# Delrin® CPE – A New Platform of Emission-minimized POM Homopolymers with Optimized Processing Efficiency

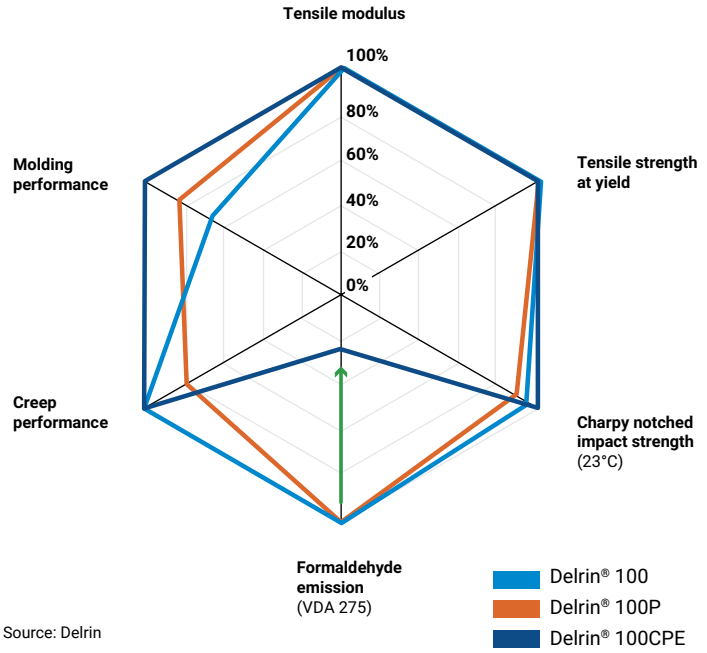
The commercial launch of the first grades in the Delrin® CPE family marks the inception of a completely new generation of Delrin® POM homopolymers. These grades enable significant reductions in emission values and mold deposits with further efficiency-boosting application and processing advantages over the materials previously available. Their formaldehyde emissions of less than two ppm (measured on VDA 275 test specimens) meet what are currently the most stringent automotive industry requirements. The new CPE grades continue to offer the advantages typical of Delrin, such as high rigidity even in the absence of reinforcing fibers, elevated yield point, high impact strength even at low temperatures, creep performance and fatigue resistance.

In addition to low emissions, multipurpose Delrin® 100CPE is characterized by a wide processing window, significant processing advantages and very high flexural fatigue strength. The lower viscosity grade Delrin® 511CPE, produced using proprietary crystallization technology, provides short cycle times and high dimensional stability. Further grades are in development. As the introduction of additional Delrin® CPE grades continues, the family will cover a wide range of viscosities between two and 25 g/10min (MFR 190°C, 2.16 kg) and will be available in specific modifications and colors.

## Delrin® 100CPE: Low emissions with minimized deposits

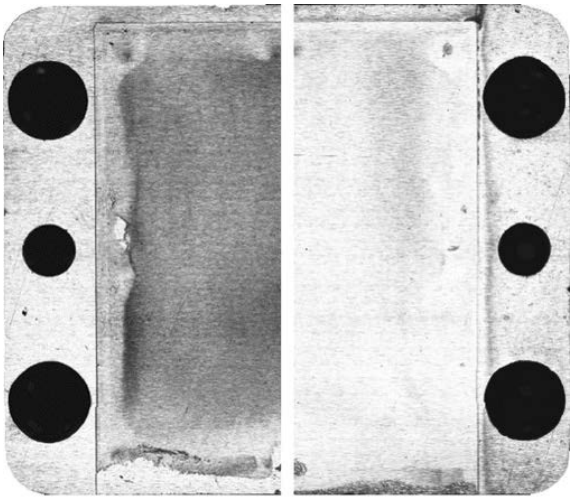
Delrin® 100CPE (MFR 190°C, 2.16 kg = 2.3 g/10min) is the successor to the already well-established Delrin® 100 series and aims to set a new industry standard for polymer gears and other highly stressed applications for engineering plastics. Its particular strength, in addition to low emissions, is a significant reduction in mold deposits during processing. This considerably reduces mold maintenance costs because more parts can be injection molded between two cleaning cycles and cleaning takes less time. Pilot testing with customers has shown that the duration of uninterrupted production can be increased. In addition, less quality control effort is required.

In addition to gears in automotive applications such as window lifters or windshield wiper systems, core applications for Delrin® 100CPE also include other parts in vehicle restraint systems and further safety-relevant components. Further applications include general moldings for vehicle interiors including clips, springs, levers, braces and switches and applications requiring a combination of high productivity and high performance.




Source: Delrin

The extremely low-emission Delrin® 100CPE (blue) has properties which match and surpass those of previous 100 series grades (blue and orange).



Delrin® 100 Delrin® 100CPE

Outstandingly low levels of mold deposits. Example shows condition after 21,000 shots in an accelerated test cycle with increased screw speed, injection speed and tool temperature.

## Delrin® 511CPE: Short cycle times, high dimensional stability and fatigue resistance

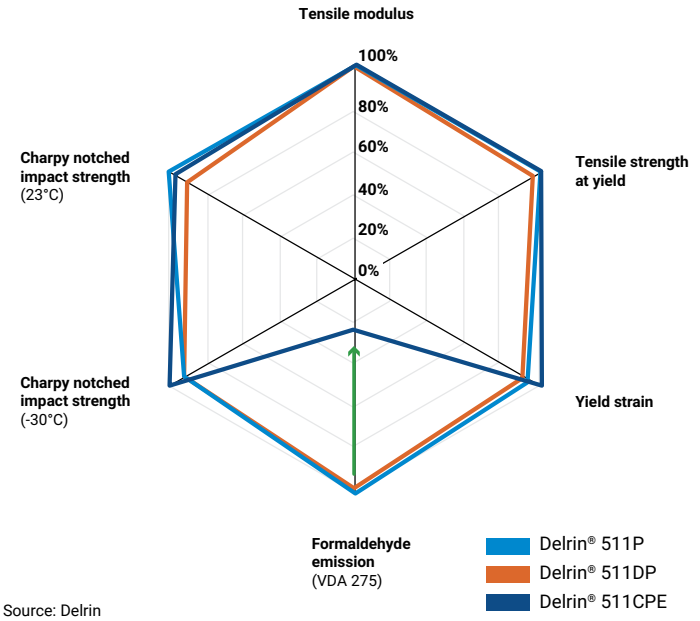
Delrin® 511CPE (MFR 190°C, 2.16 kg = 14 g/10min) combines the low emissions of all the grades in the new CPE platform with the special crystallization technology already used in the existing 511 series. This technology enables particularly short cycle times together with very high dimensional stability and elevated impact strength as well as very good creep performance and high flexural fatigue strength.

This combination of properties means that Delrin® 511CPE surpasses the performance not only of medium molecular weight (MMW) polyacetal copolymer grades, but also of high molecular weight (HMW) copolymer grades. It offers a tensile strength up to 20% higher than both and impact strength around 15% higher than that of MMW copolymer grades over a wide temperature range.

Delrin® 511CPE is suitable for all typical Delrin applications such as clips, buckles and gears. Its distinctly higher fluidity also facilitates filling of cavities with narrow cross-sections and long flow paths. This permits more efficient design of thin-walled parts and enables applications including door-lock housings or valves and conveyor chain parts, as well as use in family and multi-cavity molds.

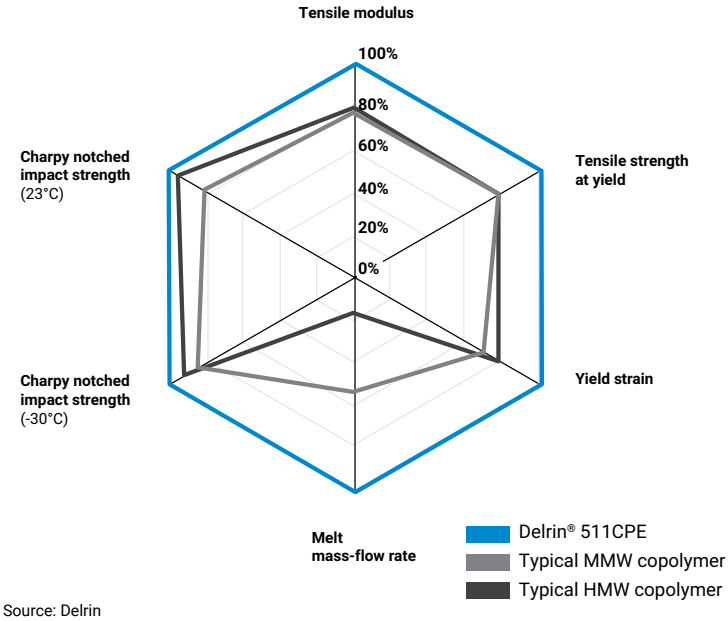
## Cost-efficiency gains

"The possibility of boosting productivity in the production of molded parts capable of handling high loads is a strong argument in favor of working with Delrin," explains Mark Hazel, Business Development Specialist for Delrin. "Equally important, we offer highly uniform quality, reliability of supply and comprehensive design and processing assistance, including the provision of all relevant material data, for example for flow simulations on the customer's own systems. Together, these are the foundations for producing injection moldings that reliably meet their specifications." As Hazel points out: "When customers take all these factors into account from the outset, Delrin's properties can make a major contribution to lower component costs right from the design stage."




Source: Delrin

Delrin® 511CPE's significantly lower formaldehyde emissions require no compromises in terms of mechanical properties.




Source: Delrin

A comparison with typical MMW and HMW POM copolymers reveals the general superiority of Delrin® 511CPE in terms of mechanical properties.

To learn more, contact your Delrin representative or visit Delrin.com.

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Delrin is an industry-leading premium industrial polymer business. Grounded in strong innovation, Delrin is a category creator with a longstanding reputation for quality, reliability, supply and product performance. The iconic Delrin brand, coupled with proprietary technology and deep application expertise make us a leader in the high-end engineering polymer market. Delrin has exciting growth prospects from exposure to automation, actuation, healthcare, mobility and consumer applications.

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