



# News & Information

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## **INNOVATIVE FEDERAL-MOGUL PISTON RING IMPROVES FUEL ECONOMY AND EMISSIONS BY REDUCING OIL CONSUMPTION BY UP TO 50 PERCENT AND FRICTION BY UP TO 15 PERCENT**

SOUTHFIELD, Mich., August 19, 2010 ... Federal-Mogul Corporation (NASDAQ: FDML) today announced the availability of its proven, innovative two-piece oil ring design for direct-injection gasoline engines, previously developed for high-demanding diesel applications. The patented LKZ® oil control ring reduces oil consumption by up to 50 percent and friction by up to 15 percent, compared to the best conventional two-piece oil rings. The additional benefits of this improved engine performance are fuel economy, CO<sub>2</sub> reduction and longer oil life.

“There are very few technologies that provide such an easily implemented improvement in fuel economy and emissions reduction as LKZ rings,” said Rainer Jueckstock, Federal-Mogul senior vice president of Powertrain Energy. Widely used in both light- and heavy-duty diesel applications, LKZ rings are ideal for the highly loaded conditions increasingly seen in gasoline engines, particularly more sophisticated units with direct injection. “We are seeing strong interest for gasoline applications because of the immediate fuel economy benefit and reduction in CO<sub>2</sub> at low cost,” Jueckstock continued.

Typical piston rings apply equal pressure to the cylinder bore on the downstroke, toward the crankcase, and on the upstroke, toward the combustion chamber. Federal-Mogul’s LKZ ring combines a stepped surface and taper on its contacting edge, which provides a well-defined pressure to the cylinder wall on the downstroke and a significantly lesser effect on the upstroke. The downstroke pressure more effectively returns the oil that lubricates the cylinder to the oil pan, as opposed to allowing oil to enter the combustion chamber where it may create carbon on the spark plug or on the cylinder head and increase oil consumption.

“The LKZ ring is so effective in pulling oil away from the combustion chamber and in reducing oil consumption that we are able to improve ring tension and reduce friction,” said Johannes Esser,

Federal-Mogul's director of engineering, Rings and Liners. "Reduced ring friction requires less energy, which means better fuel economy and less CO<sub>2</sub> emissions."

"The LKZ ring, unlike conventional oil rings, also provides consistent low oil consumption over the life of the engine by reducing carbon build-up on critical parts of the piston, such as just above the compression ring," Esser continued. "Carbon build-up on the piston can lead to cylinder liner damage and increased oil consumption. The LKZ ring helps to mitigate that concern for vehicle manufacturers and consumers."

LKZ rings are one of several rings offered by Federal-Mogul, providing an attractive product range to engine designers worldwide. Depending upon the level of wear resistance required by engine manufacturers, Federal-Mogul can apply a variety of surface treatments to piston rings, such as chrome, CKS (chrome ceramic coating) and GDC (Goetze diamond coating), which protect the ring periphery from scuffing, thus minimizing wear and enabling the oil ring to function properly over the life of the engine. The LKZ ring also can be coated with Federal-Mogul's DLC (diamond-like carbon) coating to even further reduce engine friction.

The success of the unique LKZ-ring technology has contributed to Federal-Mogul's substantial market share, making the company the global market leader for pistons rings.

### **About Federal-Mogul**

Federal-Mogul Corporation is a leading global supplier of powertrain and safety technologies, serving the world's foremost original equipment manufacturers of automotive, light commercial, heavy-duty, agricultural, marine, rail, off-road and industrial vehicles, as well as the worldwide aftermarket. The company's leading technology and innovation, lean manufacturing expertise, as well as marketing and distribution deliver world-class products, brands and services with quality excellence at a competitive cost. Federal-Mogul is focused on its sustainable global profitable growth strategy, creating value and satisfaction for its customers, shareholders and employees. Federal-Mogul was founded in Detroit in 1899. The company is headquartered in Southfield, Michigan, and employs nearly 43,000 people in 34 countries. Visit the company's Web site at [www.federalmogul.com](http://www.federalmogul.com).

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