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The Truth About Synthetic Oil

Auto and Oil Industries Best Kept Secret - Finally Revealed

(What every Filipino Car Owner Should Know !)



Table of Contents :

Open Letter	2
I. What you need to know about petroleum oil	3
II. Synthetic Lubricant Market In Asia	3
III. What is Synthetic Oil ?.....	4
IV. History Of Synthetic Oil	4
V. Advantages Of Synthetic Oil Over Petroleum Oil	5
VI. Procedures On How To Switch To Synthetic Oil	6
VII. When Not To Use Synthetic Oil	6
VIII. Frequently Asked Questions on Synthetic Oil	7



Dear Friend,

With the unending increase in petroleum products and fuel in our country today, it is not uncommon for an average Filipino worker who owns a vehicle not to bring their car everyday to work to save money on gas.

In view of this I would like to share some knowledge on how we can save cost in maintaining our vehicle, and I believe that this relevant information must be known by every Filipino specially those who own a vehicle.

One of the regular maintenance we perform on our vehicle is changing oil, and many of us are unaware of synthetic lubricants. In fact it is estimated that only a handful of Filipinos knows the value of synthetic oil in their vehicle since most of us use the conventional petroleum or mineral oil that is available in our local gasoline stations .

It is my intention that every Filipino must be educated on the benefits and advantages of using synthetic oil in their vehicle. A car manual states that we should change oil every 3000 miles or every 3 months, whichever comes first, that is true because, car manufacturers and oil companies want you to use their petroleum products so that you come to them every 3 months for your periodic change oil interval. Petroleum oils are insufficient in lubricating our engines since they are made of refined substance, since some of the chemicals present in conventional petroleum oil break down at temperatures within the normal range usually around 325 to 250 degree Fahrenheit

Synthetic Oil outperforms all brands of petroleum oil in every aspect, but the best benefit we can derived from continuous use of synthetic oil is the extended life of your vehicle, the only disadvantage of using synthetic oil is the initial cost since a liter or quartz 4 to 5 times the price of the petroleum cost, but we Filipinos must not see it on the initial cost but rather on the life cycle cost of your vehicle. Synthetic oil will make your engine last longer that petroleum oil through its continuous use.

I hope that this report provides a brief education and awareness amongst Filipino people.

Rolly Angeles



I. What you need to know about “Petroleum Oil” ?

- Primary purpose of engine motor oil is to :
 - To lubricate all moving internal engine parts to minimize friction and wear
 - To cool the engine
 - For contamination and corrosion control
 - To seal the piston rings and mating surfaces
- **60%** of engine cooling is provided by **cooling water** from the radiator which cools the upper portion of the engine such as cylinder heads, valves, while the other **40%** is cooled by **oil**. Engine heat is created through friction of moving parts and ignition of fuel inside the cylinders, oil carries heat away
- Ordinary petroleum oil will burn as temperature increases which tends to produce sludge, varnish and gums inside the engine. Average conventional petroleum oil, we used will burn around 325 to 350 degrees Fahrenheit
- Ordinary car filter will trap particles of oil contaminants 30 to 40 microns (thickness of 1 hair follicle is from 60 to 100 microns), however, particles in 5 to 20 microns range cause up to 60 % of all engine wear, this simply means that if our average car filter can remove particles in 5 to 20 microns we reduce our engine wear by 60 % (These filters have nominal rating)
- Extended drain interval, or change oil is possible through synthetic oil. A car manual states that drain interval be done at 3000 miles or 3 months using a petroleum motor oil, however, with synthetic oil, oil change or drain interval can be done at 15,000 to 35,000 miles, as a matter of fact, in Europe regular change oil for cars is done every 10,000 miles.
- At regular temperature, oil begin to burn causing them to thicken, synthetic oil can withstand higher temperature than motor oil
- **BOTTOMLINE**, Synthetic oil will provide better engine protection than petroleum oil

II. Synthetic Lubricant Market in the Philippines

- Based on Frost and Sullivan report reveals that the total synthetic lubricant market for South East Asia was worth \$ 819 million in 2001 and it's forecast to reach \$ 1055.2 million by 2008. Countries include Thailand, Malaysia, Singapore, Indonesia and the Philippines
- Malaysia is seen to have the highest growth potential since the Malaysian population is generally aware of synthetic lubricants through promotional activities by oil companies. Market of synthetic lubricants is forecast to reach \$ 248.6 million by 2008
- Synthetic lubricants in the region cost 4 to 5 times more than that of the cheaper mineral oil based lubricants, and this will be a major restrained for its growth. However, consumers must not compare the initial cost of synthetic oil but rather on the life cycle cost and the benefits of prolong use of synthetic oil
- Market for synthetic lubricants is mainly driven by the aggressive promotion of a limited number of suppliers and since oil industry is dominated by the few major oil companies which have extensive marketing distribution networks and control over the lion's share of the market, hence, they recommend the conventional motor oil so consumers will keep coming back every 3000 miles or 3 months whichever comes first



- Industry participants must invest in educating customers through media, seminars and workshop to create a general awareness to the public regarding synthetic oil and its advantages over petroleum or mineral-based oil

III. What is Synthetic Oil ?

- Synthetic motor oils are the result of a chemical reaction called synthesis, end result is a uniformly shaped molecules that are more resistant to heat and impossible to achieve through crude refining process
- Oils produced by synthesis (chemical reaction) rather than by extraction or refinement. Many (but not all) synthetic oils offer immense advantages in terms of high temperature stability and low temperature fluidity, but are more costly than mineral oils. Major advantage of all synthetic oils is their chemical uniformity. 70% of synthetics contain Polyalphaolefin.
- While a mineral oil is derived from a mineral source, such as petroleum, as opposed to oils derived from plant and animals. A petroleum base stock consists of many different oil fractions to form the final product and some of these will boil off at relatively low temperatures. Generally molecules of a petroleum base stock are long carbon chains and are sensitive to heat

IV. History of Synthetic Oils

- **1877** - first synthesized hydro-carbons were created by Friedel and Crafts using Aluminum TriChloride as the catalysts
- **1929** - Commercial development of synthesized hydrocarbons was undertaken by Standard Oil of Indiana
- **1937** - First PAO (polyalphaolefin), a synthetic product using olefin polymerization was manufactured. Zurich Aviation Congress became interested in ester based lubricant technology
- **1940** - Introduce ester basestocks in the United States Naval Research Laboratory and the military aviation industry
 - It was the space age that helped create a greater appreciation for the benefits of synthetic lubricants. The high speed, high heat and cold temperature performance requirements of modern jets created a demand for a new kind of lubricant
- **1940** - Various synthetic fluids were developed to meet the demands of new and more efficient high performance engines and machines
- **1958** - Drew Chemical Corporation in Boonton, New Jersey developed the first polyesters patented in conjunction with Mobil Chemicals
- **1972** - Amatzio build his ideal synthetic basestock - Amsoil (Amatzio's Oil)
- **1975** - Mobil 1 began test marketing a PAO based synthetic lubricant in the U.S.
- **1990** - Every oil company carried a high end synthetic motor in it's product line, though only a few companies seem truly dedicated to promoting them.



V. Advantages Of Synthetic Oil Over Petroleum Oil

- Synthetic Oil is superior to Mineral-Based oil or Petroleum Oil in every way. Conventional mineral or petroleum oil will break down at temperatures within the normal operating range.
- Oil drains can be extended, ordinary petroleum oil requires changing every 3000 miles or 3 months while synthetic oil can reach up to 30,000 to 35,000 oil change or drain interval
- Synthetic lubricants provide better engine wear protection. Hence, vehicle life can be extended
- Synthetic Oils have higher resistance to heat than mineral based oil. Synthetic oil vaporize at much higher temperature at 600 deg F compared to petroleum oil at 350 deg F
- Since petroleum oil burns at high temperature compared to synthetic oil, these means more sludge, varnish and gum deposits in the engine.
- Synthetic oils produce less engine deposits than petroleum oil since it can withstand more heat
- Synthetic Oils provide more fuel mileage and performance for your vehicle. You save on gas and fuel
- Synthetic oil reduce friction and provide higher film strength, (mineral based has a film strength of 400 psi while synthetics usually exceed 3000 psi)
- Synthetic oil provide more cold temperature fluidity, since synthetic tends to flow much better, this means better starting capabilities in extremely cold temperatures
- Continuous use of Synthetic Oil produces much cleaner engines than petroleum oil
- Improve rust and corrosion of the engine which leads to lesser cost of repairs on engine
- Constant use of synthetic oils provides much more mileage in your car
- Synthetic oil is more economical to use since it will provide more cost savings due to its extended oil drain interval compared to ordinary and conventional petroleum oil
- **BOTTOMLINE**, synthetic oil outperforms all motor oils in every aspect, If these facts are known by the public.
- **Big oil companies are afraid that if they recommend longer drain intervals, they won't sell enough petroleum oil. They are also right in having your vehicle perform the change oil interval at 3000 miles or 3 months since they design their petroleum product to reach that interval, so that it will be your obligation to come to them every 3 months**



VI. Procedure On How To Switch To Synthetic Oil

- There is not much difference in the steps involved in how to apply Synthetic Oil to your vehicle, but I would like to provide these basic tips if you are new on using synthetic oil specially if you had been continuously using petroleum or mineral based oil.

Step 1 :

- You need to purchase synthetic oil, I recommend the brand of Lubriplate Synthetic Oil as this has high viscosity and Flash point of 415 deg F(SAE20W-50), if this is your first time to use synthetic oil, you need a Flush lubricant.

Step 2 :

- Get your car/vehicle to you local change oil shop and warm your engine for 5 to 10 min and stop your engine and drain your oil. Apply flushing afterwards, then pour synthetic oil into the engine oil cap. This will be your **first** oil change using synthetic oil

Step 3 :

- Although synthetic oil offers extended drain or change oil, it is best to change your synthetic oil after reaching 4000 to 5000 miles to remove contaminants such as sludge, varnish build-up carbon deposits that had been stock on your engine due to your continued use of petroleum products. Change both oil filter and your synthetic oil

Step 4 :

- Gradually extend from 5000 to 8000 miles on your **third** oil change

Step 5 :

- You can now extend from 8000 to 15000 miles on your **fourth or fifth** oil change

Note : As a precautionary measures, in extending the oil change or drain interval it is best and highly recommended that you change your Oil Filter & clean your Air Filters every 3000m

VII. When Not To Use Synthetic Oil

- Severe oil leak in your engine. It is best to repair the leaks before applying synthetic oil to your car or vehicle
- Engine is due for overhaul as there might be worn parts inside the engine
- Oil is being contaminated by water as seen from your oil's dip stick, possibility of crack in the cylinder head or gasket. Owner should have this problem fix first



VIII. Frequently Asked Questions On Synthetic Oil

1) I was always made to believe that oil should be change every 3000 miles or 3 months whichever comes first if I wanted to keep my car running well, if I extend the drain interval will it more likely to damage and shorten the life of my engine ?

Answer :

1st, check the synthetic oil you are going to use, not all synthetic oils are synthetic, others have partial mixtures of synthetic and petroleum oil,” SAE 20W-50. Synthetic oil usually have a Flash point of 450 deg F compared to mineral oil of 350. The key here is to regularly change your oil filter and clean your air filter since these are were contamination are being trapped. Other synthetic oil will recommend the same oil change interval as petroleum oil does.

2) Will I void my car’s warranty if I use synthetic Oil ?

Answer :

- For General Motors, Ford and Chrysler, there are already some components in their vehicle that recommend the use of synthetic oil
- Mitsubishi Motors corporation recently launched its own brand of synthetic oil, Mitsubishi Turbo XP and are already available in every Mitsubishi outlet in the Philippines
- For Isuzu, , Ron Norsell, Product Control Manager indicates in their Owner’s Manual stating that “Do Not Use Synthetic oil, while he indicated that the use of synthetic oil would not void the warranty, a failure attributed to lubricant would, maybe it’s because he wanted his customers to go back to him every 3 months otherwise this would be lost profit for them
- Technically speaking, the answer will be on a case to case basis, but my in dept knowledge on the best maintenance systems such as RCM (Reliability-Centred Maintenance and TPM) dictates that doing preventive maintenance is costly, I recall one student of mine attending an RCM told me that, he complained some of the preventive maintenance being performed on his car since it deemed unnecessary and useless and told the mechanic that why should I need to change this part if this is still good. Mechanic’s said, it’s what’s indicated in the manual

3) I have been using petroleum motor oil since I started driving, will switching to Synthetic Oil damage my engine ?

Answer :

- No, as long as you follow the recommended procedures to be followed, what is important is to change your filter regularly, perhaps every 3 to 4 months. Synthetic Oil will protect your engine since it have a higher resistance to heat (Flash Point) rather than the conventional motor oil, this means that oil will not easily burn as in the case of petroleum oil which in turn leaves sludges, varnishes and gums inside your engine

4) Why don’t’ big oil companies advertise synthetic oil, and how come only few Filipinos know about synthetic oil ?

Answer :

- Why should I recommend you an oil that will remove or make you come to us much longer this will mean a loss profit for the big oil companies. Advertising of oils is dominated by the big oil companies since they have the lion’s share and the marketing arm, hence, advertisement of synthetic oil is limited to aggressiveness of a few local suppliers



CONTINUATION

5) Synthetic lubricant cost much more than ordinary lubricant, how can I justify paying for this higher cost ?

Answer :

- We must not look on the initial cost to justify it, but rather on the total life cycle costs of the product and its benefit you will derive in using it. If I have 2 brands of paint, paint x and y, Paint X is P 200 and will last only a year while, paint Y is P 500.00 but will last for 6 years then we must choose paint Y as this will save you in purchasing the product every 2 years plus the labor you will utilize in painting, refer again to the benefits of using synthetic oil.
- Second point I would like to emphasize is that we are not only saving oil due to the extended oil drain interval but rather a clean engine will provide better combustion and you can be assured on having to save on fuel / gas, engine parts and labor and extended life of your car

6) Is Synthetic Oil better than Duralube, STP, Motor-up and other brands ?

Answer :

- First, Duralube, STP and Motor-Up are additives you mixed on your regular petroleum oil, and, Synthetic Oils are not additives, problems with some additives is they contain Teflon, which tend to dry in the long run and provide harmful effects in your engine in the long run, synthetic oil do not contain Teflon. Also I read that Duralube have some pending cases to settle with the Federal Trade Center. I personally tried Duralube and my engine still overheated when I ran out of water due to a damage radiator leak

7) Why is Synthetic Oil better than Petroleum oil ?

Answer :

- From the list of benefits I listed on page 5, one property on an oil is its resistance to heat, and it can be measured through Flash Point or an oils ability to withstand heat. Synthetic oil offers higher flash point than petroleum oil. If heat is not withstand then it will burn causing sludge, varnishes in our engine. Synthetic oil has higher heat resistance than petroleum oil
- Second, is the oil's film, an ordinary petroleum oil has a film of 400 psi while an synthetic oil, has a range of 3000 and above. What does this do ? When your engine is not running, and you start the engine, there is no oil present in the different parts of the engine, hence when the engine starts cranking, this is the only time that the oil is moving towards the different parts of the engine, since synthetic oil have higher film, they remain in the engine parts even when the engine stop which lessens the friction of parts, and when there is friction or metal to metal contact then there is a tendency to wear