature properties
- Excellent compression set properties
- Low smoke density
- RoHS, ELV and WEEE compliance
- Non-toxic
- Resistant to oil, chemicals, acids&bases
- Easy to color with masterbatch
- Excellent UV resistance
- Colored compounds available

## HALOGEN FREE FLAME RETARDANT (HFFR) COMPOUNDS FOR ELECTRICAL APPLICATIONS

Elastron Halogen Free Flame Retardant (HFFR) grades also offer great advantages for electrical applications. TPE grades for both injection and extrusion processes are available.

- Excellent long term electrical properties
- Halogen free
- Excellent bonding to many plastics
- UL V0, V1, V2 and HB listed
- RoHS, ELV and WEEE compliant
- Colored compounds available
- Non-toxic
- Copper stabilized grades
- Oil & chemical resistance
- Low smoke density
- Suitable for dry & wet applications
- Excellent UV and ozone resistance
- 100% recyclable
- Easy to color with masterbatch

# WHITE GOODS & APPLIANCES

Elastron offers low and high temperature resistant, RoHS compliant, detergent, acid&base resistant grades with excellent compression set values.



## APPLICATIONS

- Washing Machine Applications
- Dishwasher Applications
- Dryer Applications
- Refrigerator Applications

## FEATURES

- Resistant to detergents, acids, bases, etc.
- Good weathering resistance
- Excellent UV resistance
- Colored compounds
- Excellent compression set
- Resistant to high temperatures
- Excellent low temperature resistance
- Co-extrusion with many plastics
- Excellent surface appearance
- 100% recyclable



# MEDICAL

Elastron medical TPE compounds are tested according to USP '88' for their in vivo biocompatibility and ISO 10993-5, USP '87' for their in vitro cytotoxicity.



## APPLICATIONS

- Syringe tips
- Infusion bottle caps
- Clogs (Antistatic and steam sterilizable for medical applications)
- Sterilizable for medical applications

## FEATURES

- Excellent bonding to many thermoplastics
- Easy to color
- Excellent surface appearance
- Antistatic compounds available
- Soft touch compounds
- Availability of transparent grades
- 100% recyclable

## OTHER FEATURES

Elastron medical TPE compounds are tested according to USP '88' for their in vivo biocompatibility and ISO 10993-5, USP '87' for their in vitro cytotoxicity. Tested compounds all have USP Class VI approvals. Elastron medical TPE compounds also meet requirements of European Pharmacopoeia monographs 3.2.8 sterile single-use plastic syringes and 3.2.9 rubber closures for containers for aqueous parenteral preparations for powders and for freeze-dried powders. Elastron medical TPE compounds are sterilizable with gamma irradiation, ethylene oxide (EtO) and steam.



# FOOD

With the help of the experiences gained from manufacturing of medical TPE compounds, Elastron offers high quality food contact TPE compounds.



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## APPLICATIONS

- Food Packing
- Food Box Seals
- Grips for Kitchen Equipments
- Water Pump Seals

## FEATURES

The monomers and additives used in manufacturing food contact TPE grades should be listed in the Union List of Authorized Substances of Regulation 10/2011/EC on plastic materials and articles intended to come into contact with food. Ingredients used in manufacturing these products are subject to a specific migration limit (SML).

Elastron provides the quality and conditions of above mentioned regulation and limits.

- Excellent bonding to many thermoplastics
- Easy to color
- Excellent surface appearance
- Soft touch compounds
- Availability of transparent grades
- 100% recyclable
- NSF 51/61 Compliant Grades



# IMPACT MODIFICATION

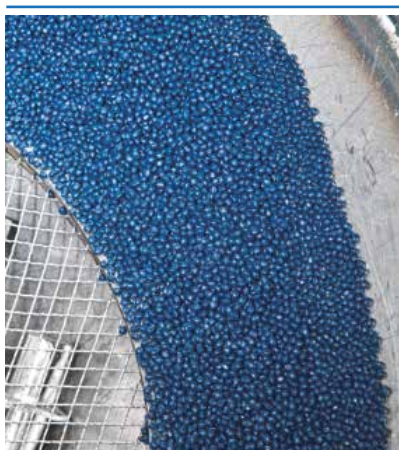
Elastron impact modifier grades are designed for adding value to your polymer.

## APPLICATIONS

- Impact modification of Virgin & Recycled PP (Polypropylene)
- Impact modification of Virgin & Recycled HIPS (High Impact Polystyrene)
- Impact modification of Virgin & Recycled HDPE (High Density Polyethylene)
- Impact modification of Virgin & Recycled ABS (Acrylonitrile Butadiene Styrene)
- Impact modification of Virgin & Recycled PC (Polycarbonate)
- Impact modification of Virgin & Recycled PA (Polyamide)

## FEATURES

- Compatible to many plastics
- Increases the impact resistance of the polymer
- Increases the stiffness of the polymer
- Increases the elasticity of the polymer
- Resistance to breaking
- Increases the impact resistance at low temperatures



## BENEFITS OF ELASTRON IMPACT MODIFIER GRADES

Polymer	Temperature	Products	Impact Strength Values (kJ/m <sup>2</sup> ) at Different Loading Rate of TPE's				
			0%	2%	4%	6%	8%
<b>Polypropylene (PP)</b>	23°C	D400.A53.N	3.40	3.80	4.00	4.20	4.55
		D100.A40.N	3.40	3.65	3.80	4.15	4.35
		T400.A70.N	3.40	3.70	4.00	4.15	4.45
	-15°C	D400.A53.N	3.00	3.40	3.70	3.80	4.00
		D100.A40.N	3.00	3.50	3.60	4.20	4.50
		T400.A70.N	3.00	3.45	3.65	4.00	4.10
<b>Recycled Polypropylene (Recycled PP)</b>	23°C	D400.A53.N	2.80	5.80	6.40	7.20	8.70
		D100.A40.N	2.80	5.50	6.10	7.20	8.10
		T400.A70.N	2.80	5.40	6.10	6.80	7.90
	-15°C	D400.A53.N	2.10	5.35	5.60	5.75	6.30
		D100.A40.N	2.10	5.30	5.50	5.60	6.15
		T400.A70.N	2.10	5.15	5.40	5.70	6.10
<b>High Impact Polystyrene (HIPS)</b>	23°C	D100.A20.N	9.60	11.70	14.10	15.40	16.00
	-15°C	D100.A20.N	5.60	11.40	13.20	13.80	14.90
<b>Recycled High Impact Polystyrene (Recycled HIPS)</b>	23°C	D400.A30.N	1.89	3.00	3.90	4.60	5.00
		D100.A20.N	1.89	2.75	3.60	4.20	4.70
	-15°C	D400.A30.N	1.27	2.50	3.55	4.10	4.70
		D100.A20.N	1.27	2.45	3.30	3.80	4.40
<b>High Density Polyethylene (HDPE)</b>	23°C	D400.A35.N	9.50	10.50	11.90	13.60	15.80
		D400.A53.N	9.50	10.00	11.50	13.40	15.20
	-15°C	D400.A35.N	5.90	6.20	7.10	7.80	8.60
		D400.A53.N	5.90	6.10	6.90	7.70	8.30
<b>Acrylonitrile Butadiene Styrene (ABS)</b>	23°C	D400.A30.N	16.60	17.60	24.10	24.80	25.90
		G501.A40.N	16.60	20.60	21.70	23.90	24.30
	-15°C	D400.A30.N	12.20	17.50	20.90	22.10	24.20
		G501.A40.N	12.20	17.10	18.80	19.70	22.50
<b>Polycarbonate (PC)</b>	23°C	G400.A12.N	11.70	13.00	47.00	48.00	49.00
		G501.A40.N	11.70	13.00	45.50	47.00	48.00
	-15°C	G400.A12.N	12.70	15.40	16.00	31.50	37.30
		G501.A40.N	12.70	13.90	16.10	32.00	42.70
<b>Polyamide (PA)</b>	23°C	G500.A23.N.PA	5.30	7.24	9.12	11.50	14.00
	-15°C	G500.A23.N.PA	4.10	6.30	7.90	9.20	10.50

# ABOUT TPE

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## **Thermoplastic Elastomers ( TPE )**

Thermoplastic Elastomers (TPE) are a family of polymers that behave as thermoset rubber while having recyclability and processing advantages of plastics. Thermoplastic elastomers do not require curing or vulcanization in the process and can be processed by conventional thermoplastic techniques such as injection molding, extrusion and blow molding.

## **What is Thermoplastic Vulcanizate? ( TPV )**

Thermoplastic vulcanizates (TPV), which consist of a polyolefin phase (PP) with a dynamically cured EPDM phase, are closely dispersed in the PP matrix which gives rubber-like properties and have the advantage of thermoplastic processing techniques. The final blend morphology always consists of cross-linked, micron sized elastomer particles dispersed in a polymer matrix.

## **What is Styrene Block Copolymers? ( TPE-S )**

Styrenic block copolymers are in the structure of A-B-A, where A is polystyrene and B is elastomeric phase. Among the major categories of TPEs, styrenics are the most widely used. This is because they can combine well with many other materials, including fillers, extenders, modifiers and other resins.

Elastron has two styrenic block copolymers in its product portfolio. These are Elastron D (SBS based) and Elastron G (SEBS based).

## **What is Thermoplastic Polyolefin? ( TPO )**

Thermoplastic polyolefin elastomers are materials combining polyolefin semi-crystalline thermoplastic and amorphous elastomeric components. They are physical blends of EPR (or EPDM) and PP materials. They do not have any vulcanization step in their production process.

# TECHNICAL GUIDE

	Elastron G SEBS	Elastron D SBS	Elastron V TPV	Elastron TPO TPO
<b>Hardness (Shore A/D)</b>	5 A – 65 D	20 A – 65 D	30 A – 65 D	70 A – 65 D
<b>Density (g/cm<sup>3</sup>)</b>	min. 0,89	min. 0,89	min 0,90	min 0,88
<b>Compression set</b>	good	medium	very good	medium
<b>Working Temperature Max (°C/ °F)</b>	130 °C	65 °C	140 °C	100 °C
<b>Working Temperature Min. (°C/ °F)</b>	- 40 °C	- 30 °C	- 40 °C	- 40 °C
<b>Solvent Resistance</b>	medium	poor	good	medium
<b>Motor Oil Resistance</b>	medium	poor	good	medium
<b>Acid-Base Resistance</b>	excellent	good	excellent	excellent
<b>UV-Ozone Resistance</b>	excellent	medium	excellent	excellent

# PROCESSING GUIDE

## Processing Temperature Range for ELASTRON V

	SHORE A 0-50	SHORE A 50-90	SHORE D 35-65
<b>INJECTION</b>	150 - 180° C	160 - 190° C	180 - 220° C
<b>EXTRUSION</b>	160 - 190° C	170 - 200° C	180 - 220° C

- Injection moulding with cored molds, temperature should be between 40 - 60°C, injection moulding with standard molds, temperature should be between 20 - 40° C.

- In extrusion process, mold temperature should be 5 - 10°C higher than nozzle temperature.
- Drying is required before processing.

- According to the design of screws used in machines, temperatures can vary +/- 10°C

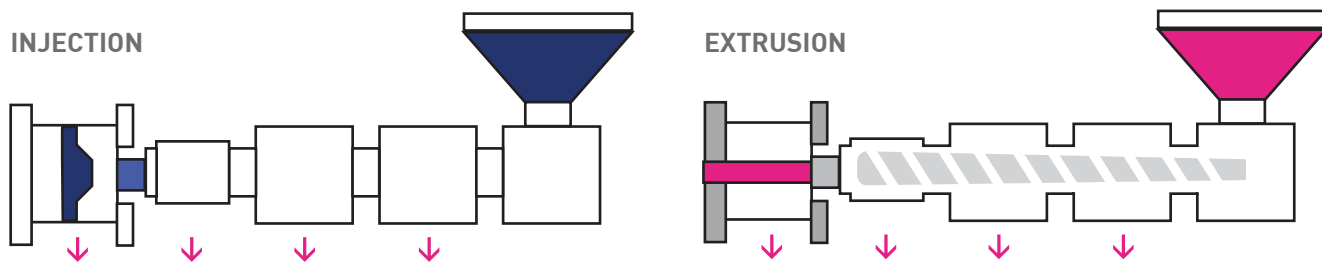
## Processing Temperature Range for ELASTRON G

	SHORE A 0-50	SHORE A 50-90	SHORE D 35-65
<b>INJECTION</b>	150 - 180° C	160 - 190° C	180 - 220° C
<b>EXTRUSION</b>	160 - 190° C	170 - 200° C	180 - 220° C

- Injection moulding with cored moulds, temperature should be between 40 - 60°C, injection moulding with standard moulds, temperature should be between 20 - 40° C.

- In extrusion process, mould temperature should be 5 - 10°C higher than nozzle temperature.
- Drying is recommended for some grades and conditions before processing.

- According to the design of screws used in machines, temperatures can vary +/- 10°C



### Processing Temperature Range for ELASTRON D

	SHORE A 0-50	SHORE A 50-90	SHORE D 35-65
<b>INJECTION</b>	120 - 160° C	140 - 180° C	170 - 200° C
<b>EXTRUSION</b>	130 - 170° C	150 - 190° C	170 - 210° C

- Injection moulding with cored moulds, temperature should be between 10° - 20° C, injection moulding with standard moulds temperature should be between 20 - 40° C.

- In extrusion process, mould temperature should be 5-10° C higher than nozzle temperature.
- Drying is not required before processing.

- According to the design of screws used in machines, temperatures can vary +/- 10°C

### Processing Temperature Range for ELASTRON TPO

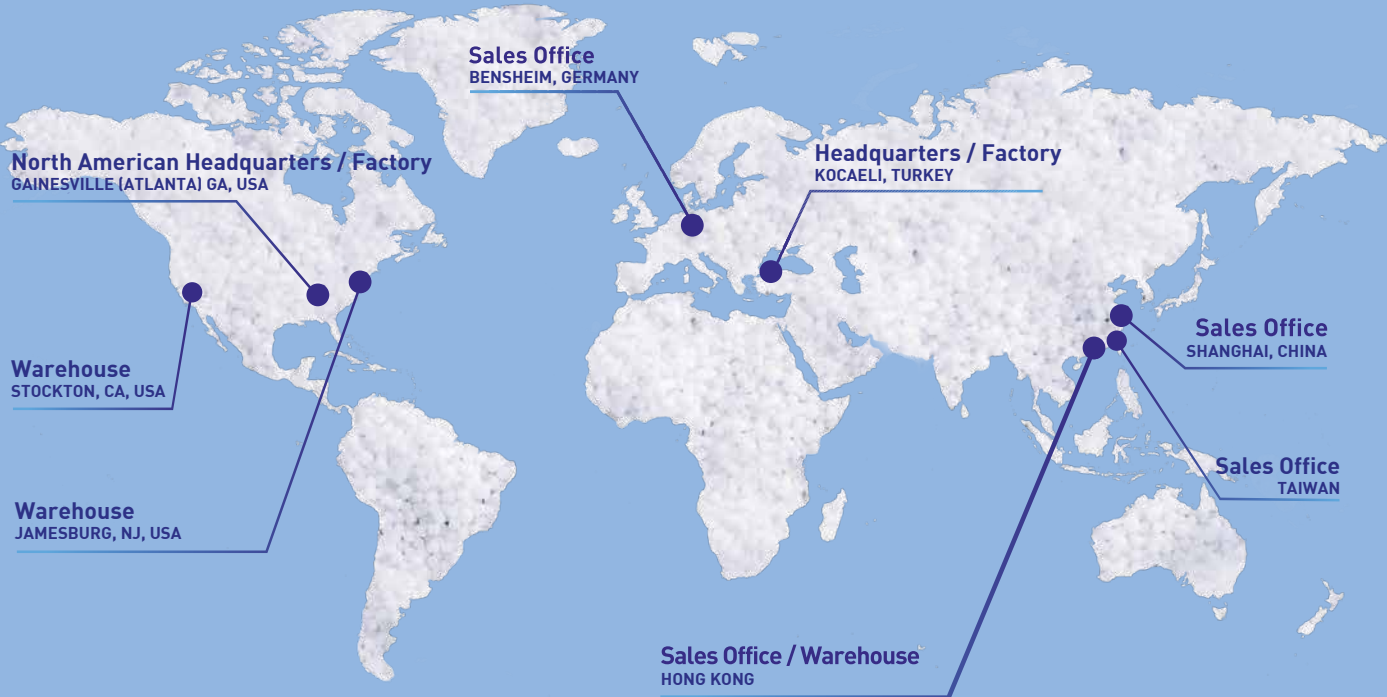
	SHORE A 0-50	SHORE A 50-90	SHORE D 35-65
<b>INJECTION</b>	150 - 190° C	170 - 200° C	180 - 220° C
<b>EXTRUSION</b>	160 - 200° C	180 - 210° C	190 - 230° C

- Injection moulding with cored moulds, temperature should be between 10° - 20° C, injection moulding with standard moulds temperature should be between 20 - 40° C.

- In extrusion process, mould temperature should be 5-10° C higher than nozzle temperature.
- \* Drying is not required before processing.

- According to the design of screws used in machines, temperatures can vary +/- 10°C

# ELASTRON WORLDWIDE

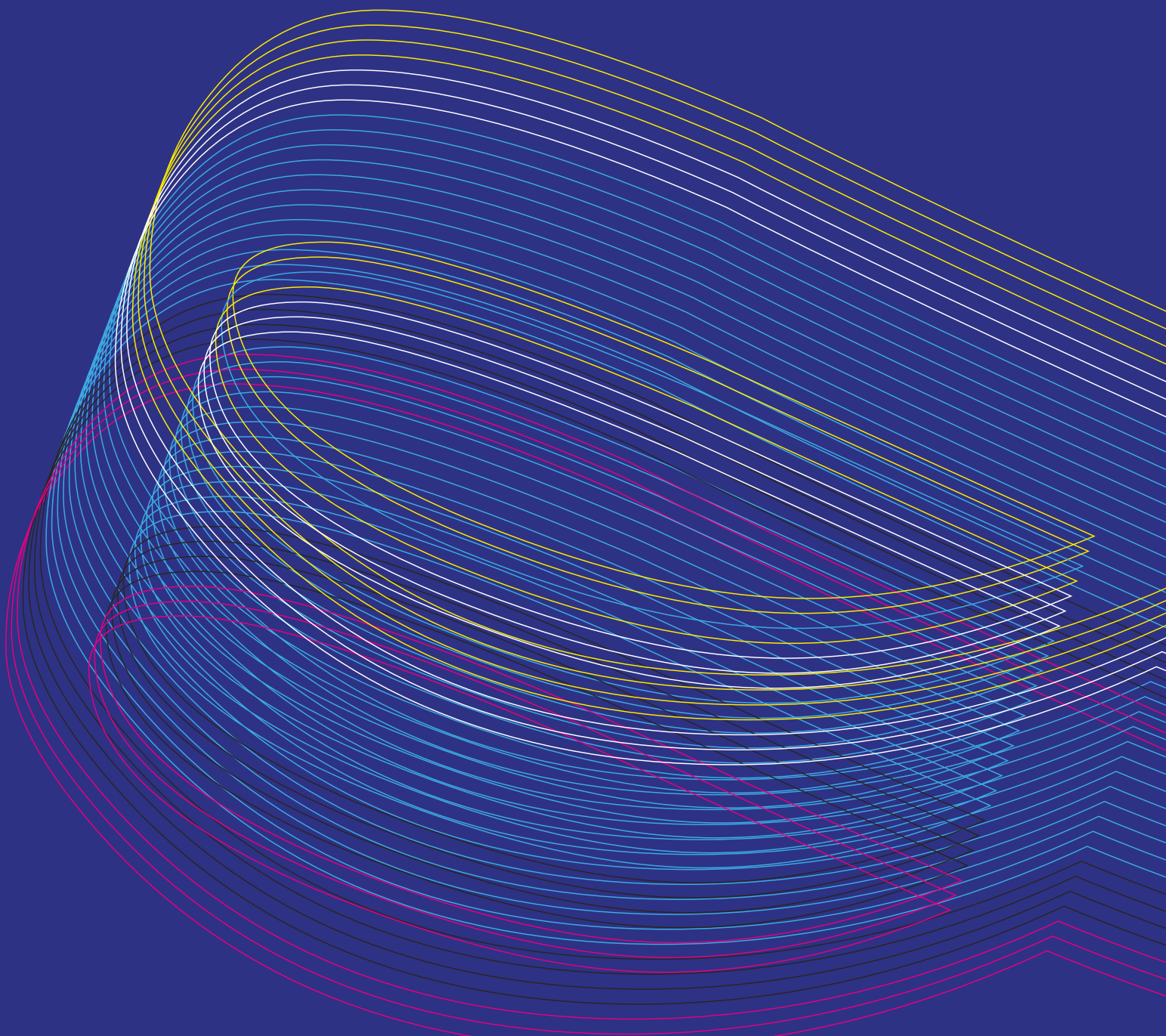


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# KOCAELI (ISTANBUL) TURKEY HEADQUARTERS



# ELASTRON THE TPE SPECIALIST



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T H E R M O P L A S T I C E L A S T O M E R S

