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# Beyond Specifications: Meeting South Africa's Driving Demands

## Trends, Challenges, and Tailored Solutions

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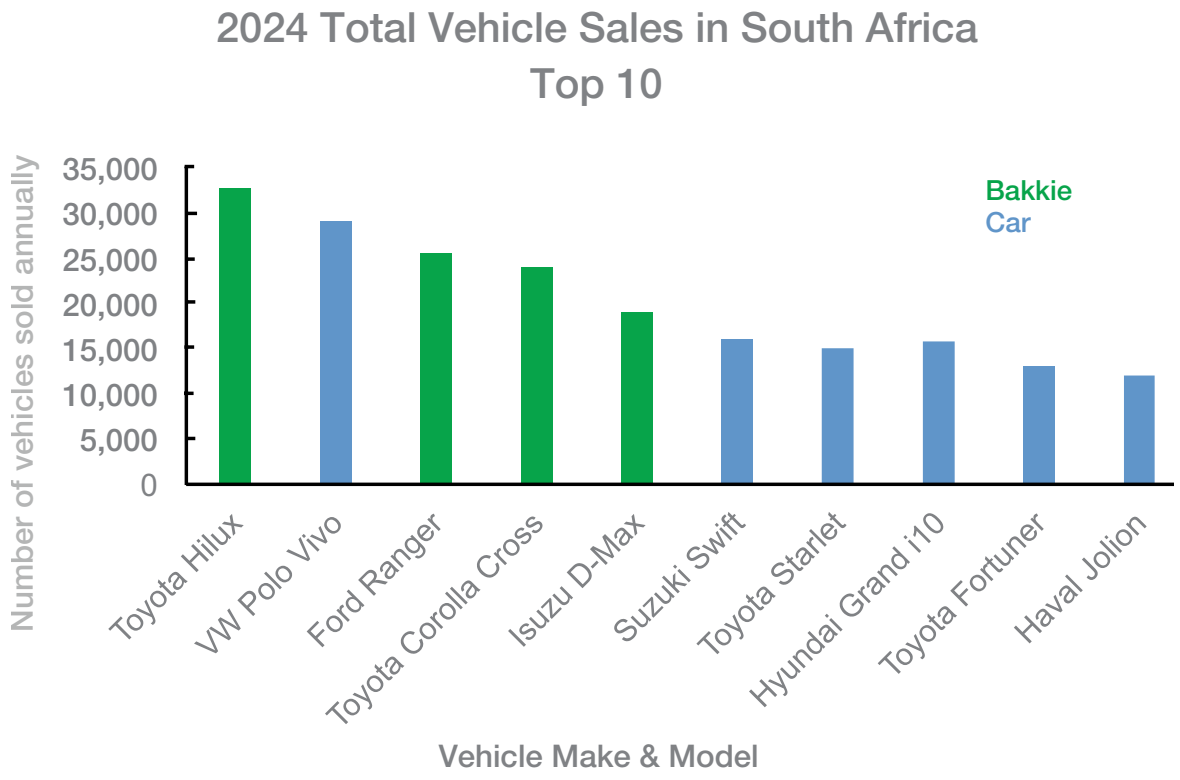
South Africa's automotive landscape is as diverse as its geography. From urban centers to rural terrains, the country's light-duty vehicle (LDV) market presents unique challenges for engine oil performance. This article examines the current state of the LDV and passenger car motor oil (PCMO) market, highlighting the distinct driving conditions, and explains why tailored engine protection is crucial.

Vehicle usage in South Africa differs from global norms, where engines operating in this environment require specialized protection. Current industry specifications may not be sufficient to address the specific challenges faced by engines in South Africa. By understanding the challenges and opportunities in this market, stakeholders can identify new engine oil applications that enhance their product portfolios and drive growth.

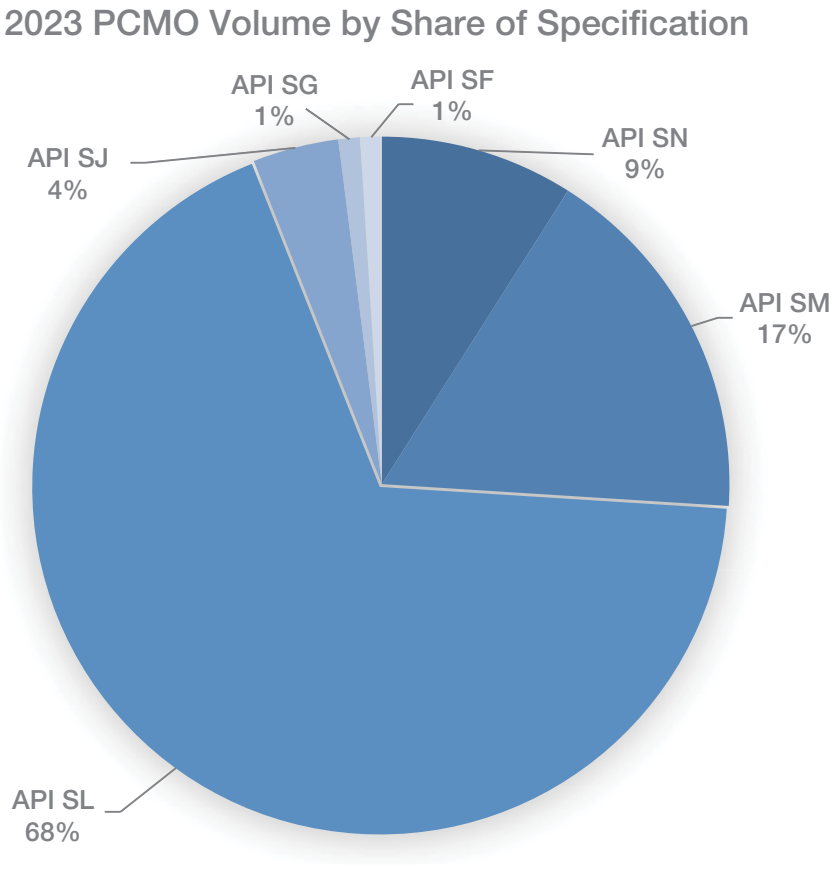
## Vehicle Parc and Sales Trends

Passenger cars dominate South Africa's vehicle parc and are expected to grow steadily following recovery from the COVID-19 pandemic. Between 2018 and 2022, vehicle sales remained resilient, with light commercial vehicles such as bakkies and taxi minibuses accounting for 85 percent of commercial vehicle sales. European and Asian brands lead the market, with Asian brands gaining popularity due to their affordability and reliability.



# Passenger Cars and PCMO Market - API Specifications Lead the Way

API specifications primarily drive the PCMO market in South Africa. API SL currently accounts for 68 percent of PCMO volume, reflecting a market that still relies on older vehicle technologies. However, this also reveals a gap in protection for newer engines that operate under severe local conditions.




Source: LubesNet Database Kline

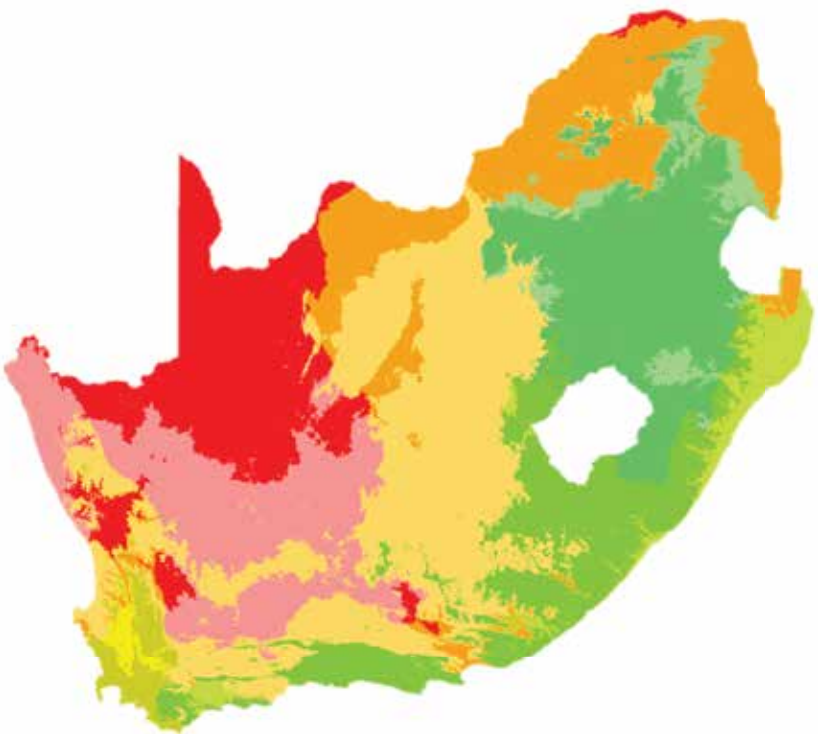
## Driving Conditions: What Makes South Africa Unique?

### Road Infrastructure

South Africa has over 750,000 kilometers of roads, making it the largest road network in sub-Saharan Africa. However, only 21 percent of these roads are paved, while the remaining 79 percent are gravel. Overall road quality remains a concern, as 30 percent of paved roads and 54 percent of unpaved roads are in poor condition. Poorer road conditions cause vehicles to work at higher-than-normal operating temperatures which leads to higher oil oxidation levels – an oil with strong oxidation resistance is important here to stop oil degradation and the formation of deposits in the oil. The poor quality of roads can also lead to faster seal degradation through the increased levels of dirt and debris on the roads – enhanced seals protection in the oil helps to reduce oil leaks so that the oil lasts longer and vehicles don't suffer breakdowns or un-planned downtime due to oil leaks.

### Climate Diversity

The country experiences a wide range of climates. The eastern plateau is situated at a higher elevation and is characterized by a dry, sunny climate. The Western Cape, located at lower elevations, experiences warm to hot, dry summers and mild, rainy winters. The North Cape is predominantly arid, with hot or cold desert conditions. The Veld region has a variable climate, typically featuring mild winters and hot, dry summers. These climatic variations have a significant impact on engine performance and oil degradation, it's essential to use a multi-grade oil that's appropriate for the vehicle and has been designed to cope with a wide range of climate conditions.



- Humid, sub-tropical with dry winter
- Sub-tropical highland with dry winter
- Humid, sub-tropical, no dry season
- Temperate, oceanic, no dry season
- Warm & dry summer
- Hot & dry summer
- Cold semi-arid
- Hot semi-arid
- Cold, dry desert
- Hot, dry desert

## Vehicle Usage Patterns and Engine Stresses

### Taxi Minibuses

Taxi minibuses are essential to urban mobility in South Africa. These vehicles typically operate between 12 and 19 hours daily, running short city routes with frequent stops and extended idling. The engines face high operating temperatures, dust exposure that can affect seals and aftertreatment systems and transient lubrication issues due to variable speed. An Afton formulated oil will prevent the oil oxidation that high operating temperatures can cause, can offer enhanced seal protection to limit oil leaks and will maintain a film in the engine that prevents wear due to the transient lubrication.

### Working and Commuter Bakkies

Bakkies serve dual roles as both workhorses and commuter vehicles. Their popularity is rising among self-employed professionals, farmers, and those in the tourism sector. These vehicles often carry heavy loads, tow trailers, and operate for long hours, especially in industries such as farming and delivery services. They frequently travel on unpaved, dusty roads, which accelerates oxidative oil degradation and

contributes to seal wear. The combination of heavy-duty usage and challenging road conditions places significant stress on engine oils – an Afton additive package for the oil is formulated with strong oxidation protection and enhanced seal protection that will prevent oil degradation and limit seal damage, ensuring that the bakkie can do its job.

## Private Commuters

Private transportation is used by 44 percent of workers in South Africa, with an average commute time of 44 minutes. Rush hour traffic in major cities can increase travel time by 50 percent compared to non-peak periods. Urban driving is characterized by stop-start traffic and short trips with frequent engine cycling. These conditions contribute to transient lubrication, oil dilution, and may shorten the lifetime of aftertreatment devices, all of which demand high-performance engine oils. Afton's additive packages deliver strong wear protection to protect engines from transient lubrication and reduce engine wear. These additive packages are also formulated to control contamination of the engine which helps to prolong the lifetime of the aftertreatment devices. In addition to this, high performing engine oils are also proven to control corrosion, so oil dilution does not result in corrosion of the engine.

Johannesburg — Increase in driving time

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|
| 04:00 AM | 0% | 0% | 0% | 0% | 0% | 0% |
| | 0% | 5% | 4% | 4% | 3% | 3% |
| 06:00 AM | 1% | 47% | 45% | 44% | 43% | 39% |
| | 2% | 73% | 69% | 68% | 67% | 61% |
| 08:00 AM | 4% | 55% | 50% | 48% | 49% | 44% |
| | 7% | 27% | 27% | 26% | 28% | 25% |
| 10:00 AM | 8% | 18% | 19% | 20% | 21% | 21% |
| | 10% | 18% | 19% | 21% | 22% | 23% |
| 12:00 PM | 11% | 18% | 20% | 22% | 23% | 27% |
| | 7% | 12% | 35% | 35% | 39% | 48% |
| 02:00 PM | 8% | 20% | 22% | 23% | 26% | 33% |
| | 7% | 32% | 35% | 35% | 39% | 48% |
| 04:00 PM | 7% | 61% | 63% | 62% | 65% | 65% |
| | 8% | 67% | 67% | 67% | 67% | 53% |
| 06:00 PM | 8% | 36% | 34% | 36% | 36% | 29% |
| | 7% | 12% | 12% | 14% | 15% | 16% |
| 08:00 PM | 4% | 5% | 5% | 6% | 7% | 9% |
| | 2% | 3% | 2% | 3% | 4% | 6% |

Sources: National Household Travel Survey 2020, Business Tech

## Summary of Engine Oil Challenges

Taxi minibuses face numerous challenges, including long operating hours, frequent stops, extended idling, exposure to dust, and high temperatures. Working bakkies are subjected to heavy loads, long hours of operation, unpaved roads, and dusty environments, all of which contribute to oxidative stress and seal degradation. Private commuter vehicles experience stop-start traffic, short trips, and engine cycling, which place additional stress on engine components and aftertreatment systems. These conditions collectively demand engine oils with superior performance characteristics.

### Are Current Specifications Enough?

Standard specifications, such as API SL, provide a baseline for protection but often fail to address South Africa's extreme conditions. High temperatures, dusty environments, poor road conditions, and frequent idling necessitate more robust oil formulations that are proven to prevent wear, sludge formation, and oil oxidation.

### Opportunities for Differentiation

Afton Chemical has developed lubricant solutions specifically tailored to the unique conditions in South Africa. These solutions include enhanced oxidation stability for high-temperature operation, improved detergency and dispersancy to combat sludge and soot, seal conditioning additives to protect against dust and dirt ingress, and shear-stable viscosity modifiers that ensure consistent protection under load. These innovations offer a clear path to market differentiation, bringing added value to the oil for the end users.

### Understanding End User Behavior

While awareness of oil quality is growing, many consumers still choose products based on price or brand familiarity rather than performance claims. Educating users and differentiating products are essential steps in changing this behavior. Afton's product selector tools and educational initiatives are designed to help bridge this gap, ensuring that end users choose oils that genuinely meet their needs.

### Aligning for Market Success

South Africa's LDV and PCMO market is evolving. Success in this environment requires recognizing local usage patterns, offering tailored solutions, and educating consumers. By partnering with Afton, companies can expand their portfolios, connect with users, and lead the market with differentiated products.

Afton Chemical is committed to supporting the South African market with innovative, tailored lubricant solutions. By working together, we can ensure every engine—whether in a taxi, bakkie, or commuter car—receives the protection it truly needs.

## Ready to meet South Africa's toughest driving conditions with confidence?

Contact Afton to learn how our engine oil solutions engineered for high heat, dusty roads, variable climates, and demanding vehicle usage can help you deliver the robust protection South African drivers rely on.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