

THERMOPLASTIC SYNTHETIC RUBBER

Definition:

Thermoplastic rubber (TPR) has its origin in the combining of butadiene, a by-product of petroleum refining, and styrene captured either in the coking process or as a petroleum refining by-product. When mixed a synthetic latex is produced which can be toughened by vulcanization and modified by reinforcement with other materials.

These synthetic rubbers share many of the same properties as natural vulcanized rubbers (thermoset), except they can be moulded & extruded using cheaper and quicker conventional thermoplastic processing equipment. Most TPR compounds are 100% recyclable, lightweight & can be coloured.

There are more than a dozen major classes of synthetic rubber among the most common are Butadiene Rubber (**BR**); Styrene-Butadiene Rubber (**SBR**); Neoprene (**CR**); Butyl Rubber (**IIR**), and the Silicones.

Typical Features:

- Can be recycled, reprocessed & remoulded
- more resistant to oil, certain chemicals and oxygen
- better aging (last longer) and weathering
- resilience over a wider temperature range

Additions of reinforcements & fillers:

- **Carbon Black:**

Fillers such as carbon black during vulcanization with sulphur:--

Beneficial to the following properties:

- Temperature resistance, abrasion resistance, aging resistance, resistance to oxygen and chemicals such as acids and petrol.
- Electrically conductive.

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DSM 4.2.7

EPDM 60

General:

EPDM: A durable, high density rubber with resistance to UV exposure, ozone & aging therefore primarily used for outdoor applications. EPDM has a very high coefficient of friction when compared to other synthetic rubbers. The addition of PTFE reduces this coefficient and the accompanying abrasive wear.

Benefits:

- Good weathering resistance & low temperature flexibility.
- Temperature range: -50 to 180°C
- Good electrical insulation.
- Excellent resistance to steam and water.
- Choice seals for water, automotive brake & cooling systems.

Limitations: (unmodified)

- Avoid exposure to petroleum based products & aromatic hydrocarbons.

ASM (DEK) Applications:

- Paste Jar Piston

These values are representative. For critical applications, refer to data-sheet.

MECHANICAL PROPERTIES					
	HARDNESS Shore A	TENSILE STRENGTH:	YOUNGS MODULUS:	POISSONS RATIO:	DENSITY:
EPDM	60	14 MPa	0.01 GPa	0.5	1200 Kg/m³

GRADE	SUPPLIER	UL No.	RECYCLE CODE
5063B049	Clwyd Compounders Ltd	----	>EPDM

Alternatives:

Alternative polymers are allowed only with the express written permission of ASMPT. Please email details of your request to engineering_enquiries@asmpt.com

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