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Book on Manufacturing of Petroleum Products

(Petroleum Waxes, Greases and Solid Lubricants, Solid Fuels, Gaseous Fuels, Gasoline, Diesel Fuel Oils, Automotive, Diesel and Aviation Fuels, Lubricating Oils and Lubricating Greases)

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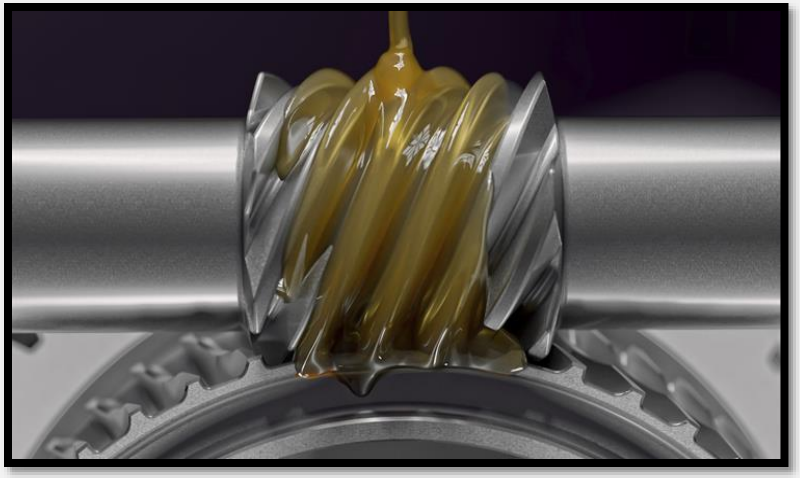
Introduction

Petroleum, complex mixture of hydrocarbons that occur in Earth in liquid, gaseous, or solid form. The term is often restricted to the liquid form, commonly called crude oil, but, as a technical term, petroleum also includes natural gas and the viscous or solid form known as bitumen, which is found in tar sands. The liquid and gaseous phases of petroleum constitute the most important of the primary fossil fuels.

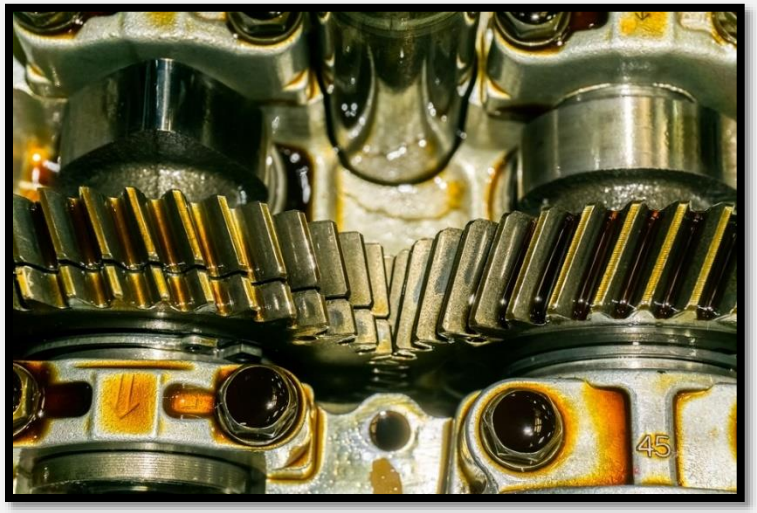
Petroleum products are those hydrocarbon fractions that are derived from petroleum and have commercial value as a bulk product. A major group of hydrocarbon products from petroleum are the basis of a major industry. They are, in the strictest sense, different to petroleum products insofar as the petrochemicals are the basic building blocks of the chemical industry.



Wax is an organic compound which is hydrophobic in nature and malleable solids near ambient temperatures. It is basically organic substance similar to plastic, which remains solid at room temperature and turns liquid on melting. Due to its similarity to plastic, it also deforms under pressure without the heating. It is high value product of energy reserve. Waxes are either naturally or synthetically derived. However, with technological advancement there is rise in number of substance of similar composition and properties termed as wax. Currently majority of wax product available are petroleum derived. Wax is basically a byproduct derived during production of lubricating oils. Though mostly wax is derived from crude petroleum and oil base, other sources also play important role which includes natural gas, vegetable, lignite and animal.

Grease is a semi solid lubricant. It is a mixture of thickener dispersed in oil and fluid lubricant. The product is used in automotive industry on a vast scale Greased machinery consume less amount of power and have very less impact to any wear & tear damage.

Lubricants are majorly used in the industrial sector for the proper functioning of machines. They are also used in automobile for smooth functioning and longevity of engines and other components. Lubricants are available in liquid, semi-fluid, or solid state, and possess various characteristics, such as, high viscosity index, high level of thermal stability, low freezing point, and high boiling point, all of which help to reduce friction between surfaces of machine parts and the rate of wear, without compromising operational efficiency.



The solid fuels are those, which use to produce energy for some work by combustion of it (this fuels are in solid state). Such as coal, wood, charcoal, uranium, peat, coke etc. Uses of this type of fuel is in thermal power plant, electric production, steam engine etc.

Gaseous fuels are obtained either naturally or by the treatment of solid or liquid fuel. Among the naturally occurring gaseous fuels, natural gas and liquefied petroleum gas are most important. These gases have high calorific value. Gaseous fuels have lower energy content than liquid fuels such as, petrol or diesel.

Gasoline is elastic goods which means, the quantity demanded for gasoline are respond greatly when the prices is changes. Market demand means by adding together the quantities demanded by all individuals at each price. The graph above has shown the market demand for the gasoline.

Diesel fuel is used in the diesel engines found in most freight trucks, trains, buses, boats, and farm and construction vehicles, and in some cars and small trucks. Diesel fuel is also used in diesel engine generators to generate electricity, such as in remote villages in Alaska, among other locations around the world. Many industrial facilities, large buildings, institutional facilities, hospitals, and electric utilities have diesel generators for backup and emergency power supply.

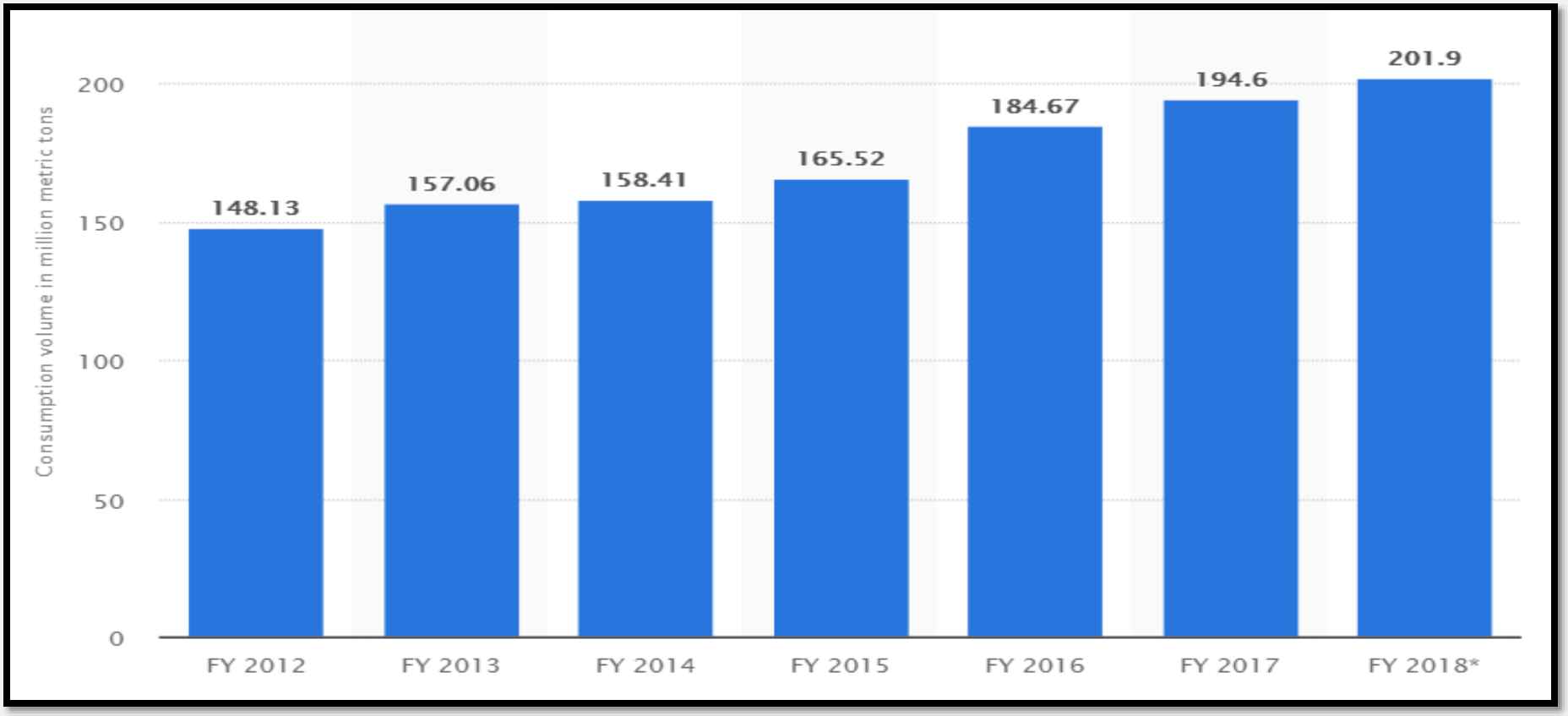
Aviation fuel is a specialized end-product of crude oil that is used to power aircraft. High volumetric energy content fuel provides the longest flight range as it maximizes energy that can be stored in a fixed volume.

Lubricating oils are essential in any use of machinery that leads to friction between mechanical parts. The industrial sector and the automotive sector are the two key consumers of lubricating oils and employ them in a variety of applications such as industrial gearboxes, internal combustion engines, turbines, and others. Lubricating oils perform the important role of curbing the temperature of the machinery during operation, but the long-term importance of lubricating oils goes beyond the maintenance of the machinery itself. Emissions resulting from industrial activities or engines are worsened by wear and tear, necessitating the use of lubricating oils in today's environment-conscious age.

Market Outlook

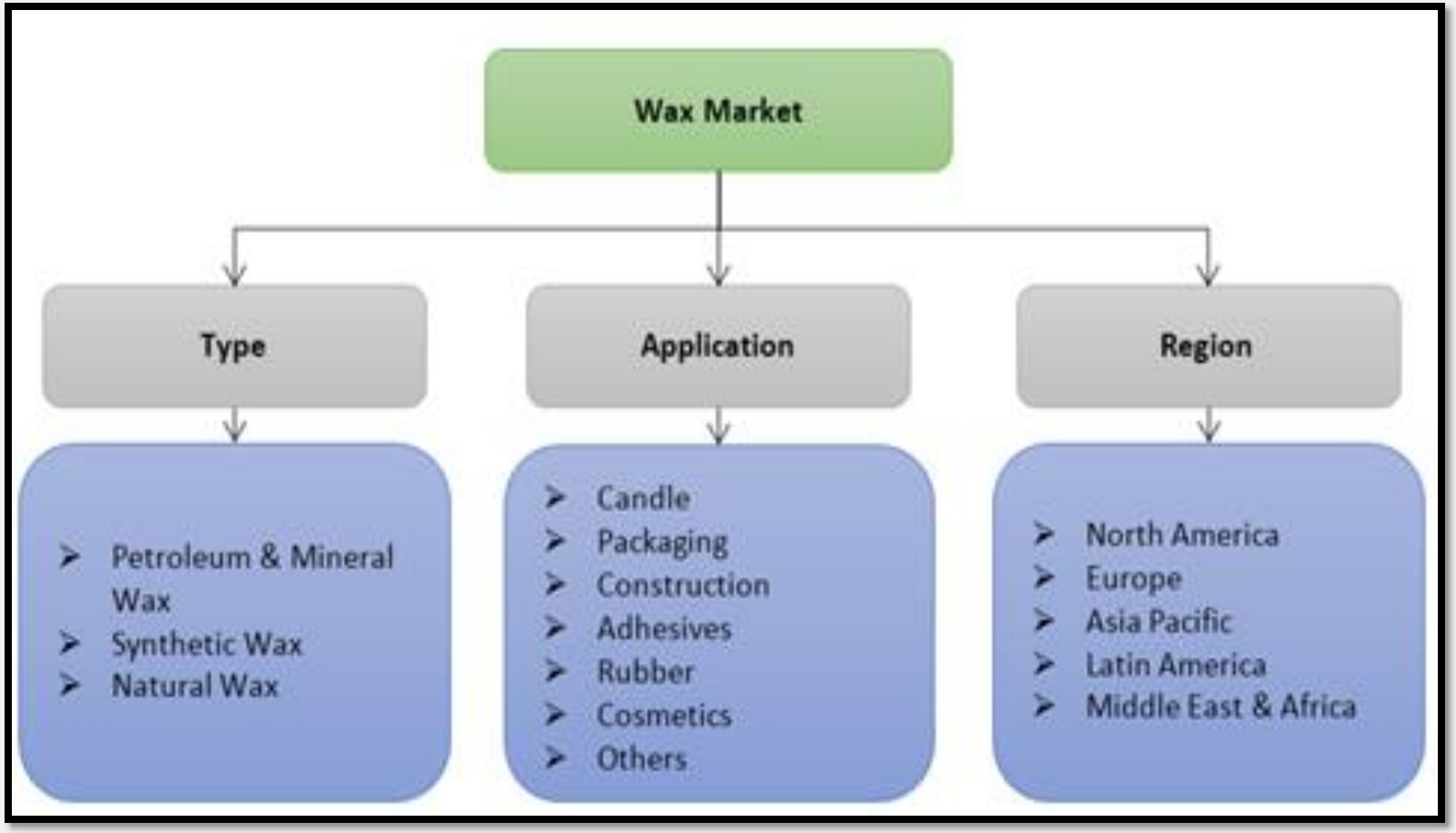
The consumption volume of petroleum products in India was estimated to be approximately 201.9 million metric tons in fiscal year 2018. The country was ranked third with regard to primary energy consumption across the globe. With the industry growing rapidly, inland production of petroleum products does not suffice. The import volume of petroleum products reached figures close to 36 million metric tons during the fiscal year of 2017.

Consumption volume of petroleum products in India from FY 2012 to FY 2018 (in million metric tons)



The global wax market to witness sluggish growth. It is also anticipated to register CAGR of 2.9% during the forecast period between 2017 and 2026. The global wax market is also expected to bring in US$ 11,017.7 million revenue towards the end of 2026.

Global Wax Market Segmentation

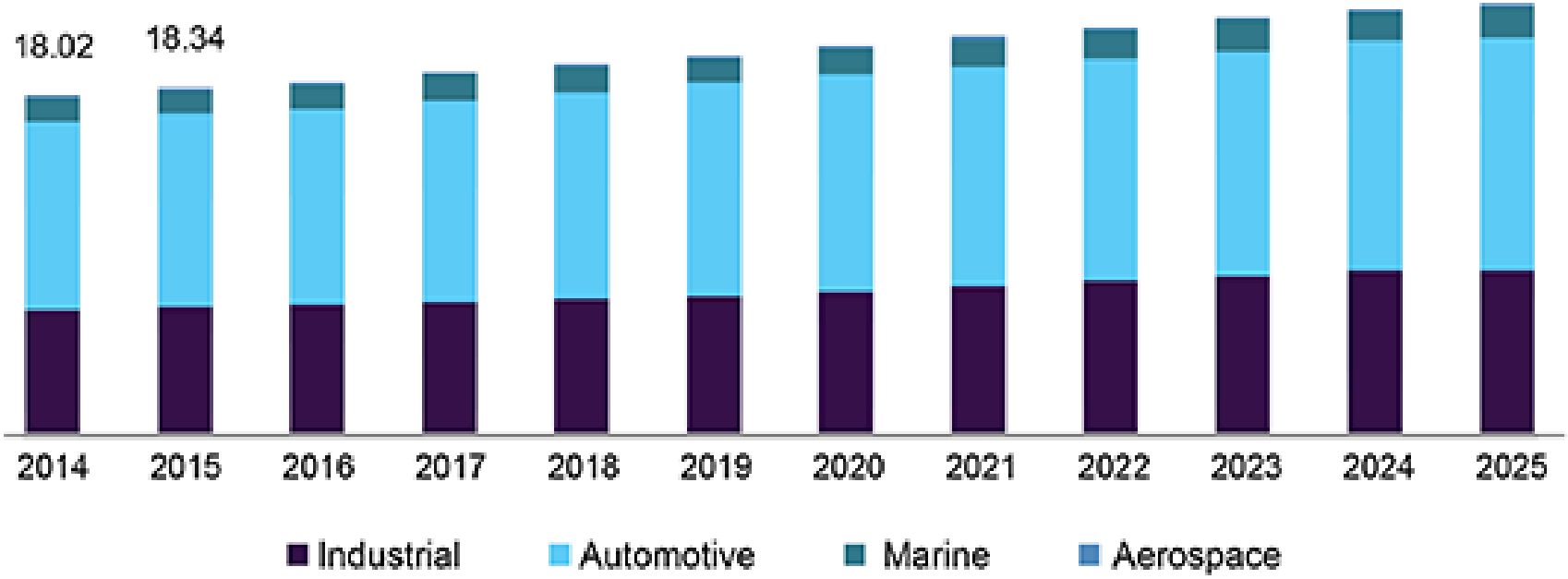


Global Grease Market size shall grow with a prominent CAGR in forecast timeframe. Grease is a semi solid lubricant. It is a mixture of thickener dispersed in oil and fluid lubricant. The product is used in automotive industry on a vast scale Greased machinery consume less amount of power and have very less impact to any wear & tear damage.

Automotive is the largest and fastest-growing end-use industry for grease. The passenger vehicles and commercial vehicles are driving the demand for high performance grease in the automotive industry. In the automotive industry, grease is extensively used in various auto parts such as wheel bearings, universal joints, suspensions, gears, switches, and connectors because of their excellent properties such as mechanical stability, temperature tolerance, water resistance, and anti-oxidants. The need for high performance grease is rising in the increasing manufacturing of machines and equipment for end-use industries.

The global lubricants market size was valued at USD 128.51 billion in 2018 and is expected to expand at a CAGR of 3.6% during the forecast period. The demand is majorly driven by key innovations by multinational companies operational across the globe. Technological advancements in the field of product designing, marketing strategies, e- and commerce platform optimization among others, are driving the demand for lubricant through ease of accessibility.

U.S. Lubricants Market Size, By Application, 2014-2025 (USD Billon)



In terms of product, the global lubricants market has been divided into automotive oils, industrial oils, metalworking fluids, hydraulic oils, process oils, marine oils, and greases & others. The automotive oils segment has been sub-segmented into engine oils and transmission oils. The automotive oils segment dominated the global lubricants market in 2017. Rise in demand for engine oils that prevent metal-to-metal contact; reduce friction inside an engine; and provide improved wear protection, lower volatility, higher viscosity index, and better thermal and oxidative stability is expected to boost the demand for automotive oils during the forecast period.

Global Lubricant Market Share (%), By Type (2018)

The India lubricant market is expected to register a CAGR of 4.64%, during the forecast period, 2018-2023. The major factors driving the growth of the market are the increasing vehicular production along with the growing industrial sector.

The major driver for the India lubricant market is the boosting demand from the automotive industry. The sales of new motor vehicles in the country has been on a consistent rise, majorly owing to the growing middle class incomes. The automotive production in India has also been on a rising path with yearly growth rates of over 6%, thus, increasing the demand for engine oils and other lubricants employed in the automotive industry. Though, mineral oils hold the largest share among all the automotive lubricants used in the country, synthetic and semi-synthetic lubricants are expected to grow at a rapid pace during the forecast period.

Diesel fuel is witnessing significant demand from various sectors, particularly automotive and transportation. The global market is set to witness interesting growth dynamics shaped by a wide spectrum of factors. The pricing of the fuel, technological advancements in the automobile industry, government regulations, and regional demographics are the crucial factors driving the shifts in the market. In addition, the emergence of alternative fuels, most notably natural gas, and improvements in various electric-based technologies such as regular hybrids, plug-in hybrids (PHEVs), and pure electric vehicles (EVs) are expected to alter the demand for diesel. These key aspects are instrumental in evaluating and understanding the demand patterns and supply dynamics in different economies.

The rapid industrialization of emerging markets, coupled with the soaring use of diesel in non-transporting applications, such as for residential and commercial heating applications, has triggered the demand for diesel fuel across the regions.

Asia Pacific is likely to be an extremely promising region for the proliferation of the global diesel fuel market in the forecast period. This can attributed to the increasing vehicular usage in the region and especially in commercial vehicles, coupled with the increasing need to decentralize rural electrification projects. Europe and North America are expected to continue being high-value regions for the global diesel fuel market in terms of both demand volume as well as rate of increasing in demand. However their transportation sector is likely to see a greater scale of penetration for fuels such as LPG, LNG, and CNG. The Latin American market is expected to show an attractive growth rate over the coming years, owing to its large rural population urban expansion.

The global aviation fuel market size will grow by over USD 34 billion during 2018-2022. Aviation is one of the fastest growing sectors driven by a rapidly expanding global middle class, especially in developing countries, as well as the increasing penetration of low cost carriers.

The market for aviation fuel is highly effected by the increasing number of air passengers worldwide and fluctuations in oil and gas prices. The demand is majorly driven in response to the air traffic and aircraft fleet in both commercial and military applications in emerging economies such as China and India. Increasing demand for air cargo transportation in terms of volume and freight traffic is one of the drivers of aviation fuel market.

Lubricating oils are essential in any use of machinery that leads to friction between mechanical parts. The industrial sector and the automotive sector are the two key consumers of lubricating oils and employ them in a variety of applications such as industrial gearboxes, internal combustion engines, turbines, and others. Lubricating oils perform the important role of curbing the temperature of the machinery during operation, but the long-term importance of lubricating oils goes beyond the maintenance of the machinery itself. Emissions resulting from industrial activities or engines are worsened by wear and tear, necessitating the use of lubricating oils in today's environment-conscious age.

The prime driver for the global lubricating oils market is the rapid growth of the global automotive industry. The automotive industry has made the most of the rising disposable income of consumers in developing economies to expand rapidly in countries such as China, India, Brazil, and South Korea. This is likely to remain a key driver for the lubricating oils market, as the demand for cars as well as commercial vehicles in emerging economies is likely to rise unabated in the coming years.

Lubricants

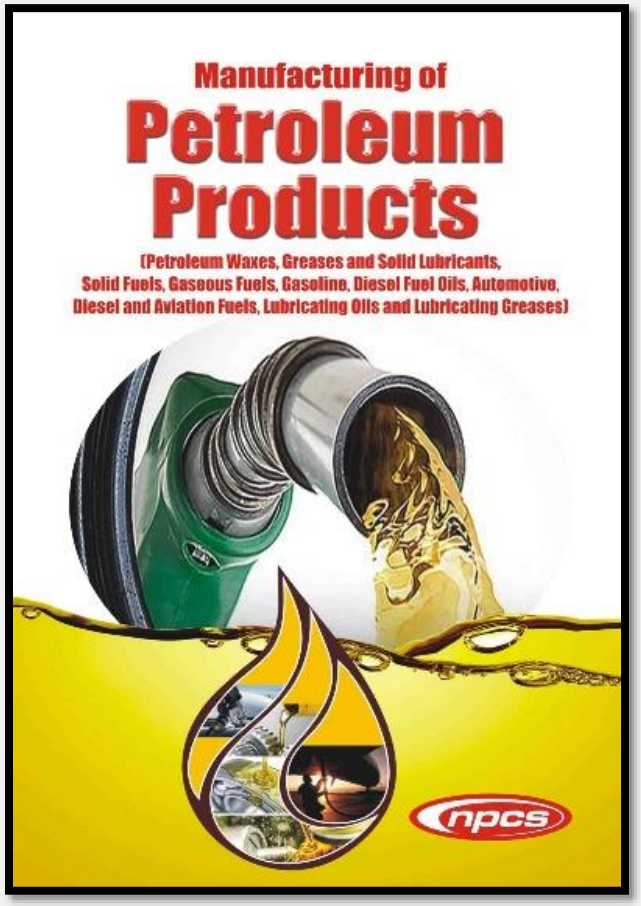
Demand : Past and Future	
Year	**(In Million Metric Tonne)**
1990-91	0.89
2000-01	1.14
2001-02	1.20
2002-03	1.25
2003-04	1.29
2004-05	1.33
2005-06	1.37
2006-07	1.42
2007-08	1.47
2008-09	1.52
2009-10	2.54
2010-11	2.43
2011-12	2.63
2012-13	3.20
2013-14	2.89
2014-15	2.92
2015-16	3.13
2016-17	3.36
2017-18	3.60
2018-19	3.86
2019-20	4.14
2024-25	5.69

The Lubricating Grease Industry Market is continuously growing in the global scenario at significant pace. Lubricating grease is a mixture of three main components: lubricating fluid, performance enhancing additives, and thickener. The lubricating fluid can be petroleum-derived lubricating oil, any of various synthetic lubricating fluids, or vegetable-based oil. The lubricating fluid is usually the majority component in the grease formulation. The global market for lubricants is expected to reach USD 70.32 billion by 2020.

The additives are typically present in relatively low concentrations and are added to the grease to provide enhancement in one of multiple performance areas. Increasing automotive production, growing usage of high performances greases and rising manufacturing and other industrial activities are the substantial driving factors of the market during the forecast period. Moreover, rising numerous upcoming construction projects is the factor which likely to create numerous opportunity in the market during the forecast period. However, high prices of synthetic greases is one of the major factors that limiting the market growth of Lubricating Grease Industry across the globe.

Manufacturing of Petroleum Products

(Petroleum Waxes, Greases and Solid Lubricants, Solid Fuels, Gaseous Fuels, Gasoline, Diesel Fuel Oils, Automotive, Diesel and Aviation Fuels, Lubricating Oils and Lubricating Greases)



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The petroleum waxes are semi refined or fully refined products obtained during the processing of crude oil. According to their structure they are divided into macrocrystalline waxes (paraffin waxes) and microcrystalline waxes (ceresine, petrolatum, others). Grease, thick, oily lubricant consisting of inedible lard, the rendered fat of waste animal parts, or a petroleum-derived or synthetic oil containing a thickening agent. Greases of mineral or synthetic origin consist of a thickening agent dispersed in a liquid lubricant such as petroleum oil or a synthetic fluid.

Diesel fuel, also called diesel oil, combustible liquid used as fuel for diesel engines, ordinarily obtained from fractions of crude oil that are less volatile than the fractions used in gasoline. Lubricating oil, sometimes simply called lubricant/lube, is a class of oils used to reduce the friction, heat, and wear between mechanical components that are in contact with each other.

Lubricating oil is used in motorized vehicles, where it is known specifically as motor oil and transmission fluid.

The global wax market was valued at around USD 9 billion in 2017 and is expected to reach approximately USD 12 billion in 2024, growing at a CAGR of slightly above 3.5% between 2018 and 2024.The India lubricant market is expected to register a CAGR of 4.64%, during the forecast period, 2018-2023. The major factors driving the growth of the market are the increasing vehicular production along with the growing industrial sector. The global market for lubricants is expected to reach USD 70.32 billion by 2020. The global grease market is expected to grow at a CAGR of 2.13% during the forecast period, 2018 - 2023.Aviation fuel market size will grow by over USD 34 billion during 2018-2022

Some of the fundamentals of the book are composition of the petroleum waxes, solvent extraction, greases and solid lubricants, solid fuels, other significant tests or properties, gaseous fuels, properties of waxes, gasoline, diesel fuel oils, automotive, diesel and aviation fuels, special processes for motor-fuel blending components, crude distillation, lubricating oils, lubricating greases, nature of lubricating oils, photographs of machinery with suppliers contact details

A total guide to manufacturing and entrepreneurial success in one of today's most lucrative petroleum industry. This book is one-stop guide to one of the fastest growing sectors of the petroleum industry, where opportunities abound for manufacturers, retailers, and entrepreneurs. This is the only complete handbook on the commercial production of petroleum products. It serves up a feast of how-to information, from concept to purchasing equipment.

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Tags

#Petroleum_Products_Manufacturing, #Petroleum_Product, #Production_of_Petroleum Product, Petroleum Products Manufacture, Petroleum Industry, Petroleum Products Manufacturing Industry, Petroleum Product Manufacture in India, Petroleum Production Business, Petroleum Products Manufacturing Sector, Starting a Petroleum Products Manufacture Business, Production of Petroleum Wax, #Petroleum_Wax_Manufacture, Manufacturing Process of Wax, Grease (Lubricant), #Lubricant_Manufacturing Business, Greases & Lubricants, Grease Manufacturing, #Grease_&_Lube_Oil_Blending_Plant, Grease Industry, How is Lubricating Grease Made?, #Manufacturing_of_Grease, Grease Plant, Grease Manufacturing Plant, Production of Greases, Solid Lubricant, Solid Fuel, Manufacture of Solid Fuels, #Solid_Fuel_Production, Preparation of Solid Fuel, Gaseous Fuel Production, Production of Gaseous Fuel, How Gasoline is Made, Gasoline Production, #Gasoline_Manufacturing_Process, Production of Gasoline, #Production_of_Gasoline_and_Diesel_Fuels, How is Diesel Fuel Made, Diesel Fuel, Automotive Diesel, Aviation Fuels, Aviation Fuel Manufacture

How Lubricating Oil is Made, Petroleum Lubricating Oil and Grease Manufacturing, Lubricating Oil Manufacturing Process Pdf, Starting a Lubricant Oil Production, Lubricating Grease / Oils Manufacturing, Lubricant Oil and Grease Manufacturing Business, Industrial Oils and Lubricant Greases, Grease Manufacturing Industry, Petroleum Fuels Manufacturing, How to Start Petroleum Products Business, Petroleum Products Business, Lubricant Oil Manufacturing Unit, Production of Petroleum and Petroleum Products, Products made from Petroleum, Manufacturing of Grease and Lube Oils, Grease Manufacturing Formula, Production of Lubrication Grease, Grease Industry, Grease Plant, Grease Manufacturing Plant, Grease Manufacturing Process Flow Diagram, Lubricating Oil Manufacturing Process Pdf, Lube Oil Manufacturing, Solvent Extraction, Greases and Solid Lubricants, Crude Distillation, Automotive, Diesel and Aviation Fuels, Liquefied Petroleum Gases, Refinery Oil Gas, Composition of Gaseous Fuels, Blast Furnace Gas, Applications for Grease Lubrication, Book on Manufacturing of Petroleum Products, Petroleum Fuels Manufacturing, Petroleum Books, Lubricating Oils, Greases and Petroleum Products Manufacturing, Petroleum Products Project

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Manufacturing of Petroleum Products

(Petroleum Waxes, Greases and Solid Lubricants, Solid Fuels, Gaseous Fuels, Gasoline, Diesel Fuel Oils, Automotive, Diesel and Aviation Fuels, Lubricating Oils and Lubricating Greases)

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