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TECHNOLOGY COMPARISON

1. **VISCOSITY INDEX IMPROVERS:** These are very thick (high viscosity) preparations sold by the likes of Wynns, STP, Lucas and many others. The claims made usually include reduced smoking or "blow-by", with this achieved by increasing the viscosity of the engine oil. These can increase the viscosity to the point of having adverse effects to the engine…for example, from an SAE30 to SAE50. When shut down, the oil that has lost viscosity due to increased temperature will drain down to the sump and when cooling, will increase in viscosity, returning to the SAE50 once again. When starting the cold engine, the oil pump will take longer to deliver lubrication to the upper reaches of the engine, meaning there is metal-to-metal contact LONGER…hence increasing the wear!

2. **MOLYBDENUM DISULFIDE:** Another "almost good" idea…engines have filters to trap solid particles so why would you add Molybdenum Disulfide which is a solid. It also has a specific gravity >1, so adding it to oil that has an SG <1 (it floats on water), the Moly sinks to the bottom of the crankcase/sump when the engine is shut down. This has the potential to cause sludge in the sump, clog the oil pick-up, build up on metal surfaces, closing down tolerances, generating heat…and heat is the quickest killer of oil!

3. **TEFLON aka PTFE:** TEFLON is (supposedly) the slipperiest solid available. Once again, you don't want to have solids floating around in your oil for the reasons mentioned above. (If you read the instructions on many of these products you will see that you are instructed to shake the container vigorously to get the TEFLON into suspension as it also has an SG>1 and settles to the bottom of the crankcase when the engine is shut down.

4. **CHLORINATED PARAFFINICS:** There are a number of additives that use unstable ingredients, one of which is chlorine. Chlorine is a great friction modifier and performs extremely well under extreme pressure, HOWEVER, when heated, it produces toxic fumes…chlorine gas is also known as mustard gas and this is hardly good for the environment or anyone who comes into contact with it. Any oil treated with these formulations should, strictly speaking, be regarded as hazardous waste and disposed of using the appropriate and recommended

disposal methods….and NOT just dumped into the rest of the waste oil. Another thing to be aware of is the TBN (Total Base Number) which is the pH reading of he product. Most of these products read around 1-2 which is EXTREMELY acidic, something oil analysis labs will flag with a WARNING when the TBN reaches a reading of 3. Bearing in mind that brand new oils have a TBN of round 8-9 fresh out the drum, the moment you add these additives to the engine oil, you are actually shortening the life of the oil. In diesel engines where sulphuric acid is endemic (hence monitoring the TBN), there is also the very real potential to compound the acidity in the oil by the creation of hydrochloric acid, making an highly detrimental acid concoction inside the engine.

There is also the tendency for throwing in buzzwords like "nanotechnology" and making reference to NASA or other super high-tech institutions to try add credibility to the product however by simply asking for the TBN you cab very quickly establish whether these are genuine or genuine "snake-oils"!

The other dead give-away is the smell of the product. The really bad ones smell really bad! By heating some up with a lighter in a spoon and smelling the fumes will let you know pretty quickly whether these are bad news or not.

There are a number of different products out that can perform really well…some are better than others…some are dangerous…some are very EXPENSIVE…but WE have the advantage of owning the Intellectual Property and can decide when we can manufacture in India to cut costs. This gives us a BIG advantage over most other brands as you are aware, so I'm not too worried about them