

SNAKE OIL: PROMISE VS PERFORMANCE

By Dave Scott

INTRODUCTION

Choosing the correct lubricating oil, with or without additives, is critical to the smooth operation of machinery, however, there are many such products for sale which do not actually do what they claim to on the packaging label. As consumers, we need to be extra vigilant in ensuring that the oil we use complies with OEM specifications and indeed contains the additives that are advertised. Beware - what appears to be “cheap” oil (with false additive claims) (also known as “snake oil”) can lead to very expensive damage.



Oil from Chinese water-snakes has for centuries been used in Chinese traditional medicine to treat joint pain. In 18th-century Europe, especially in the UK, viper oil had been commonly recommended for many afflictions. Much of the snake oil sold by Western entrepreneurs was, however, illegitimate, and did not contain ingredients derived from any kind of snake. A travelling doctor would sell it with false merits and then leave town before the customers realised they had been cheated. The term snake oil has since been established in popular culture as a reference to any worthless concoction sold as medicine and has been extended to describe a widely ranging degree of fraudulent goods, services, ideas - [wikipedia](https://en.wikipedia.org/wiki/Snake_oil).

Snake Oil - Promise vs Performance

In this Technical Bulletin, the lucrative snake oil industry is discussed, as well as the damage caused by some of the harmful additives, along with advice on how to determine whether the oil you have selected can meet its performance specifications.

With 81,500,000 hits in 0,55 seconds for 'snake oil' a Google visit reveals this subject is both a sombre and entertaining issue. It's serious for the IT sector where it refers to cryptography or a security product that makes exaggerated claims of what the product is capable of, giving the user a false sense of security. On the other hand, it's a joke a minute – over 2 million Google hits – that serve as an excellent tool for investors, allowing them to easily and inexpensively bankrupt their business.

Let's set the scene with a concise definition of 'snake oil' – it is well beyond medicine alone with a broad appeal to greed and deception in any sector of society.

COVID-19 has seriously impacted the global lubricant market. Base oil prices in March 2020 for European standard product hovered around 400USD/metric tonne – March 2021 sees prices for similar quality base oil at 1250USD/metric tonne (if you can get it). This astounding change plays into the hands of snake oil micro-blenders, but it seems not even they can lay their hands on a supply of any base oil.

While scams have been around forever, the term 'snake oil' seems to come into focus in the 19th-century when Chinese railroad workers in the USA used medicine made from the Chinese water snake. The stuff worked; rich in Omega-3 fatty acids, it effectively treated conditions such as arthritis and bursitis. Americans were amazed by its healing powers.

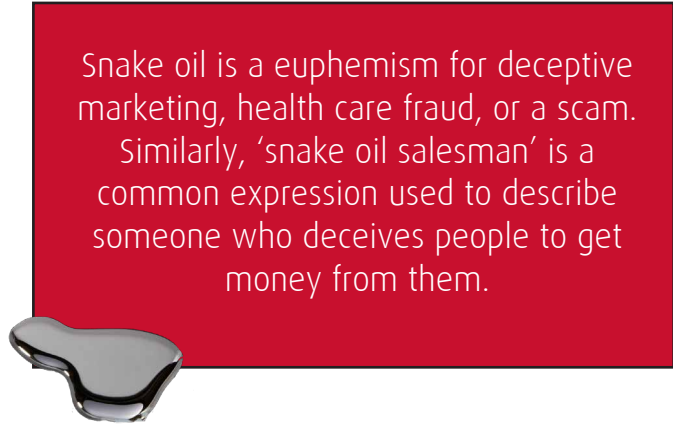
The term took on a new meaning when phony patent medicines promised to cure every disease known to man. Made up of mostly alcohol, this snake oil convinced people they felt better. Since America did not have Chinese water snakes, some entrepreneurs used rattlesnakes. <https://truewestmagazine.com/where-did-snake-oil-originate/>. Balladeers would croon about 'Lilly The Pink's Medicinal Compound'.

Fast forward to the 21st Century and a BBC report listed a commodities trader being given painted stones instead of \$36m (£26m) of copper from a Turkish supplier in a fraudulent deal last summer.

Geneva-based Mercuria Energy Group says it's been the

victim of cargo fraud following its purchase of 10,000 tons of copper blister. When the cargoes started arriving in China, it found containers full of painted stones instead. The bizarre case happened despite security and inspection controls:

<https://www.miningmx.com/news/base-metals/45551-mercuria-energy-falls-victim-to-fraud-after-painted-stones-delivered-instead-of-36m-in-copper/>



Snake oil is a euphemism for deceptive marketing, health care fraud, or a scam. Similarly, 'snake oil salesman' is a common expression used to describe someone who deceives people to get money from them.

Our focus here, however broad the term 'snake oil' is, is on the word oil – particularly as it affects industrial and automotive applications. The lubricant market is driven by a lack of enforceable standards, greed, quick-fix perceptions, ignorance, weak maintenance records and poor buying practices. This is an environment where snake oil thrives. No one is accountable or fears the consequences.

It takes a pile of cash (800,000USD or R12 million) and a careful balance of additives to formulate an API-licensed diesel oil in the current world of automotive lubricants. But this massive investment in testing can only be short-cut by using the exact formulations in totality that have been qualified by the additive manufacturers, with supporting data.

Snake oil blenders rely on price to win market share. Price relies on ignorance surrounding perceptions that oil is just oil, which is entrenched as a commodity in buyer attitudes. It all starts with base oil, the first area where quality gets compromised.

This snippet from a qualified industry observer summarises: 'The quality of the base oil is critically important, as this can form up to 99.6% of the formulation in certain applications.

'Hence base oils have a significant role to play in the performance and certain specifications cannot be achieved with certain base oils. With modern high-performance engine oils for example, base oils are not interchangeable

What is a base oil? These oils are used to manufacture products including lubricating greases, motor oil and metal processing fluids. Base oil is produced by means of refining crude oil which is heated to separate various distillates from one another.

with one another, unless they have been appropriately tested'. Snake oil micro-blenders do not spend time or money on establishing appropriate base oils for analysis and compatibility – price and availability rules.

Fuel additives impact on lubrication – how? Magic potions added to fuel tanks find their way into engine oil through combustion blow-by. This untested material soon creates a chemical imbalance. An excellent exposé of fuel 'muti' can be found at 'Fuel: Impotent potions – CAR MAGAZINE By: Jake Venter, Published: 18 Mar '09 – <https://www.carmag.co.za/technical-blog/fuel-impotent-potions/>

According to press reports in 2018 and Lubrizol's sampling of the local SA market, '30% of the oils sampled were off standard. This meant no conformance to the specification on the packaging, using an incorrect base oil, with incorrect additive levels and viscosity modifiers.' Furthermore, 'aging vehicle hardware still requires the correct lubricant performance profiles.'

There are South African local standards, but these are entirely voluntary and unenforceable:

- High performance engine lubricating oil for diesel engines (for API Service Category CJ-4) SANS 1843:2019
- High performance engine lubricating oil for diesel engines (for API Service Category CI-4) SANS 1517:2019
- When it comes to lubrication, it appears that State Tenders are still lodged in the 20th Century based on previous standards. This is where ignorance rules and price wins.
- There are knock-on consequences for adding secretly defined potions to any vehicle driveline component, engine, gearbox, or axle differential:
- 5-year warranties are commonplace nowadays – any lubricant outside of the OEM (Original Equipment Manufacturer) specification will negate the warranty.

- Aftermarket additives can change component service intervals – usually shortening.
- Oil samples submitted for wear analysis invariably never contain information about the addition of snake oil – this confuses the analysis trail leading to inaccurate results and possible failure.
- The overhead cost of adding friction modifiers is simply buried in operating expenses – across a large fleet this could total significant unnecessary expenditure.
- Adding any chemical beyond OEM standards requires a detailed admin trail to prove/disprove the reason for using the stuff – this is notably absent in most cases.
- In trying to match expectations of a quick fix with a magic potion, the real reasons for component failure are overlooked or masked. Oil is also a temperature control medium, and the problem may lie elsewhere, not in the lubricant itself.
- The strict disciplines surrounding Root Cause Failure Analysis (RCFA) have not been applied.
- Even if the concoction is purchased and not used, the consumer's name often and unwittingly ends up on a list of product testimonial endorsements.
- Snake oil sellers are not driven by environmental concerns – this is one reason why aftermarket additives invariably do not show a detailed list of ingredients on the container.
- Watch out for chlorine! This has been used in compounds as an extreme pressure agent in industrial lubricant applications. Add a little dihydrogen oxide (water) to very reactive chlorine and hydrochloric acid appears to start corroding engine metals. When burnt, chlorinated paraffins produce corrosive hydrochloric acid, and organo-chlorine compounds including the highly poisonous phosgene gas. Apart from these corrosion and health hazards, the deactivation of exhaust catalysts is also a problem in petrol engines.
- What is missing from most companies (end-users) is a lubrication (oil) policy that sets standards for buyers and operations – oil is not just oil.

API - The service rating of passenger car and commercial automotive motor oils is classified by the American Petroleum Institute (API). The programme certifies that an oil meets certain Original Equipment Manufacturer (OEM) quality and performance standards. ... It specifies the viscosity grade required for specific engines.

South Africa's consumers are afforded protection under the Consumer Protection Act (CPA). But it is hardly likely that any SA consumer will go to the extent of obtaining certifiable laboratory tests that can stand up to legal scrutiny with the outcome in a court action for damages. Snake oil blenders rely on consumer inertia.

The example South Africa needs to follow is in the United Kingdom: VLS—Verification of Lubrication Specifications—is a subsidiary of United Kingdom Lubricants Association Ltd. VLS is a membership organisation, funded by its members and by the case charge levied in connection with each case raised. 'At VLS we investigate and resolve lubricant product complaints' says VLS, adding 'this covers incorrect performance claims, misleading technical specifications, and products that do not meet OEM or stated industry standards.' Please visit <https://ukla-vls.org.uk/>

Here is the website of the Federal Trade Commission (FTC) in the USA: www.ftc.gov/opa/2001/11/gadget.htm. The FTC prosecutes companies that make false claims and has debunked the advantages of several products that have been sold on the SA market. Visit the Federal Trade Commission website and use the search box to find news about aftermarket oil additives.

In South Africa we are victims of micro-blender opportunism where consumer education appears to be the only route available.....

The final word goes to Noria Corp – ***'It is better to have any driveline component (starting at the engine) operating under a full hydrodynamic fluid film than trying to rely on a friction barrier under boundary conditions.'***

About the writer...



Dave Scott is an award-winning journalist and author, with a career spanning over 50 years in the transport industry. He is a member of the SA Institute of Tribology (SAIT) and editor of their newsletter, taking a keen interest in the application of lubricants to road transport maintenance and the cost of ownership. He also serves as the technical correspondent for *Fleetwatch* magazine and the truck correspondent for *AutoForum* magazine, and has done for many years.

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