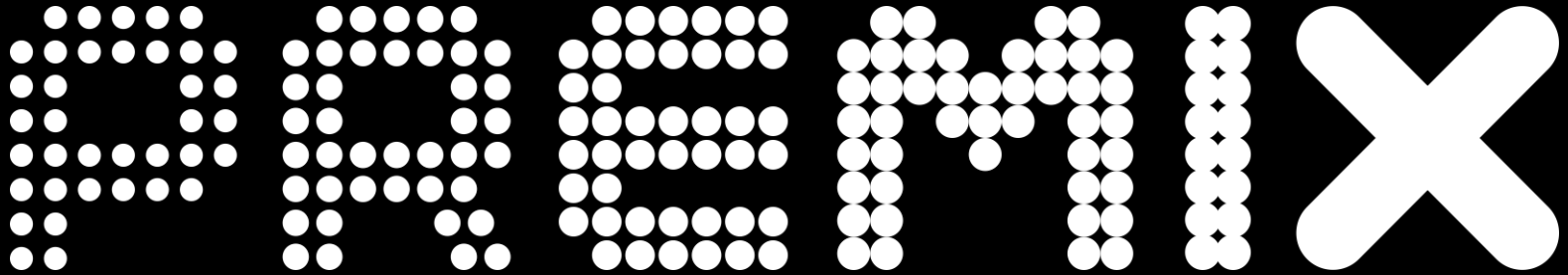


Conductive PRE-ELEC® compounds
for flex tubes, hoses and profiles


"Creating a safe society
with functional materials"

Making working environments safe benefits everyone. The mechanisms for increasing the safety are plenty and can be implemented in various forms. It is just a matter of exploring the possibilities e.g. :

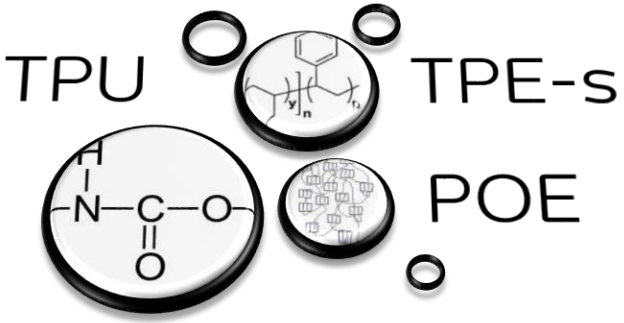
- Hazardous atmospheres (ATEX) - sparks may trigger explosions
- Hospitals - sparks may harm the patients and damage equipment
- Clean rooms - sparks damage components and may cause faulty devices

Our functional thermoplastic elastomers are not limited to elimination of static charging. They can be used in various smart applications such as touch sensors and healthcare textiles.

Conductive thermoplastic elastomers

A Sustainable alternative for rubber and metal

- Protects against static charging
- Enables sensoring
- Protects against EMI
- Modification of electric fields
- Non-metallic current collector



Sustainable, recyclable and economical option for metal+rubber composites

Premix's preferred terminology

Thermoplastic elastomers, commonly abbreviated as **TPE** contain multiple sub-classifications:

- TPU — Thermoplastic polyurethanes
- TPE-s — Styrenic block copolymers
- POE — Polyolefin elastomers

Conductive elastomers for extrusion applications

FLEX TUBES
Strong and flexible.
Multi-component structures

HOSES
Multi-layer structures.
Different chemical or physical resistances for inner and outer tubing

PROFILES
Various compression properties for sealings.
Permanent deformation resistance


Conductive elastomers
For flextubes and hoses

Conductive elastomers for flex tube applications

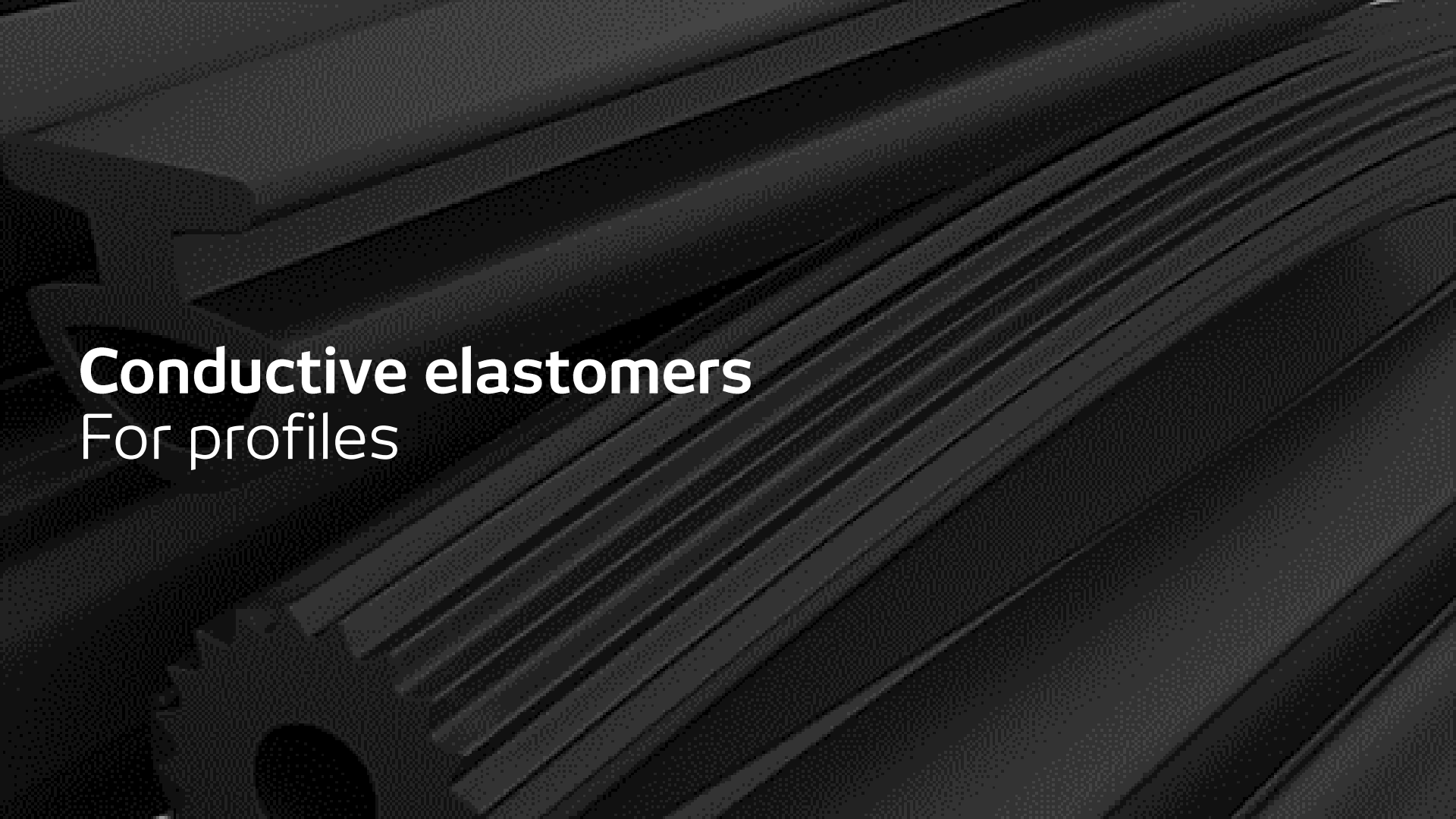
Special features

- High abrasion resistance
- High flex-life
- Strong and durable
- Easy to process
- Easy to bend
- Flexible at low temperatures
- Conductive

PREMIX

Conductive elastomers for hoses
Special features

- Conductive hoses are typically used to convey hospital gases
- Possibly a combination of multiple materials e.g. PVC with TPU inner liner.
- Constant conductivity
- Resistant to bending and flexing

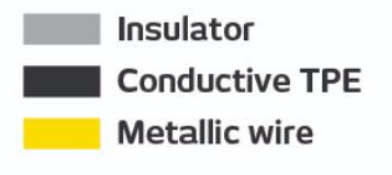


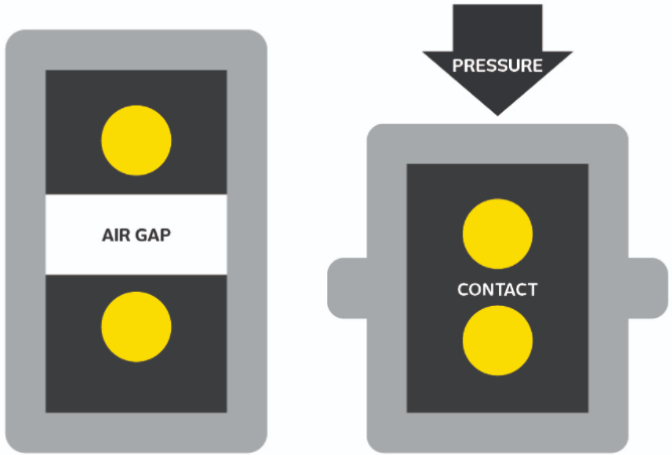
Conductive elastomers
For profiles

Conductive elastomers for profiles
Special features

- Soft and easy to deform to provide good contact or tightness when installed
- Good abrasion resistance for repetitive loading
- Compression set
- Wide use temperature possibilities to withstand different kind of ambient conditions without cracking or creeping

Safety edge profiles
Illustration





Contact enables electric current to flow between + and – terminals, which indicates of e.g., “door is closed”.

PRE-ELEC® grade selection
for flextubes, hoses and profiles

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PRE-ELEC® grade selection
Flex tubes – Hoses - Profiles

Product	Base polymer	Special features	Typical applications
PRE-ELEC® PE 12841	PE-LLD	FM 400, hardest olefin-based	Flextubes
PRE-ELEC® PE 17693	POE	FM 300, Allows slight dilution	Flextubes
PRE-ELEC® PE 18480	POE	FM 200, Softest olefin-based, available within EU	Flextubes
PRE-ELEC® TPE 1502	TPE-S	TM 10, Our softest conductive, Shore A 65	Gaskets, grip surfaces
PRE-ELEC® TPE 18416	TPE-S	TM 100, Very high conductivity required by sensor profiles, Shore A 85	Safety edges
PRE-ELEC® TPU 1512	TPU ester	TM 35, Abrasion resistant, High conductivity, good mechanicals	Sheets, Profiles
PRE-ELEC® TPU 18438	TPU ester	TM 25, Abrasion resistant, Medium conductivity, excellent mechanicals	Flextubes
PRE-ELEC® TPU 18600	TPU ester	TM 15, Abrasion resistant, High conductivity, good mechanicals	Flextubes

PRE-ELEC® TPU 18600

PRE-ELEC® TPU 18600 extruded tape	Typical properties
Volume resistivity	70 Ωcm
Surface resistance	10^3 Ω
MFI, 190°C / 10 kg	5
Tensile strength	30 MPa
Elongation at break	1000 %
Shore A	85

- Medium/high conductive compound based on a polyester TPU
- Filled with high quality carbon black

Suitable for extrusion (e.g. flextubes) and injection moulding applications

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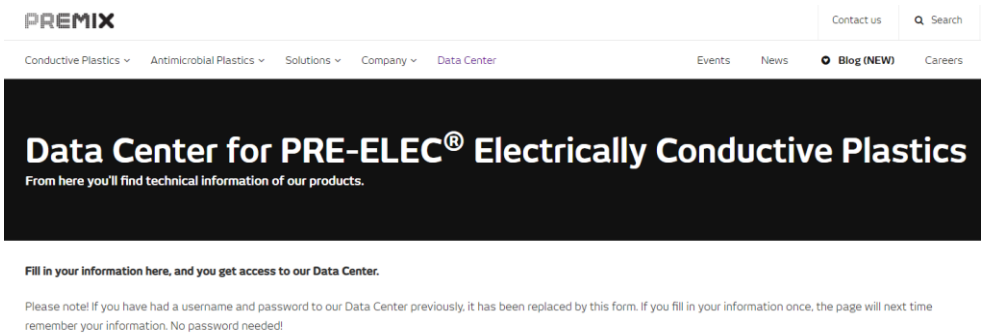
Fundamentals behind properties

- Amorphous vs. semicrystalline materials
    - Temperature sensitivity
    - Crystallization is time dependent
    - Residual stresses and imperfections - tempering
- CB increases polymers' tendency for moisture pick-up
    - Causes processing imbalance and surface defects
    - May act as a plasticizer (TPU)
    - May degrade the material via hydrolysis (TPU, ... polyesters)

Premix Data Center
Technical datasheets

In our Data Center, we have collected **technical information** about our products for you, including **processing instructions** for PRE-ELEC® conductive compounds and concentrates.

https://premixgroup.com/data-center



Premix Oy
Pioneering since 1980’s

Premix Oy – Your reliable material supplier

European market leader and global forerunner in **Electrically Conductive Plastics**. Strong focus on developing future material solutions.

Long-term expertise in polymer compounding and material processing know-how.

The newly invested state-of-the-art machinery makes Premix **one of the strongest producers of conductive PP and PE compounds.** The portfolio covers a comprehensive **grade selection of conductive elastomers for flex tube applications, hoses and profiles**.

Technical support available for trial runs.

Wide distributor network and local representatives in various countries.

Responsible Care
Our commitment to sustainability

QUALITY SYSTEM CERTIFICATION
DNV·GL
ISO 9001:2015

PREMIX

PREMIX

Family owned, independent company

Established 1980

110 employees

Sales revenue 46 M€ (2020)

Production capacity 70 kt/a

LET'S MAKE
A GOOD MIX

www.premixgroup.com