

## Joint News Release

### **Pierburg, Swoboda, BASF and GM develop the first all-plastic fuel vapor pump assembly in serial production**

WYANDOTTE, MI, Nov 11 2019 Pierburg (Rheinmetall Automotive), Swoboda, BASF and General Motors (GM) have developed the first all-plastic fuel vapor pump assembly in serial production. It is currently produced at Pierburg's facility in Fountain Inn, South Carolina and placed on the 2019 Cadillac XT4. The assembly is mounted on the engine and directly transfers evaporated fuel emissions from the evaporative emission control (EVAP) system into the engine, which maintains the low level of vehicle emissions as well as improves engine efficiency.

"We worked with GM to get this part ready for the Cadillac XT4. The design is a major achievement for emissions reduction as it enables a leak-proof seal for gasoline vapors," said Stevan Zivanovic, President Pierburg North America. This design incorporates some enhancements such as an integrated pressure sensor that provides real-time performance feedback to the vehicle and also includes the addition of a purge pump that enables the OEM to perform more complex leak diagnostic checks on the EVAP system. This can be scaled easily to other OEMs, mitigating gasoline vapor emissions from millions of vehicles.

"This design is a major achievement for emission reduction. The use of BASF's Ultramid® polyamide 6 and 66 grades were crucial to enabling a leak-proof seal for gasoline vapors. This allows the system to function in a corrosive environment," said Peter Woschni, Executive Director Engineering, Swoboda KG. "The close collaboration with Swoboda on the molding and tooling of the assembly was essential to the part's success" said Jeff DeAlmeida, Vice President Transportation, Performance Materials North America, BASF Corporation.

The application also made it to the finals of the SPE's Automotive Innovation Awards program, the oldest and largest competition of its kind in the automotive and plastics industries.

Ultramid is a registered trademark of BASF SE.

### **About BASF**

*BASF Corporation, headquartered in Florham Park, New Jersey, is the North American affiliate of BASF SE, Ludwigshafen, Germany. BASF has more than 20,000 employees in North America and had sales of \$19.7 billion in 2018. For more information about BASF's North American operations, visit [www.basf.com](http://www.basf.com).*

*At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 122,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of around €63 billion in 2018. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the U.S. Further information at [www.basf.com](http://www.basf.com).*

### **About Rheinmetall Automotive**

*Rheinmetall Automotive AG, which represents the Mobility sector within Germany's Rheinmetall Group, has annual sales of around 2,930 MioEUR (2018) and ranks among the top 100 auto-industry suppliers worldwide. The approximately 13,000 employees at about 40 production plants in Europe, the Americas, Japan, India and China develop and manufacture components, modules and assemblies for the drive systems of present and future vehicles, including parts for battery electric or fuel cell propulsion systems.*

*This global tier-one supplier consists of three divisions: Hardparts, Mechatronics, and Aftermarket. Clustered under the Kolbenschmidt brand is the business Hardparts division comprising car and commercial vehicle pistons, large-bore pistons, engine blocks, cylinder heads, and structural parts in aluminum. Also included are other castings, plain bearings and continuous castings.*

*Under the Pierburg brand, Rheinmetall Automotive's Mechatronics division specializes in modules and assemblies for emission control, solenoid valves, actuators and valve train systems, oil, water and vacuum pumps for cars, trucks and offroad vehicles.*

*Rheinmetall's aftermarket division is under the Motorservice brand. It consists of the global aftermarket business in the Group and third-party products in over 130 countries. As a leading supplier of engine components, Motorservice offers their customers extensive line of products for the engine.*

### **About Swoboda**

*Swoboda develops and manufactures high-precision, innovative components and systems for the automotive future. For many years, the family-owned company has been one of the world's leading development and system partners in its sector, supplying well-known international automobile manufacturers (OEM) and automotive suppliers (Tier). With over 4,200 employees at 12 locations, the company manufactures on three continents in six countries: Germany, Romania, Czech Republic, Mexico, USA and China. US locations are Grand Rapids and Auburn Hills. Our expertise and experience in the fields of sensors, electronics and actuators, as well as our determination to always deliver the best performance, are a decisive building block for mobile progress. More than one million prefabricated components leave our factories every day. With our know-how and highly specialized manufacturing capabilities, we are a worldwide leader in our product sector. In this way, we make a contribution to automotive safety, driving comfort and energy efficiency. Further information at [www.swoboda.de](http://www.swoboda.de)*