

## NEXT-GEN TOUGHENED COOLPOLY® THERMALLY CONDUCTIVE PLASTIC

### COOLPOLY® TCP E3629 DELIVERS IMPROVED IMPACT & UV RESISTANCE

Celanese developed a unique, next-generation thermally conductive polymer (TCP), CoolPoly® TCP E3629, to deliver an unparalleled combination of conductivity, UV-resistance, toughness and impact strength.

This next-generation grade builds on the differentiated capability of CoolPoly® technology to enable effective heat dissipation at a significantly reduced weight (typically 40-55%) compared to aluminum in applications such as automotive lighting and electrical component housings.

#### TECHNICAL CHARACTERISTICS

Properties	CoolPoly® TCP E3629	CoolPoly® TCP 1 <sup>st</sup> Gen
Density (g/cc)	1.6	1.6
Flexural Strength (MPa)	85	60
Stiffness / Flex Modulus (GPa)	12	7
Impact (Charpy Unnotched kJ/m <sup>2</sup> )	8	4
Thermal Conductivity (in-plane)	18	21
UV-Resistant (SAE J1960) 1500 hrs	Yes	No

Compared data generated according to ISO testing methods, with the exception of thermal conductivity, which are all ASTM.

#### ADVANTAGES OF COOLPOLY® TCP OVER ALUMINUM

- Design flexibility, thinner nominal wall, injection moldable
- Enables 40% - 55% mass savings, due to reduced density and design optimization
- Uses 1/3 less energy to produce
- Can be recycled/regrind
- Processing advantages
  - No machining
  - No coatings
  - No corrosion

As an injection-moldable polymer compound, CoolPoly® TCP provides design flexibility to optimize convection and innate thermal management properties that combine to provide similar heat dissipation to aluminum. Electrically conductive CoolPoly® TCP grades range from 1-40 W/(mK), and CoolPoly® TCP E3629 provides 18 W/(mK).

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