

# How to use greases and lubricants with maximum productivity in industry?

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Although both are used to lubricate equipment, greases and oils are different product groups with different industrial applications.

Each machine requires a different lubricant, according to its specification, load, operation speed, type of friction and industrial standards. Knowing how to use each category properly is critical for industry productivity.

We talked to Bruno Hauber, Technical Advisor at PETRONAS and expert on the subject, to gain a deeper understanding of these distinctions and to learn about the proper approach to use greases and oils for maximum productivity in the sector. Read the following topics to stay up to date!



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## What is the primary distinction between greases and lubricating oils?

The truth is that different techniques and components are used to create greases and lubricants.

➤ **While lubricant oil is made with basic oil and some additives,**

➤ **grease is a mixture of base oil and a thickener known commonly as soap.**

*"The thickener (or soap) is added to the oil mixture during tanking storage. It is mixed into the lubricant until the desired grease consistency is achieved.",* states Bruno.

The thickener can be made of various materials, including lithium or calcium. Everything depends on the grease application. The manufacturing of grease takes around 8 hours; however the product must be cooled for 2 to 4 hours.



## How are the various greases used in industry?

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Once prepared, the grease will be applied to machinery primarily for lubricating purposes. The type of base oil used in the composition has a significant impact on the way the product is applied.

*"Where there is more speed and less weight, the less viscous oil will be applied". Bruno says. Additionally, he notes that "the lower viscosity base oil improves the grease's pumpability, making it perfect for centralized pumping systems".*

Less viscous greases are also advised for systems that experience lubrication loss, as the grease falls naturally into the system, lubricating it and running beneath the machinery.



On the other hand, greases formulated with higher viscosity oils provide more adhesion, the property of grease adherence to the system. "These greases are ideal for more open gears", Bruno points out. Greases with a higher viscosity of oil are also employed in extreme pressure systems with higher load.

They are harder in consistency and have a longer draining time.

Finally, greases created with synthetic oils have a longer shelf life than those made with mineral oils, thanks to the slower rate of oxidation. The most recommended method is to use them to extend change periods. Besides, synthetic greases are indicated for areas where contamination is possible, especially by oxygen.



For better performance of greases, several additives are added to the product, most notably an antioxidant that extends the product's useful life. *"50% of greases also contain severe pressure additives, which enable the grease to endure increased stresses on the gears and bearings without separating.",* Bruno states.

## How does grease compare to lubricating oils in terms of disadvantages and advantages?

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It is essential to understand that both oils and greases have specific optimum applications, each being more suited to a particular sort of equipment or activity.

Since grease has a shorter change time and loses its qualities at high temperatures, it is not advised for use in circumstances involving heating. Additionally, greases is not recommended for equipment cooling, as it has a lower heat exchange rate than oil.



Grease, on the other hand, can be used in a variety of situations where oil would just run off, and could not be applied correctly. Roller bearings and plain bearings, as well as sliding guides and steel wires, are examples.

## When should you use lubricating oils in the industry?

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Lubricating oils are recommended for various types of machines used in industry. Its primary goal is to reduce friction between moving elements while also ensuring the equipment's correct operation.



Mineral oils, which are less expensive and more common, are used in most of industrial equipment, and they meet these equipment's requirements quite well. By contrast, newer machines require synthetic oil. This oil is required by compressors, newer gearboxes, and even some pumps.

*"Furthermore, the exchange period has a very high demand. The client does not want to stop and change the oil frequently. You can optimize this change period with synthetic lubricants, providing even longer equipment life",* Bruno notes.

A variety of industrial oils is added, to additives to improve their performance. One of the most common is zinc-based anti-wear, which forms a protective coating layer on the surface of the parts to prevent wear.

On the other hand, the antifoam additive, rather than preventing foam formation, breaks the surface tension of the bubbles and precludes the presence of air inside the fluid, which can damage the efficiency and durability of some equipment.

The demulsifier, which separates water from oil, is another commonly used ingredient. In general, equipment that use lubricants with this additive have a filter that can drain the water from the oil. On the other hand, the emulsifying ingredient can combine water into the oil without interfering with the lubricant's efficiency.

It is advised for machines that do not have this water separator filter, prevalent in machines that utilize demulsifying lubricant.

The ashless additive, which prevents ash formation, the VI improver, which preserves the lubricant's viscosity when heated, and the pour point depressant, which keeps it from becoming thicker when cooled are also worth mentioning.

Finally, an antioxidant ingredient is added to the lubricant to increase its durability by slowing the oxidation process. Rust and corrosion inhibitors can be added to the equipment receiving lubricant to increase its durability. The first is for ferrous metals, while the second is for non-ferrous metals. And now that you've learned more about some of the industrial applications of oils and greases, what about contacting the professionals at Inovação Industrial to find out which one is ideal for your equipment?

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