

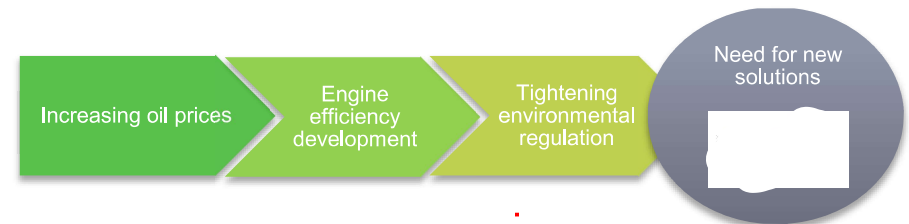
Key market trends

Key industry trends and drivers

- The key trends are tightening governmental **environmental regulations**, tougher **emission targets** and the demand to **reduce operating costs** which forces equipment builders and operators to make **energy efficiency** and **emission reduction a top priority**
- New more compact engines and mechanical equipment are being designed with higher power outputs to improve operating efficiency and combined with lower viscosity lubricants this puts **more stress on mechanical components** leading to **higher rates of wear**
- More sophisticated exhaust gas treatment systems are being deployed on engines to reduce emissions but these are **sensitive to ash and phosphorous in conventional lubricants**
- In 2013 the global lubricant market was some 39 million tonnes and the additive market was about 4 million tonnes with a value of about 10 billion Euros and expected growth of 2-3% pa. **Significant opportunities exist for new technology to enhance performance and create additional value**

meets the future needs

- The industry is **urgently seeking new routes** to improve energy efficiency, reduce emissions and lower maintenance costs
- products have the capability to **change the lubrication business** because they provide solutions to the critical challenges



- Thanks to the dual effect of both **reduces friction and increases wear protection** thus **boosting operating efficiency**

The unique technology will enable market

become a major player in high value segments of a very large

The additive market provides significant opportunities

Additive market

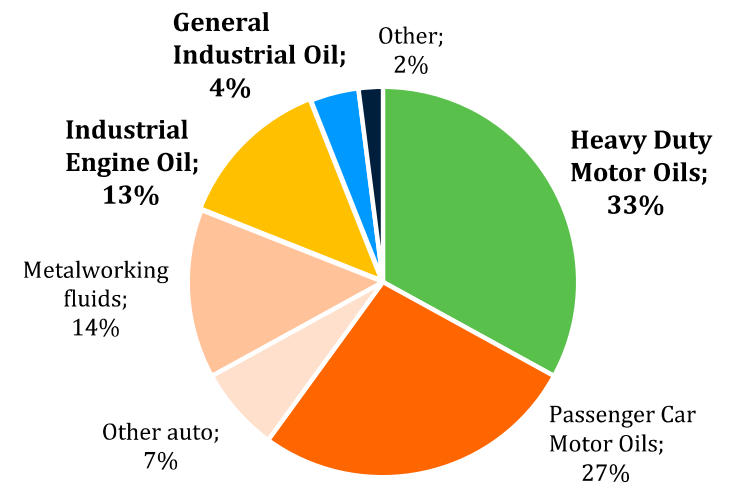
Overview

- The global lubricant additive market is 4 million tonnes with a value of about **10 billion Euros** and a projected growth rate of 2-3% pa
- Engine lubricants for passenger cars and commercial vehicles make up 60% of this market but hydraulic, industrial and marine lubricants are also significant areas for the additive market
- Anti-wear compounds and friction modifiers are becoming very important additives
- While overall growth rates are modest, **growth in high performance additives is rapid**
- This is due to a **strong trend of increasing quality levels**, because of high stress on modern engines

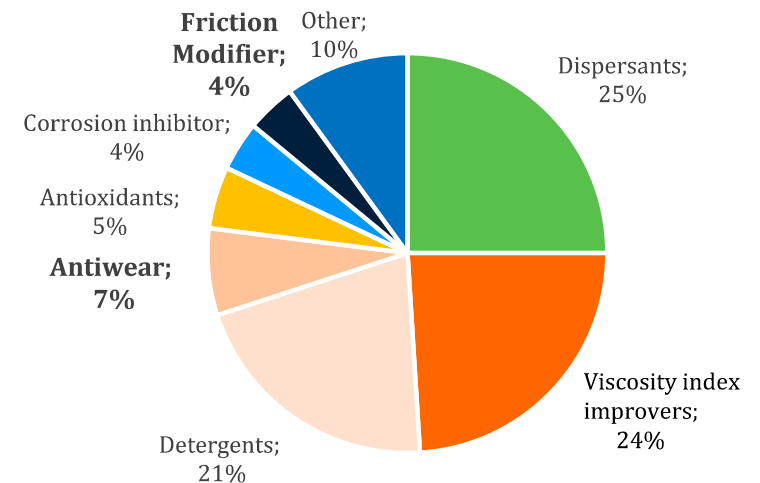
Key trends

- Pressure to reduce the level of zinc dithiophosphates in engine oils due to negative impact on exhaust emission catalysts
- Urgent need for **alternative anti-wear technology**
- Need for **new friction modifiers** since conventional friction modifiers do not always deliver robust performance and are expensive
- Demand for new cost effective additive technologies that can deliver better wear and friction performance

Additive market value split by class



Additive market value split by function



Players in the Value Chain

Additive and additive package producers

Direct competitors

- Specialist additive producers
 - RT Vanderbilt
 - Chemtura
 - Evonik
 - Rewitec
 - Rhein-Chemie

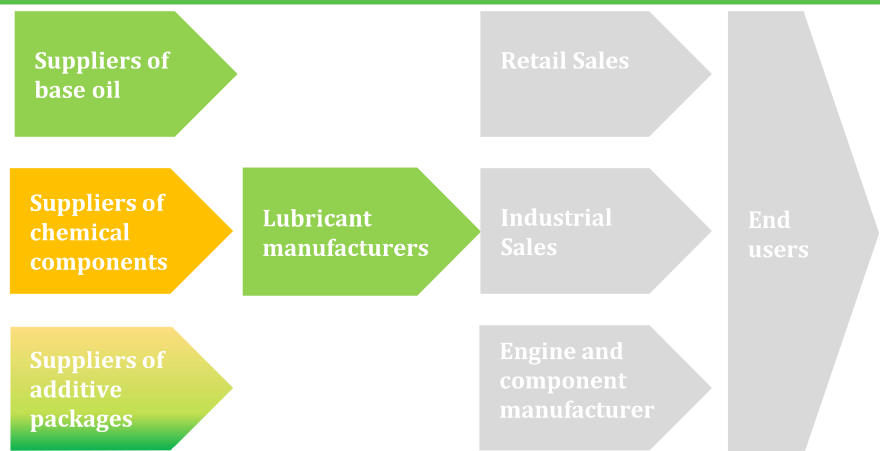
Indirect competitors /potential customers

- Global additive package suppliers
 - Lubrizol
 - Infineum
 - Oronite
 - Afton Chemical
 - BASF

Lubricant producers

- Integrated global oil companies and lubricant marketers
 - Shell
 - Total
 - BP/Castrol
 - Exxon/Mobil
 - Gazprom
 - Chevron
- Non-integrated and regional lubricant producers
 - Fuchs
 - Addinol
 - Millers Oils

Value chain



Competition

Competitive landscape

- Fragmented market
 - >1000 lubricant and additive producers worldwide, but top 10 global players account for over 50% of market
 - Large number of medium sized independents
 - Primary focus at majors still on conventional technology while medium/small participants compete by differentiating offer

Competition

- Competition
 - Under the current strategy with a focus on end-users the main competition comes from suppliers of stand-alone top-up products and additives. The companies are small players predominantly marketing and selling through the internet (b-to-c)
 - When the focus gradually is shifted to lube oil producers and suppliers of add packs competition will mainly come from additive suppliers (b-to-b)

Market position

- Market positioning in the market
 - **Performance** enables lubricant producers to differentiate and create value
 - **Performance** products enables lubricant producers to **replace** other additives
 - **Energy efficiency** and **lower emissions** in a **sustainable** way

