

A brief history of lubricants and their applications in industry and human life

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Did you know that lubricants have a far longer history than you believe? Thousands of years ago, before synthetic compounds were utilized in automobiles and industrial machinery, the Egyptians improvised wooden logs to aid the movement of the extremely massive stone blocks used in their buildings. How we came from this to the technological industrial lubricants is what this article will tell you!

We will visit the history of lubricants and the critical role they played (and continue to play) in the evolution of human civilization over the next topics.

The lubricants of the resourceful Egyptians, Greeks and Romans



To be honest, it's difficult to identify when the first human thought of using a liquid or paste-like substance to reduce friction between moving parts.

Lubricants may have been invented shortly after the wheel was invented, but we can claim with certainty that the first confirmed record of their use dates all the way back to Ancient Egypt.

This is because some of this civilization's greatest engineering feats remain standing and can thus be studied.

The Egyptians

The Egyptians used branches and tree trunks as a kind of rail to transport huge stone blocks (some weighing more than 60 tons), dragging the blocks on them.

Yes, this is a primitive technology, but it already operates on the same principles as a modern lubricant: reducing friction between two elements in relative motion.

Only in 2600 B.C., also in Ancient Egypt, the first confirmed trace of a paste-like compound used as a lubricant was discovered, specifically on the wheels of Pharaoh Ra-Em-Ka's sled.

They were waxed with ox or sheep tallow for sliding. It is believed that the Egyptians used a variety of other types of lubricants in their vehicles and other creative inventions.

The Greeks

The first ancient Olympic games were held in Ancient Greece in 776 B.C., nearly two thousand years later. One of the modalities on the first day was the chariot racing, which were war chariots powered by horses.

Various types of animal fat were applied to the axles and wheels to help overcome movement resistance.

Aside from their use in competitive sports, historians believe that lubricants were used in Greek daily life, including combat. The same can be said of one of history's greatest empires, the Roman Empire.

The Romans

The Romans ruled almost the entire Mediterranean region of Europe, and they traveled across their vast territory in vehicles that were also lubricated with animal fat.

There are records confirming this use dating back to at least 200 B.C., but it is possible that this was an even earlier practice.



The evolution of lubricants during the Middle Ages, as well as the great navigations

Some believe that Europe was plunged into a period of backwardness during the Middle Ages, with no scientific development.

But it's not quite that simple. Several significant inventions appeared during this period, which began after the fall of the Roman Empire in the 5th century and ended in the middle of the 15th century.

A classic example of a mechanism of this period is the windmill. Using the force of the water or the wind as power source, the mills were much more efficient for grinding grain than previous solutions that relied on animal or human traction.

To function properly, they were lubricated with animal fat, which was also used to lubricate other mechanisms like castle gates, drawbridges, and even trebuchets, a type of catapult.

During the same time period, the Vikings used whale oil to lubricate the sail joints and rudder shafts of their feared drakes, massive ships that crisscrossed the globe's oceans.

During the 15th century's great voyages, whale oil was also used as a ship lubricant. Pedro Álvares Cabral most likely arrived on the Brazilian coast in caravels with whale oil lubricated helms!

Petroleum, which had already been known to civilization for centuries, began to be used cautiously as a lubricant around the 16th century, when the increasing use of mechanisms with moving parts necessitated more effective compounds than animal fat such as the printing press invented by Gutenberg in 1450 and spread throughout Europe in the following centuries. However, the resource's availability was still very limited at the time.

Lubricants' critical role in the Industrial Revolution



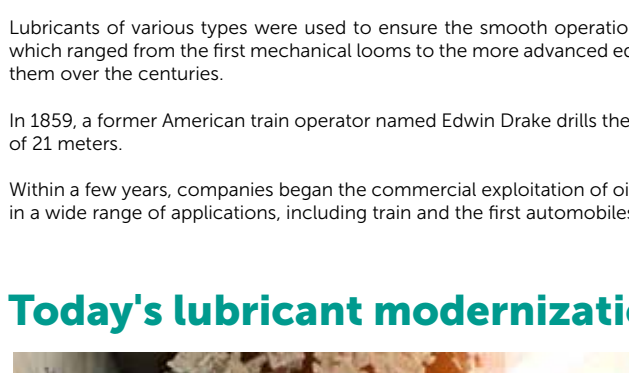
Our civilization went through what was possibly its most transformative period in the 18th century: the industrial revolution, which brought about mechanization in manufacturing and resulted in an exponential increase in productivity. As a result, the population grew, and life expectancy increased in the years that followed.

Lubricants of various types were used to ensure the smooth operation of industrial machines, which ranged from the first mechanical looms to the more advanced equipment that succeeded them over the centuries.

In 1859, a former American train operator named Edwin Drake drills the first oil well to the depth of 21 meters.

Within a few years, companies began the commercial exploitation of oil, so that it could be used in a wide range of applications, including train and the first automobiles.

Today's lubricant modernization



In-depth studies of petroleum began in 1866. It was initially used for lubrication with little refining.

However, processes for isolating the high-viscosity lubricating mineral oil were developed over the following decades.

In 1930, German scientists began developing synthetic oil as an alternative to meet the country's military's high demand for lubricants, which exceeded the region's oil supply. During World War II, all parties involved in the conflict used both mineral and synthetic lubricating oils.

And lubricants haven't stopped evolving. They are now used for a variety of purposes in industry and automobiles, with variations depending on their final destination.

A naphthenic-based mineral oil, for example, is designed to retain its lubricating properties at low temperatures, whereas diesters, synthetic lubricants based on ester oils, are used in civil aviation turbines worldwide.

The advancement of lubricants and the establishment of PETRONAS

After years of fighting during WWII, the then-British territories on the Malay Peninsula began to organize in pursuit of independence. In 1946, they were renamed the Malayan Union.





Then, in 1948, the Malaysian Federation. However, effective independence is not achieved until 1957, and when the north of Borneo and Sarawak join the federation in 1963, the new country adopts the name Malaysia.

The Malaysian government established PETRONAS in 1974, realizing the strategic importance of oil and natural gas. In a couple of years, it has already become the most profitable company in Asia and one of the largest companies in the world!

Research and marketing of lubricants for a wide range of uses, from vehicles to heavy industrial machines, is one of PETRONAS' specializations.

The company invests extensively in the field and is a global reference, with units in various countries, including Brazil!

So, have you enjoyed learning more about the history of lubricants? Take the opportunity to contact PETRONAS to learn more about how to use advanced lubricants in your business!

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