Ultramid® EQ

Specified polyamide for sensitive automotive electronics

Ultramid® in the web: www.ultramid.de

BASF
We create chemistry

Ultramid® EQ – low in ionic content and high in quality

For reliable micro-electronics in sensitive automotive applications such as control units and sensors, BASF has now developed a portfolio of various polyamide 6 and 66 grades that help prevent damage to circuits by electric corrosion. The different Ultramid® EQ grades (EQ = electronic quality) are extremely pure, which means they have hardly any electrically active or corrosion-generating contents. They are subject to special quality tests that cover raw material selection, the production process, and the analysis of the halogen content.

All Ultramid® EQ grades have an organic heat stabilizer with a very low halogen content of less than 1 ppm. This prevents halogens like iodine or bromine from damaging metal wiring, ions from reacting with the metals, and undesired electric currents from arising (fig. 1). At the same time they offer good resistance to heat aging (fig. 2).

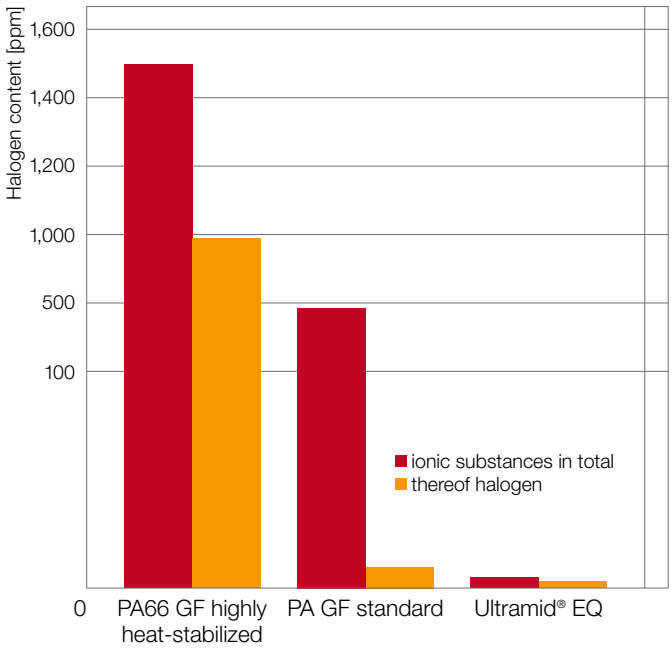


Fig. 1: Ultramid® EQ contains a very low content of halogens compared to highly heat-stabilized PA66 or standard PA.

Globally available portfolio (selection):

- Ultramid® A3EG6 EQ (PA66 GF30)
- Ultramid® A3EG7 EQ (PA66 GF35)
- Ultramid® B3EG6 EQ (PA6 GF30)

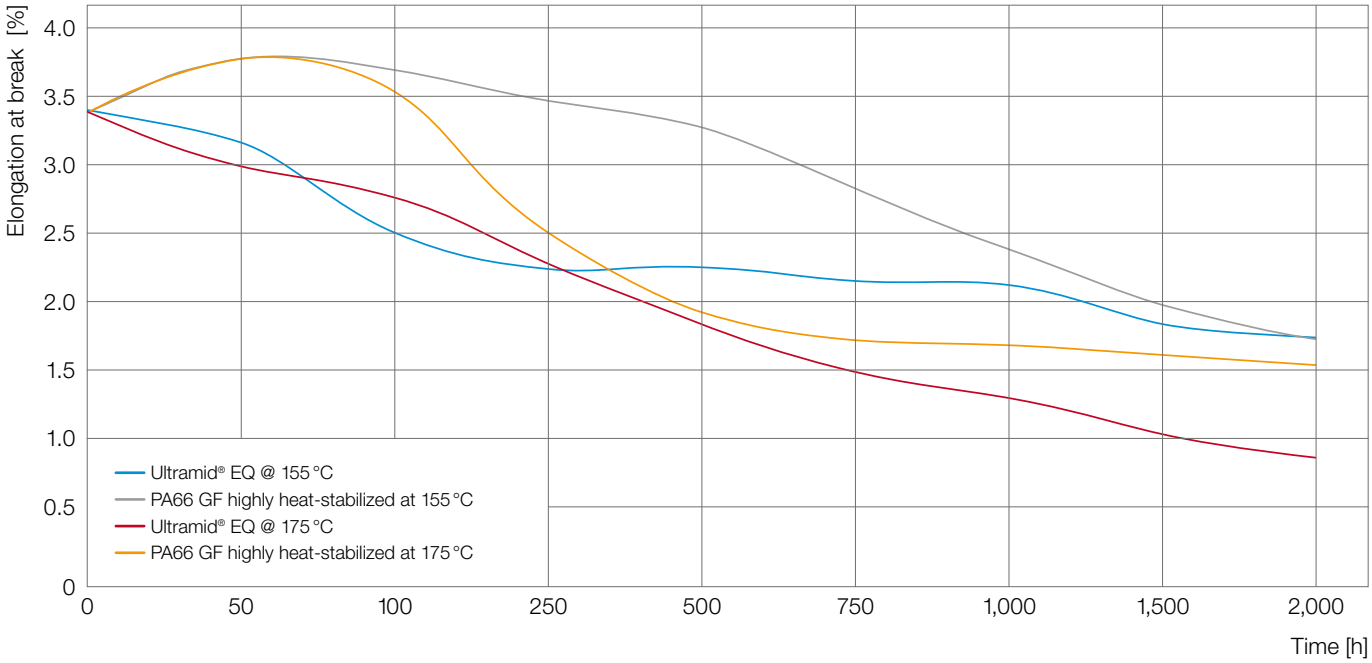
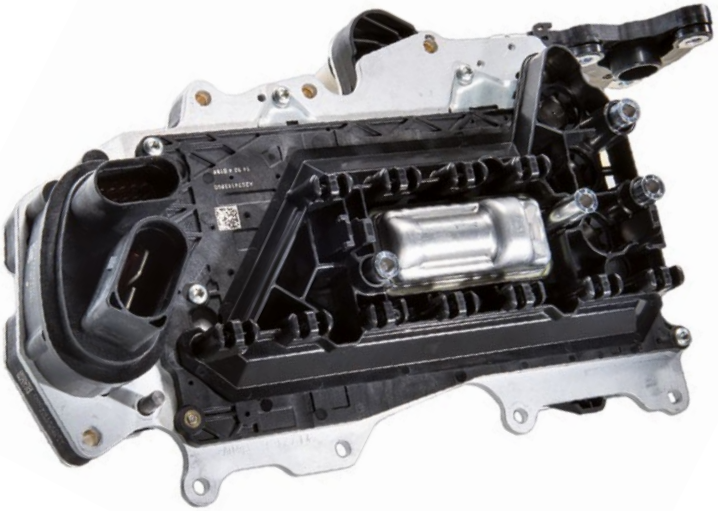


Fig. 2: Heat aging of Ultramid® EQ compared to highly heat-stabilized PA66-GF at 155 °C and 175 °C.

In addition to the specified formula and complex production process, all Ultramid® EQ charges are checked carefully. This ensures that the manufacturing process does not introduce any halogen contamination to the material. The relevant certificate is provided to customers if desired.

Possible fields of usage:

- Control units
- Sensors
- Under harsh conditions
- Parts in electric and hybrid vehicles with elevated AC and DC voltages



Electronic assemblies in modern transmission control units or safety-related applications such as sensors and anti-lock systems are becoming ever more compact and complex. They are also often exposed to high ambient temperatures and aggressive media such as oil. The delicate circuits are more frequently connected to semi-conductors via thin wires which is known as wire bonding (fig. 3).

In such surroundings, disruptive effects such as corrosion, ion migration, electrolyte formation, and creep currents can arise and in extreme cases cause entire assemblies to fail (fig. 4). Plastics for housings and components have to be equipped in such a way that they do not react with the metals involved and thus prevent electronic failure.

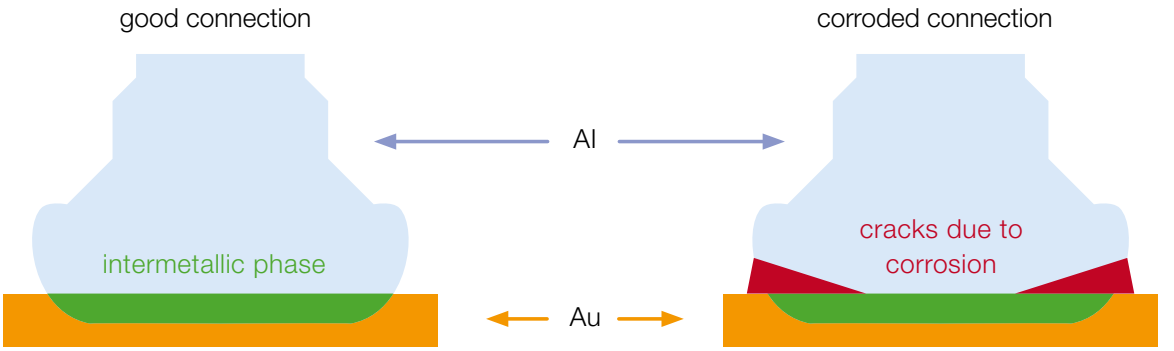


Fig. 3: Wire-bond corrosion (schematized)

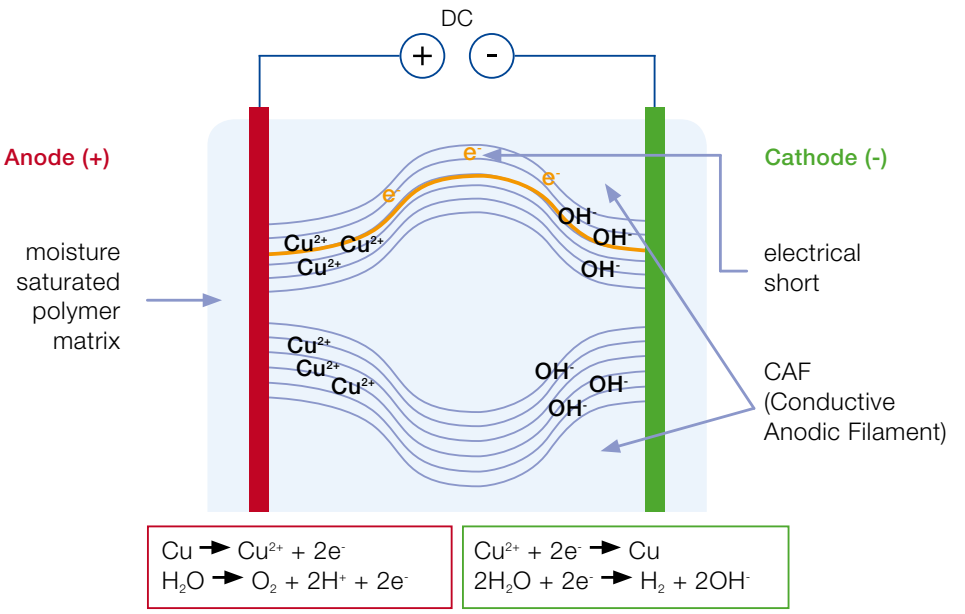
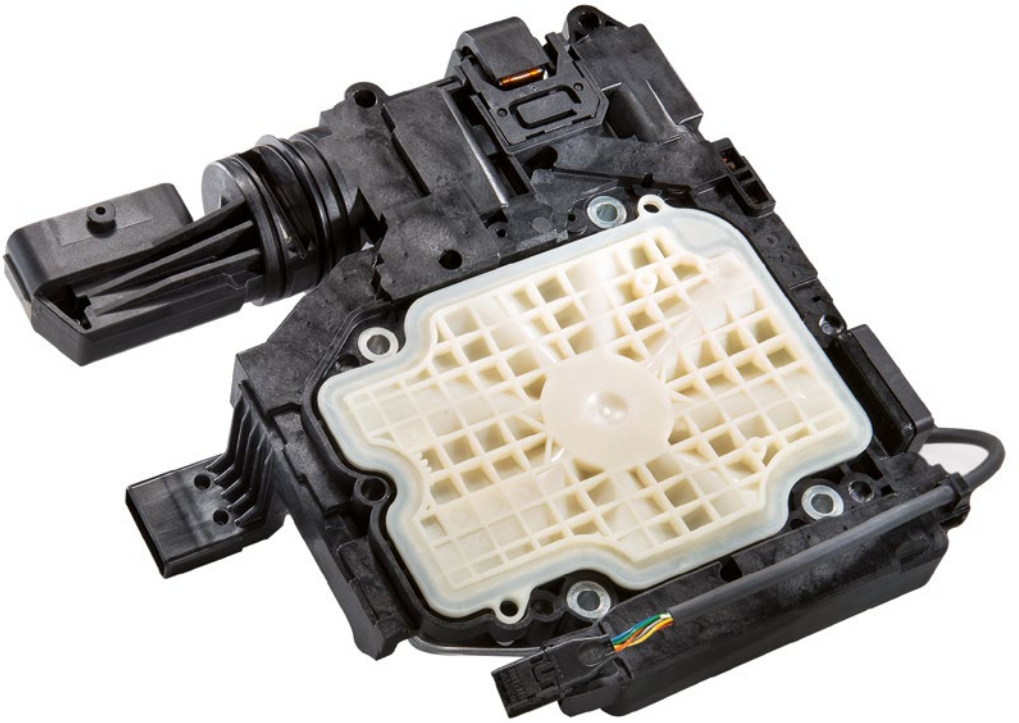
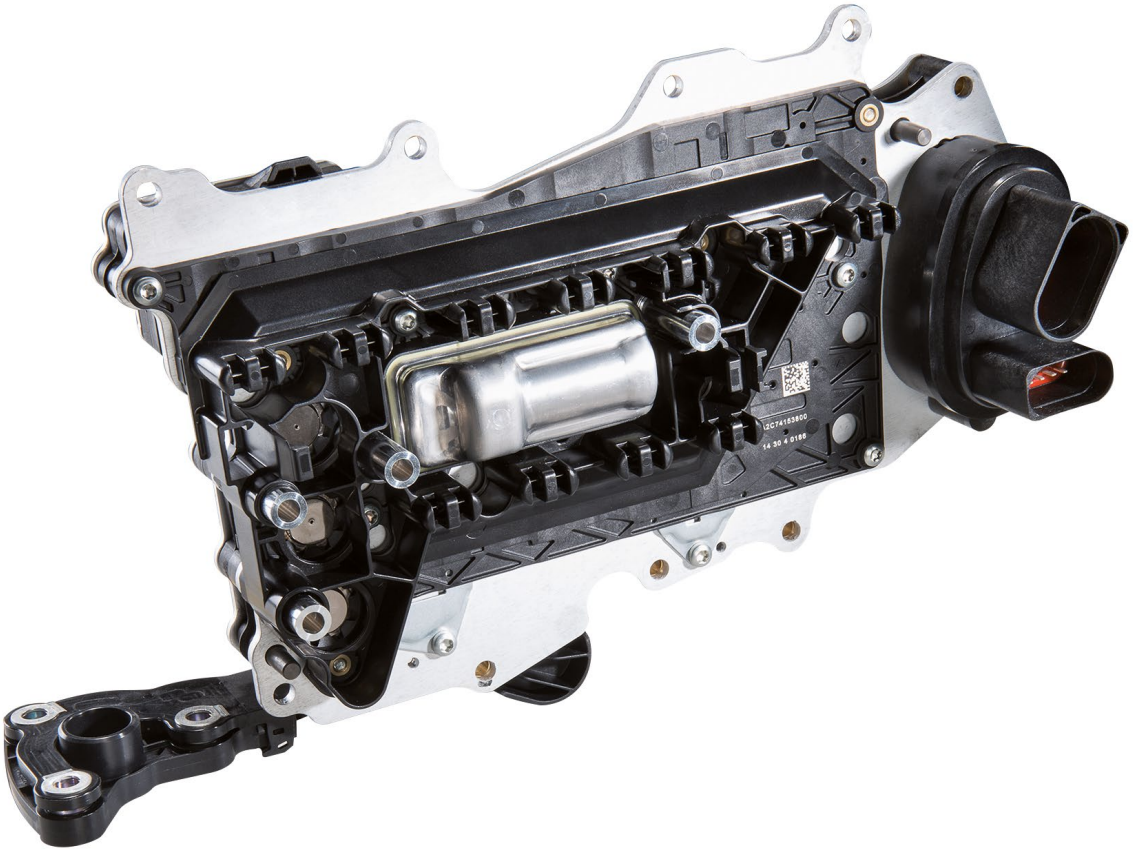


Fig. 4: Electrolytic corrosion with moisture and DC (schematized)





Selected Product Literature for Ultramid®:

- Ultramid® – Product Brochure
- Ultramid® – Product Range
- Ultramid®, Ultradur® and Ultraform® – Resistance to Chemicals

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (October 2016)

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