

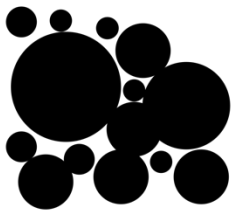
# ANOTHER REASON TORCO OIL IS SUPERIOR

## mPAO Technology

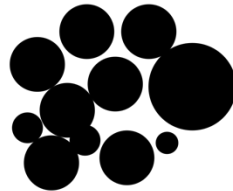
Metallocene PAO (mPAO) -based lubricants are a rare breed in the motor oil world. Why? Because it is very expensive. Few manufacturers have braved the world of mPAO-based formulations - naturally Torco dove headfirst into this exciting technology years ago to ensure your vehicle can achieve peak performance on the racetrack.

Synthetic Polyalphaolefin base oils (PAOs) offer robust engine protection, operate with lower friction, and are better able to withstand the rigours of modified and tuned vehicles than other lubricants. Metallocene PAO (mPAO) represents the latest evolution of this technology, further extending all these advantages.

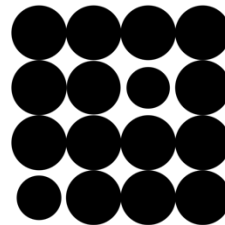
For a motor oil, the ideal fluid is one in which all the molecules are the same size and shape; refining of base oils tries to achieve this by removing unwanted components and selecting only the molecules that are required. But refining can only go so far – at some point, it becomes much easier to “build” the molecules from scratch and these are the synthetics.



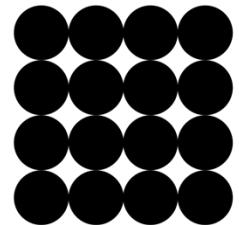
Less Refined  
Mineral Oil



More Refined  
Mineral Oil



Synthetic  
Conventional PAO



Synthetic  
Metallocene PAO

Polyalphaolefins (PAO) are the world's original full-synthetic base oil. Esters came first, but never saw the widespread adoption in motor oils that PAOs achieved. These synthetic molecules have long been regarded as the gold standard for engine oils due to their stability and low friction, but after 80 years the time was ripe for an update. In recent times, a new generation of PAO molecules entered production, yielding major improvements over an already high-performance product.

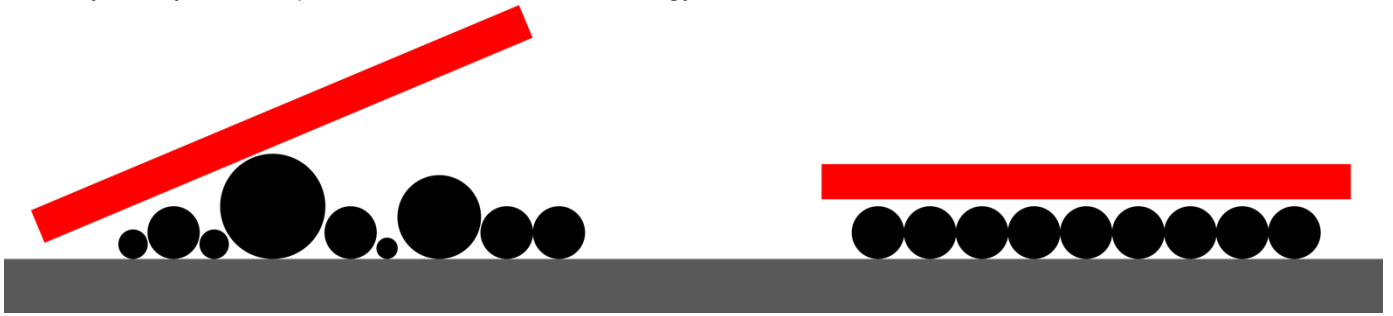
### Better Engine Protection

The number one job for a motor oil is to prevent metal-metal contact. If the pistons scraped up and down on the inside of the liners at thousands of rpms, the surfaces would quickly weld together causing catastrophic engine failure. The same is true of gear teeth meshing together, cams pushing on lifters and bearings rotating with the crankshaft.

Metallocene PAOs (mPAO) have more film strength than their conventional or mineral counterparts. **This means that at the same viscosity, mPAO oil can separate metal components under more load. The end result is less wear, particularly in highly-loaded race engines.**

### More Power

If thicker oils protect better, ever wondered why we don't all use 20W-60? The problem is energy loss; high viscosity oils increase friction between moving parts, and this means less power transfer to the wheels. But oil viscosity is only one component of lubricant-related energy loss – the other is called “traction”.



Traction is the “internal friction” of a motor oil and relates to how easily the molecules slide past each other. As you can see above, the even size of mPAO molecules enable them to glide past each other with ease – so you can be sure more energy goes into turning the wheels.

### **A Cleaner Engine**

Heat kills oil. Just like a hot pan causes cooking oils to darken and form carbon deposits, so too do engine oils form varnish and sludge. To guard against this, we need chemically stable molecules. PAOs are very stable molecules, but metallocene mPAO dials up the stability to 11. That means they are better able to withstand the higher temperature environments of race and modified engines, resulting in cleaner engines with fewer deposits and more power.