

## Brad Penn® Penn Grade 1® High Performance Oils

Since January 8, 2008, Brad Penn® Penn Grade 1® High Performance Oils have been formulated with a typical 1500 ppm zinc and 1340-1400 ppm phosphorous additive concentrates.

Penn Grade 1® High Performance Oils are tightly controlled to this level. Each production batch is rigorously monitored by our ISO 9001 certified Quality Control Laboratory to assure compliance to the specification.

Prior to January 8, 2008, Penn Grade 1® High Performance Oils were blended with zinc levels below 1500 ppm. This was in part dictated by the API service classification SJ which limited the phosphorus level to 1000 PPM max for catalyst compatibility. It was only after a decision was made to depart from the API performance classification that it was possible to increase the phosphorus level to 1340 to 1400 range of the current product. This corresponds to the advertized zinc concentration of 1500 PPM.

Being the former Kendall Refinery located in Bradford, Pa., we process 100% Pennsylvania Grade crude oil. From the crude oil, we obtain a unique base oil cut which builds a stable oil film that withstands high pressure, high temperature and scuffing associated with race and older, high performance engines. The product provides double protection (layer of lubricant with the zinc and phosphorous protection) to critical engine parts especially for flat tappet and roller cams. In fact, a majority of the cam manufacturers' tested and now recommend our High Performance Oils before we reformulated the product. One of the reasons the increase in zinc and phosphorous in 2008 was done was to support market trends realizing that the market valued these higher levels. There was not any performance data that directed the increase. Another reason was more historical, since those higher levels had been in use in high performance oils prior to concerns about emission control catalyst life.

The Brad Penn® Penn Grade 1® Break-In oil is designed specifically with a lower level of ZDDP and other select additive components as a Break-In oil. Since break in is a wearing process high levels of an anti-wear additive may be counterproductive. The type of ZDDP used in this oil is also more suitable for break in applications. This product is highly recommended by a number of engine builders for use when breaking in newly assembled engines to lubricate and assure proper sealing of components.

The Brad Penn® lubricants are manufactured at the former Kendall Refinery in Bradford, Pennsylvania.

The refinery is the oldest continuously operated lube refinery in the world (since 1881). The refinery processes only 100% Pennsylvania Grade crude oil through the refinery and is the last truly MADE IN THE USA major oil company.

The Bradford Refinery was the first in the United States to carry ISO 9002 certification; and the American Refining Group, Inc., refinery, blending and packaging operations currently carry ISO 9001:2008 certification.

The Penn Grade 1<sup>®</sup> High Performance Oils are recommended by a majority of Cam Manufacturers such as Crane Cams, Crower Cams, Web Cams, Schneider Cams, Koerner Cams, Howards Cams, Cam Motion and many others.

Penn Grade 1<sup>®</sup> High Performance Oils are uniquely formulated for Street Rods, Hot Rods, Muscle Cars, Vintage Cars, Classic Cars, Historic Cars and High Performance Race Engines.

Penn Grade 1<sup>®</sup> High Performance Oils are available in Partial Synthetic SAE 0W-30, SAE 10W-30, SAE 10W-40, SAE 15W-40, SAE 20W-50; in addition SAE 30, SAE 40, SAE 50, Nitro 70, Break-In Oil SAE 30 and Assembly Lube.

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