DANA LUBRICANTS FACTORY L.L.C
(A Division of DANA Group)

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TECHNICAL DATA SHEET

DANA LUBES LOW-EMISSION OILS: THE ULTIMATE GUIDE TO LOW-SAPS LUBRICANTS

Product Description

Low-emission oils, often called **Low-SAPS lubricants** (Sulphated Ash, Phosphorus, and Sulfur), are specially formulated to meet the demands of modern engines and machinery. With stricter emission norms and advanced after-treatment systems like **DPF (Diesel Particulate Filters)** and **SCR (Selective Catalytic Reduction)**, the right lubricant is essential for both **performance and compliance**.

Low-SAPS lubricants are **advanced engine oils** designed with reduced levels of sulphated ash, phosphorus, and sulfur. These oils:

- Protect sensitive after-treatment devices like catalytic converters and particulate filters.
- Provide high wear protection while keeping emissions lower.
- Are formulated using high-quality base oils and advanced additive technology.

They are ideal for **modern diesel and petrol engines**, particularly Euro IV, V, VI vehicles, and equipment where environmental compliance is critical.

What is SAPS Content?

Regardless of whether it is **mineral-based or synthetic**, every engine oil is made up of a refined base oil combined with performance-enhancing additives.

These additives may include **antioxidants, corrosion inhibitors, viscosity modifiers, anti-wear agents, and extreme-pressure additives**. Their purpose is to boost the natural properties of the base oil and introduce additional protective features.Among the most common additives are **phosphorus and sulfur**, valued for their strong **anti-wear and antioxidant abilities**. However, the presence of these additives leads to the creation of **SAPS (Sulfated Ash, Phosphorus, and Sulfur)**, which can negatively impact **engine efficiency, fuel economy, and emission levels**.

Breaking Down SAPS

Sulfated Ash

Sulfated ash is a measurement of the **metallic residue** left behind when engine oil burns. It usually originates from **detergents and anti-wear additives**.
This ash is non-combustible and cannot be eliminated once formed. As a result, particles accumulate in **diesel particulate filters (DPFs)** and shorten their lifespan. They can also harm **catalytic converters**, preventing them from effectively reducing toxic exhaust gases.

Phosphorus

Phosphorus is a highly effective additive that reduces friction and protects moving engine parts from wear. It is most often used in **Zinc Dialkyldithiophosphate (ZDDP)** formulations, where it forms a protective layer on metal surfaces.
While it plays a crucial role in engine protection, phosphorus deposits can **block DPFs and poison gasoline particulate filters (GPFs)** when burnt.

Sulfur

Sulfur is another additive with excellent **anti-wear and antioxidant qualities**.
When burned, it produces **sulfur oxides**, which can thicken the oil and cause **DPF blockages**, similar to phosphorus. Sulfur mainly comes from **corrosion inhibitors, friction modifiers, and ZDDP-based additives**.

What is Low-SAPS Oil?

Although phosphorus and sulfur additives help reduce wear and improve durability, their excessive presence can **damage catalytic converters** and introduce harmful metallic residues into the engine.

To address this, the **European Automobile Manufacturers' Association (ACEA)** has set limits on how much phosphorus and sulfur can be used in modern engine oils.This has driven the development of **Low-SAPS lubricants** oils specifically engineered to reduce the harmful effects of traditional additives while still delivering strong protection.

Key Benefits of Low-SAPS Oils

Using low-emission oils comes with multiple advantages:

Extended After-Treatment Life – Prevents clogging of DPFs and catalytic converters.

Lower Emissions – Helps meet strict emission standards while reducing harmful pollutants.

Better Engine Cleanliness – Minimizes ash and deposits for smoother operation.

Fuel Efficiency – Advanced formulation reduces friction and supports energy savings.

Longer Oil Drain Intervals – High thermal and oxidation stability extend oil life.

Specifications and Standards

Low-SAPS lubricants comply with global OEM and industry standards such as:

- **ACEA C1, C2, C3, C4** (European standards for Low-SAPS oils)
- **API SN/SM/CK-4** (American standards)
- **OEM Approvals** – Mercedes-Benz MB 229.51 / BMW Longlife-04 / VW 507.00 / Renault RN0720, etc.
- **Euro IV, V, VI Emission Standards** compatibility

These specifications ensure oils meet **environmental, performance, and durability requirements**.

- Always handle lubricants with **protective gloves** to avoid skin irritation.
- Store in a **cool, dry, and ventilated place** away from direct sunlight.

- Prevent spills and dispose of used oils responsibly, as per **local environmental regulations**.

- Keep out of reach of children and avoid prolonged inhalation or contact.

Conclusion

Low-SAPS lubricants are the **future of sustainable engine performance**. By reducing emissions, extending the life of advanced after-treatment devices, and ensuring cleaner engine operation, these oils strike the perfect balance between **performance and environmental care**.

For industries, fleet operators, and car owners alike, investing in **Low-Emission Oils** means **compliance, cost savings, and cleaner performance**.

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