AXALTA COATING SYSTEMS

Energy Solutions for electric vehicles

Pioneering sustainable power for electric mobility

Redefining progress, respecting nature

In the rapidly evolving landscape of electric mobility, Axalta's focus rests on achieving environmentally conscious advancements while maintaining peak performance. Through innovative material efficiency, enhanced material performance, and a reduced environmental impact, we present a holistic approach to driving the future of sustainable transportation

Material efficiency: Less material consumption, simplified processes

Axalta's Energy Solutions for E-Mobility embrace a philosophy of minimizing resource utilization. Through cutting-edge engineering, we've developed techniques that not only streamline manufacturing processes but also significantly reduce material consumption. Advanced methodologies such as simplified welding, efficient draining, and optimized winding procedures lead to higher resource utilization efficiency. Moreover, our breakthroughs in faster curing cycles and lower curing temperatures ensure that energy-intensive processes are more sustainable than ever before. Inline control mechanisms provide real-time insights, further enhancing precision and minimizing waste.

Material performance: Enhanced stability and strength

Raising the bar in material performance, our solutions have been meticulously engineered to withstand the challenges posed by modern electric vehicles. Our materials exhibit increased stability when exposed to Automotive Transmission Fluids and extreme partial discharge conditions, ensuring the longevity of components even in the harshest environments. Temperature stability has been elevated, enabling our materials to maintain their integrity in the face of varying thermal stresses. This is particularly evident in our outstanding mechanical at elevated temperatures, ensuring safety and reliability throughout the vehicle's lifespan. As a testament to innovation, our materials introduce novel functionalities, exemplified by excellent wetting properties that enhance manufacturing precision.

Material environmental impact: A greener future

We are unwavering in our commitment to sustainability, and this reflects in the reduced environmental impact of our Energy Solutions. By employing our materials, emissions are curtailed, and the overall material hazard is diminished. Our dedication to safety is highlighted by the absence of SVHC or CMR constituents in our next generation formulations, ensuring a safer environment for manufacturers and consumers alike. We embrace renewable raw materials, aligning with the principles of circular economy and resource regeneration. This translates to a noteworthy reduction in CO2 output, contributing to a greener and more sustainable future for all.

Join us in driving innovation that not only propels electric mobility forward but also safeguards the planet for generations to come.

Voltatex

Driving the future of electric power
Trends in electric motors

As the electric mobility landscape rapidly evolves, Axalta's Energy Solutions take center stage, paving the way for cutting-edge advancements in the industry. Explore the key factors that define the landscape of E-Drive innovation, from motor design to core and conductor considerations, all poised to reshape the electric vehicle paradigm.

E-drive: exploring trends in electric motors

In the realm of electric motors, E-Drive presents a tapestry of evolving trends that are redefining vehicular propulsion. Insulation materials stand as a linchpin for ushering in novel designs and heightened efficiency, as electric mobility accelerates towards a more sustainable future.

Motor design: engineering the powerhouse

The motor design of tomorrow is defined by a confluence of factors that span the spectrum of powertrain size, thermal management strategies, operating voltages, and integrated platforms. Discover how these elements harmonize to create optimal power-to-weight ratios, elevate production outputs, manage costs, and curtail carbon footprints.

Core design: crafting efficiency at the core

Delve into the intricacies of core design, where concepts like eddy current losses, new steel grades, thermal conductivity, and stacking technology intersect to mold the beating heart of electric motors. Witness the transformation of iron filling factors and explore how punching properties contribute to enhanced motor performance.

Conductor design: forging conductive excellence

The conductor design journey unfolds with an examination of copper slot fill factors, conductor shapes, and the innovative techniques behind welding insulation. Dive into the world of partial discharge analysis and the pivotal role of heat transfer, thermomechanical properties, and chemical resistance in shaping conductive superiority.

Empowering electric mobility

A triad of excellence in energy solutions

With a trio of unique product segments - wire enamels, impregnating resins, and electrical steel coatings - Axalta emerges as the sole provider offering an all-encompassing array of groundbreaking and environmentally conscious insulating liquid coatings.
Elevate the shield for electric motors with our comprehensive and innovative portfolio.

Wire enamels:

- Increased stability under partial discharge conditions (Voltron®)
- Tailored structures for flat and round wire systems
- Excellent resistance against ATF oils
- Good compatibility to impregnating resins
- Outstanding thermal stability
- Thermal index according IEC 60172 up to 240
- UL recognized (fit for e.g. IEC 60317-13)
- Global availability

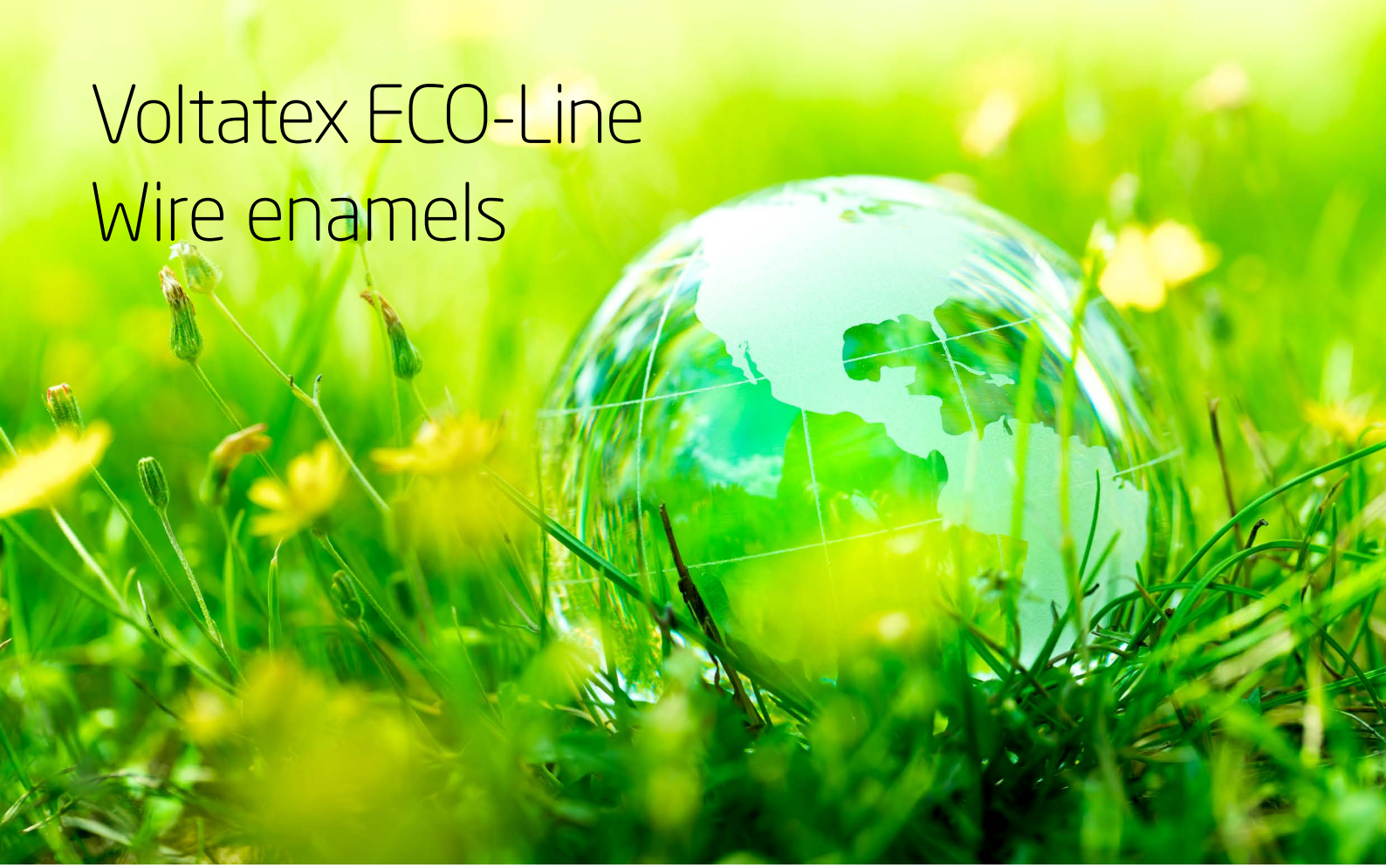
Electrical steel coatings:

- Free from chromium
- Long storage stability
- Easy to coat
- Easy to slit and stamp
- High surface hardness
- No dusting or flaking
- Excellent welding properties up to 3 µm
- Suitable for laser and plasma welding
- Thermal class 220°C (R)
- Selfbonding varnish technology for faster and efficient production processes
- Selfbonding technologiy provides increased thermal conductivity
- Fast curing versions available
- Global availability

Impregnating resins:

- Low emissions / no VOC's
- Epoxy modified (no anhydrides)
- Up to thermal class 220°C (R)
- Minimal safety hazards
- Renewable raw materials included
- Applicable in all common impregnation technologies
- Free of styrene, vinyltoluene and other problematic reactive thinners
- Partly with increased thermal conductivity and partial discharge resistance
- No dangerous goods
- Global availability

Voltatex ECO-Line
Wire enamels



Introducing the wire enamels of the Voltatex ECO Line, a true game-changer in the industry.
Our innovative solution offers an environmentally friendly alternative for electrically insulating wires in motors, transformers, and generators used in electric vehicles and wind turbines. Unlike traditional alternatives, our electrical insulation material is completely free from hazardous solvents like cresol, ensuring the safety of both our employees and the environment.

The Voltatex ECO Line is not only eco-friendly but also delivers exceptional performance. In fact, it performs on par with, and in some cases even surpasses, cresol-based incumbents. This breakthrough allows us to provide our customers with a superior electrical insulation material that meets the highest standards of quality and safety. With the Voltatex ECO Line, we uphold Axalta's commitment to innovation and sustainability in the field of electrical insulation materials.
Experience the future of wire insulation with Voltatex ECO Line wire enamels. Join us in making a positive impact on the industry while maintaining the highest level of performance and safety.

Discover the revolutionary solution that combines environmental responsibility with uncompromising quality:

- Non-toxic and decent smell
- Lower VOC content
- UN resp. ADR classification permit e.g. aviation cargo
- Reduced stoarage room and transport due to higher solids
- No extra effort when changing from cresol bound to ECO
- Clean cooling zones at lines
- Excellent viscosity – solid content ratio
- Easy application, no need for machinery adjustments

Voltatex

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