

News Release

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Accelerating the heartbeat of eMobility: BASF engineering plastics for durable and powerful electric motors

- **Extensive, globally available material portfolio is complemented by local expertise for design, simulation, application development and parts testing**
- **Demonstrator of integrated electric motor and inverter shown on BASF booth at Chinaplas 2024, Shanghai**

The electric motor is the heart of any electric vehicle, be it battery, fuel cell, hybrid, or plug-in. For the development of safe, efficient, durable and powerful e-motors, BASF offers a unique co-creation partnership to the automotive industry: an extensive portfolio of engineering plastics is the basis for design and engineering expertise, Ultrasim® simulation and parts testing through to the support of serial production of the final application. Backed by BASF's deep understanding of e-motor challenges, customers can develop next generation e-motors while at the same time meeting production targets and market expectations for energy-efficiency, recyclability and low product carbon footprint (PCF). BASF's broad material offering for e-motor applications can be experienced first-hand at the BASF booth at Chinaplas 2024, Shanghai where a demonstrator of an integrated e-motor and inverter will be exhibited.

As a global partner to automotive suppliers and OEMs, BASF is committed to advance e-motor development globally while supporting customers locally with R&D, application development and material supply in high, consistent quality. The

BASF portfolio for e-motor applications includes tailored plastics for key requirements such as

- EMI shielding
- long service life
- high voltage insulation
- thermal management
- hydrolysis and chemical resistance
- high mechanical load
- weight reduction
- noise, vibration, harshness (NVH) reduction.

Thus, the size and the weight of e-engines can be further reduced while fostering functional integration and withstanding harsh environments of higher voltages, elevated temperatures and aggressive cooling fluids. This applies to applications like

- housings for motor and inverter
- stator/rotor
- busbars, IGBTs, high-voltage connectors
- slot liners
- components in contact with oils and cooling fluids
- bearing cages
- magnetic encapsulation, engine mounts.

All these parts can work reliably and energy-efficiently thanks to BASF's diverse material classes of engineering plastics:

- Ultramid® (PA: polyamide)
- Ultradur® (PBT: polybutylene-terephthalate)
- Ultrason® (PESU/PSU/PPSU: polyarylethersulfones)
- Ultramid® Advanced (PPA: polyphthalamide).

They are characterized by a broad property profile, covering superior features like very good temperature and media resistance, excellent mechanical strength, exact electric compatibility, high purity and tailored flame retardance. The compounds are available in different colors, from colorless to orange and laser-markable black, with short-glass, long-glass or mineral fiber reinforcement, and with various heat

stabilizers. The BASF high-performance thermoplastics for e-motor parts can be easily processed in injection molding so that no post-processing is needed. They are weldable and offer a high freedom of part design for different construction needs.

Further information:

www.eMobility-plastics.basf.com

<https://basf-vc.com>

www.ultramid.basf.com

www.ultradur.basf.com

www.ultrason.basf.com

www.ppa.basf.com

About BASF's Performance Materials division

BASF's Performance Materials division is at the forefront of the much-needed sustainability transformation in plastics. Our products are co-created with customers around the globe to bring innovations to major industry sectors such as transportation, consumer goods, industrial applications, and construction. Our R&D focuses on all stages of the plastics journey: Make, Use and Recycle. The MAKE phase is about improving how plastics are made, from product design to the choice of raw materials and the manufacturing process itself. The USE phase enhances plastics' strengths such as light weight, robustness, and thermal resistance. At the end of the product lifecycle, the RECYCLE phase looks at how to close the loop to achieve a circular economy. In 2023, the Performance Materials division achieved global sales of €7.2 billion. Join #ourplasticsjourney at: <https://www.performance-materials.basf.com>

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. Around 112,000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €68.9 billion in 2023. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the United States. Further information at www.basf.com.