

Oil Change Intervals. “Dino” Oil vs. Synthetics

I had a reader request for me to write about oils and why the intervals can go longer for synthetics. First let me say I am NOT an expert on oils, but willing to share what I have read. I just accept no responsibility for whatever you decide to do after reading this article.

All oils contain additives to help them properly do their jobs to lubricate, cool, and clean the moving parts of the motor. For my simplified explanation, I will first hit the “Lubricate” topic.

Oils are designated by numeric specs. For example lets use 5w-20 as the designation. Oil “weight” is listed by how fast the oil drains thru a “funnel” with a standard opening of a set diameter at a set temp. “5w” means the oil drains thru this opening, in the “Winter” at a specified speed. This flow for example is for when there is a cold start in the winter. The second number “20” means it flows thru this funnel at the specified rate for oil at operating temperature of approximately 212 degrees. So if your car calls for 5w-20 oil, you can be assured this oil will meet the specs set by the factory for your motor. So now you can understand that a 0w-20 oil flows better when it is real cold out and can get oil to the moving parts quicker on a cold start, but will still flow as a “20” weight oil when at operating temps..

Some differences between “Dino”, and “Synthetic” oils is how the oil maker creates these flow rates. I am not an expert on what they do, but the important thing to remember is that “Dino” oil takes more and different additives to make it flow as specified. Synthetic oils are made from some of the same compounds that are found in “Dino” oils, but the Synthetic oil manufacturers can select and use the compounds that take less additives to give the desired end results. The key words here to remember are Less Needed Additives in Synthetics.

The flow of the oil actually does help cool the inside moving parts of the motor. In some high performance motors, oil is actually sprayed onto the bottom of the pistons to help keep them cooler. The key words to remember here are “Oil Flow”. By using the oil specified by the manufacturer, you can be assured the oil is flowing at the specified rate which will help cool (and lubricate) the motor internals. Some people tried going to a heavier weight oil saying their car shows more oil pressure. But the oil pressure reading is really showing the “resistance to flow”. The danger is they might not be getting enough oil FLOW for the oil to do it’s job. A poster on Miata.net had a 2004 MazdaSpeed Miata with a turbo charger, and he lived in Arizona. The motor calls for 10w-30, and he tried 10w-40 oil thinking it would be better in the summer. He did racing with this Miata and had a real oil temperature gage in the car. The motor actually ran hotter using the thicker 10-40 oil. Hotter is not good, so he went back to the 10-30. The key here is to use a “Top Quality” oil, so it maintains is proper flow rates, not a heavier weight.

The last part is the cleaning function of the oil. As “Dino” is pumped from the ground, it is loaded with impurities. Paraffins and Waxes are two major impurities and are a big enemy of the motor. The refinery process takes out a lot of the paraffins and waxes, but can not get them all. This is one reason why Detergent Additives are put in the oil to keep the internal parts of the motor clean. The oil must be changed when the additives wear out. Synthetic oils are made of compounds that contain little or none of the paraffins and waxes. Because of this, the oil does not need to have as many detergents, and what detergents are there lasts longer resulting in more miles per oil change interval.

From what I have read, the basic principal is that the oil itself does not wear out. So the oil must be changed when the “ADDITIVES” wear out. The Additives wear out quicker using Dino oil, as they have to work harder than in Synthetic oils. This is one reason why you can do extended oil change intervals using Synthetic oils.

OK, you ask, so how long can I go on an oil change? I like to play it safe, as oil is LOTS cheaper than Parts and Labor at the garage. I was brought up using “Dino” oils and that 3,000 miles was an accepted oil change interval. I have read that the Dino oils have improved, so they are now suggesting up

to 5,000 miles on an oil change. Following the oil change interval recommendations in your handbook is a good safe measure.

I do not have a set safe interval to suggest for Synthetic oils. My rule of thumb is that the Synthetic oil is twice as costly, so I go twice the miles that I did with Dyno oil. I change my Mobil 1 Synthetic every 6,000 miles. But a while ago, I changed it every 5,000 miles as I was doing a lot of stop and go, short trip driving. Note if you do not drive the car far enough to heat the oil, the condensation that forms when you start it can stay inside the motor and cause rust inside. Not good. I have read where it takes twice as long to heat the oil to operating temps as it does to bring the coolant to operating temps.

I have read on Miata.net where some guys go 10,000 miles on an oil change using Mobil 1 synthetic oils. They feel this is totally acceptable. To take it to an extreme, one guy did an experiment with a pick up truck at his company. He filled the crankcase with Mobil 1 oil, and drove 50,000 miles on it without changing the oil. Every 10,000 miles he changed the filter, and topped off the oil level with a little fresh oil. As it used a little oil, he also added fresh oil to keep it full. As I noted above, the life of the additives can determine the oil change interval, so by adding fresh oil when needed, he was also adding some fresh additives. He had the oil analyzed at 50,000 miles, and it was still "good".

Here is my recommendation.... I know of 2 national companies who do oil analysis, and I have used them both. You take some oil from your oil pan, either when you drain it, or during the oil change interval, and send it to them. They analyze the condition of the oil and the additives, and tell you what impurities are in the oil from your motor's operation. They will tell you what life is left in the additive package and then you will know if you could have gone longer with the oil change interval.

The one Lab I have used is "Polaris Laboratories": <http://polarislabs.com/>. You can get on their web page, and they will send to you a test kit to put your oil into and send it to them.

The other one I have used is "Blackstone Laboratories"; <http://www.blackstone-labs.com/>. They also offer a test kit for your oil to be sent to them in.

The good thing about these 2 labs is that when they send your report to you, they include a Toll Free phone number so you can call. They will explain your report and help you understand the condition of the oil and if you could go longer. Attached you will find a Polaris Lab Report from the previous 2002 Miata I owned as an example.

I hope you now understand a little more about oil change intervals, and if you really want to know how many miles you can drive, contact one of these companies above. Feel free to ask questions if you have some.

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