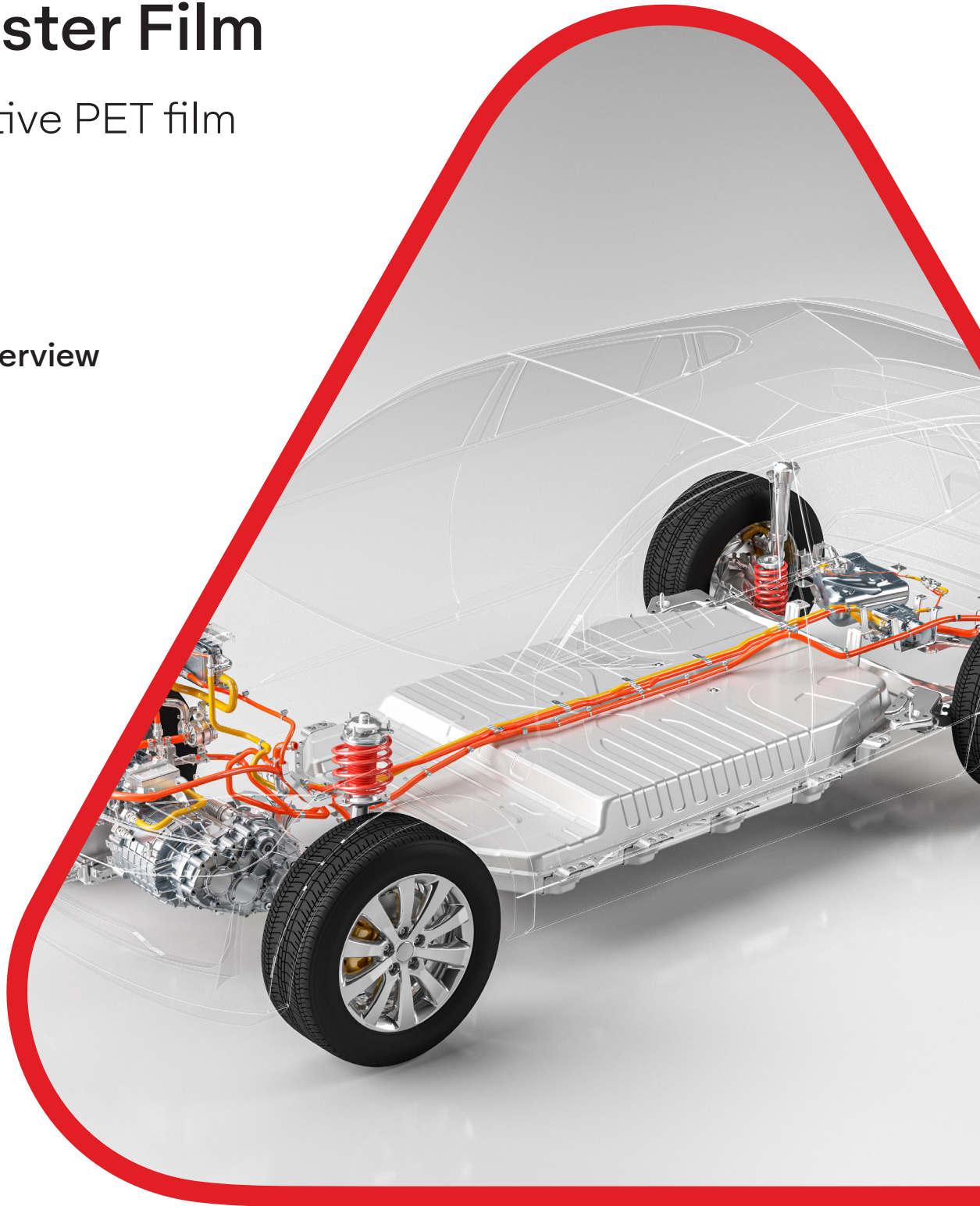


Copper Skin™ on Pure Aluminium Metallized Polyester Film

Conductive PET film

Preliminary
Product Overview



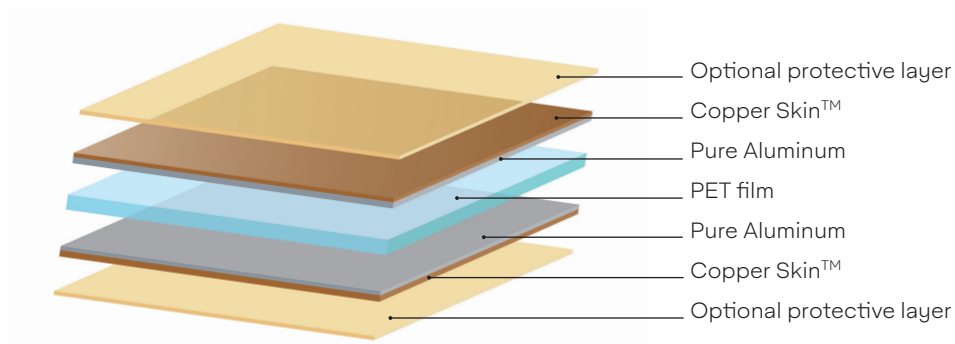
Copper Skin™ on pure Aluminium coated PET film - the safe alternative to Copper foil

Copper foil is well established in the Li-ion battery industry, but cost and safety constraints are driving the search for alternatives. Foils are challenging to process, and typically increase the risk of thermal runaway - with the resulting risk of combustion. In addition, the extra weight of foil compared to PET is often a sensitive issue.

Avery Dennison Hanita offers PET film with a thick, highly conductive layer of pure Aluminium with a proprietary Copper Skin™ coating to deliver high conductivity. The film provides a cost-effective alternative to the Copper foil used in EV battery production, delivering a safer, easier-to-process and lighter-weight solution that may increase drive miles.

Copper Skin™ is available with a protective layer to enhance corrosion resistance.

Developmental structure



Applications

under review

- EV batteries

Preliminary Product Data Overview

Under Development

Parameter	Value	Units
Base film thickness	36*-100	µm
Appearance	Copper	
Pure Copper Thickness Range	150 - 500	nm
Pure Aluminum Thickness Range	200 - 400	nm
UTS	>210	N/mn ²
Elongation	>50	A(50%)
Resistivity of Copper Skin™	26.5×10^{-9}	Ω*m
Melting point for PET	250°C	°C
Coefficient of Linear Expansion	7×10^{-5}	C ⁻¹
Thermal Conductivity	260	W/m*C
Recommended storage conditions	5 - 40 <50	°C % RH

* Thinner gauge PET is under assessment

Features and Benefits

- **Optimal heat dissipation** - Ideal for limiting EV battery thermal runaway, or for other thermally sensitive applications
- **Low-cost, lighter weight alternative** - Economic alternative to foil products, manufactured using a proprietary, high volume manufacturing process
- **Flexibility of product construction** - Wide selection of conductive layer thicknesses, precisely matching conductivity demands of the application
- **Excellent mechanical properties** - High heat stability, flexibility, metal adhesion and overall durability
- **Ready for mass production** - Available in a range of widths and lengths as required
- **Optional clear protective coating**
- **Compatible with all soldering processes** - Reflow, SMT, conductive adhesives, etc.

About Avery Dennison

Avery Dennison Corporation (NYSE: AVY) is a global materials science company specializing in the design and manufacture of a wide variety of labeling and functional materials. The company's products, which are used in nearly every major industry, include pressure-sensitive materials for labels and graphic applications; tapes and other bonding solutions for industrial, medical, and retail applications; tags, labels and embellishments for apparel; and radio frequency identification (RFID) solutions serving retail apparel and other markets. Headquartered in Glendale, California, the company employed more than 32,000 employees in more than 50 countries in 2020. Reported sales in 2020 were \$7.0 billion. Learn more at www.averydennison.com.

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