



OVERVIEW

Lubrizon's Engineered Polymers business continues to set the stage for enhancements in the halogen-free technology field. Lubrizon, first to offer flame-retardant thermoplastic polyurethane (TPU) and first to obtain a UL "Yellow Card" for TPU in the 1970s, recently expanded its Non-Halogenated Flame Retardant TPU product offering especially designed to meet current demands in the plastics industry. Environmental pressures in certain regions are driving the push for higher performing materials to meet strict regulations related to flame retardancy.

ESTANE® TPU resins are tough, versatile materials with a good combination of processing and performance features. Lubrizon offers zero halogen flame-retardant TPUs with very good mechanical properties. For some specific applications in the building and construction markets and mass transit construction, flame retardancy and low-smoke fire materials are essential. Additionally, we offer a selection of halogenated and non-halogenated flame-retardant compounds for cable jacketing materials, injection-molded parts and other extrusion profiles.

BENEFITS OF ESTANE® NON-HALOGENATED FLAME RETARDANT TPUs:

- Consistent flame performance over a wide range of cable designs
- Contains no Phosphate Ester
- No dripping of flames
- Forms very nice crust to protect insulator and conductor
- Very smooth surface

APPLICATIONS

- Industrial
- Automotive
- Mass Transit
- Building/Construction
- Telecommunication
- Alternative Energy
- Oil & Gas
- Military
- Mining
- Marine

PHYSICAL PROPERTIES OF AVAILABLE PRODUCTS:

Product	Hardness	Finish	UL Vertical Burn Rating	Mechanical (Tensile)	Low Smoke (Yes or No)	Comment
ESTANE® ZHF 85AT8	84A	Matte	V2 / LOI 24	Very High	No	High Mechanicals
ESTANE® ZHF 58370	86A	Matte	V2 / LOI 23	High	Yes	Low Smoke, Low Toxicity and Low Gas Conductivity
ESTANE® ZHF 58202	89A	Matte	V2 / LOI 29	High	Yes	Low Smoke, Low Toxicity and Low Gas Conductivity
ESTANE® ZHF 90AT8	89A	Matte	V0 / LOI 24	High	No	VDE & UL Compliant UL 105°C
ESTANE® EV 90AT2	90A	Matte	V2 / LOI 23	Very High	Yes	Low Gas Conductivity
ESTANE® ZHF 90AT2	91A	Matte	V2 / LOI 25	High	Yes	High Flame Performance
ESTANE® 58244	92A	Matte	V0 / LOI 28	Medium	Yes	Low Smoke
ESTANE® TS 92AP7	93A	Gloss	V2 / LOI 26.5	Very High	No	Transparency and High Mechanicals
ESTANE® ZHF 92AT8	92A	Matte	V0 / LOI 31.5	Medium	No	High LOI
ESTANE® ZHF 95AP7	95A	Matte	V0 / LOI 30	Medium	No	High LOI



**LUBRIZOL
ENGINEERED
POLYMERS**

**ADVANCING MATERIALS.
ELEVATING PERFORMANCE.**

