

# China

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With a population of 1.44 billion people, China accounts for 18.5% of the world's total population, including 66 cities with more than one million inhabitants each. China has experienced unprecedented economic growth over the past 40 years, seeing an exponential rise in GDP starting around 2005 at \$2.3tr to an IMF-forecast \$15.5tr by the end of 2020. However, real growth has declined from its 14.2% peak in 2007, to a forecast 6.1% in 2020 – although the COVID pandemic may have a more significant short-term impact on that figure.

The nation also faces challenges from increased life expectancy and thus an ageing population, combined with declining population growth and rising prosperity. As with overall GDP, per capita GDP has risen from \$2,100 to an estimated \$11,000 per head by the end of 2020. As a result, socio-economic and consumer aspirations have also increased. As well as being a voracious consumer of raw materials, China

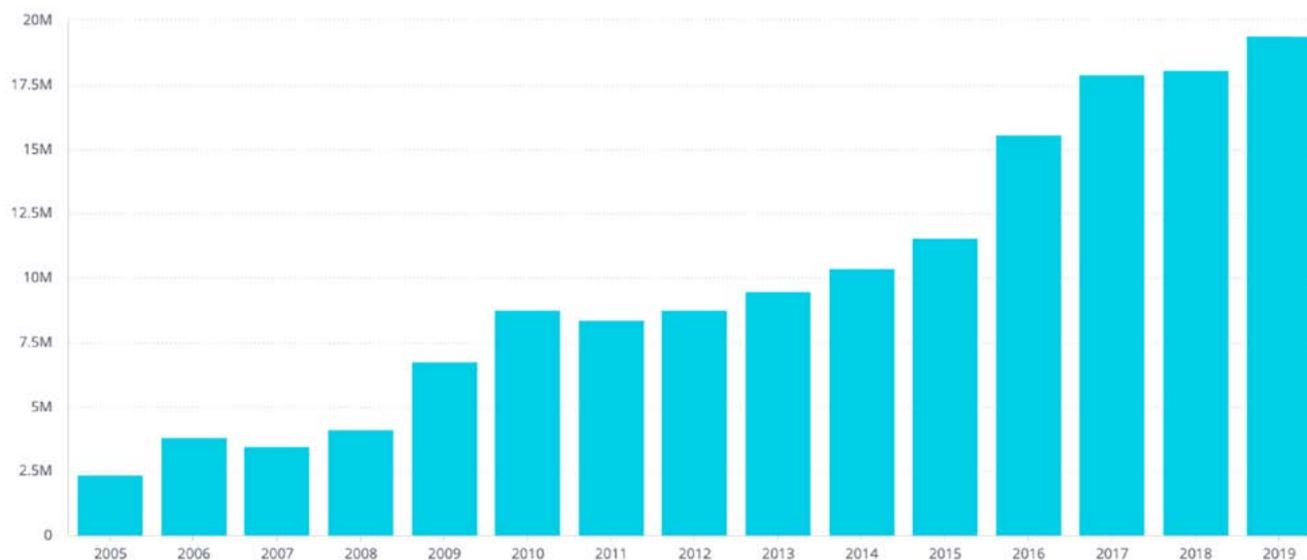
is now also a key market for both domestic and imported finished products.

Since becoming the People's Republic of China in 1949, the nation has become a global industrial hub offering significant scale and low-cost labour. As a result, foreign companies have turned to China as their main manufacturing base. Now China is more often in the partnership driving seat with global OEMs, particularly in the automotive sector, benefitting from access to the Intellectual Property these partnerships bring in terms of design and technology.

## **The vehicle parc, manufacturing and sales**

China's vehicle industry can safely be described as "gargantuan". In July 2020, according to the Chinese government's latest figures based on local reports, China's total vehicle parc was 360m vehicles, accounting for around 20% of the world's total four-wheel plus vehicle parc. Nearly 70m motorcycles

## **Passenger car ownership in China by year of registration at December 2019. Total Parc=~221.4M**



Source: OATS

and almost four and a half million “new energy” vehicles are included in the total. According to official sources, 69 cities in China have more than one million operating vehicles, with 12 cities claiming more than three million vehicles and Beijing boasting more than six million.

The China Association of Automobile Manufacturers' latest figures claim 4.36m vehicles were sold in the first half of 2020 alone, with 85% of those being Chinese brands. These include the state-owned 'Big Four' of SAIC, Chang'an Automobile, Dongfeng and FAW, with independents such as Geely, BIAAC, GAC and Great Wall Motors all featuring strongly in a highly competitive market. As individual prosperity has increased, so the age of the vehicle parc has reduced.

Since 2009, annual vehicle production has exceeded the EU, USA and Japanese combined. In 2019, some 21.3m passenger cars and a further 4.3m commercial vehicles were built in China. Many of the domestic producers have now forged JV alliances with Western OEMs. In particular Shanghai General Motors, as well as the likes of FAW-VW, SAIC-VW, Volvo Cars (wholly owned by Geely since 2010) and SAIC-owned MG Rover, to name just a few. In some cases, Chinese manufacturers have produced their own look-alike versions of Western-designed cars, raising questions around copyright and IP.

China also has many major OEMs in the top 20 off-highway manufacturing list, such as Sany, XCMG and Zoomlion, with many more in the top 50 worldwide KHL 'Yellow' list. These OEM's have certainly made their presence felt, taking on the likes of Caterpillar, Komatsu, John Deere, Volvo CE and Hitachi by offering significantly lower initial purchase costs.

China has also set its sights on being the world leader in electric vehicle manufacturer for both passenger and commercial vehicle markets, including the battery and storage technology that powers and charges them. Geely/Volvo-owned Polestar has recently launched its all-electric Polestar 2 SUV into Europe to critical acclaim.

### **Base oil production**

China's primary energy consumption remains coal dominated; coal supplying 58% of the country's energy usage. Petroleum and other liquid energy fulfils 20% of demand, with hydroelectricity and natural

gas both at 8% each. China is attempting to cap coal consumption at current levels due to pollution concerns, however renewables only supply 5% of current energy consumption, meaning China will have to dramatically ramp-up investment in this area.

Energy exports are particularly lucrative for China. In 2019, it was the largest petroleum and petrochemicals supplier in the world, with crude oil and gas coming from legacy fields with production capacity of almost five million b/d. China also has a large CTL capacity of 108,000 b/d and about half a million b/d of methanol production. New capacity from integrated refineries linked to petrochemical facilities is expected in 2020/21, with more to follow.

Production is dominated by three main national companies: China Petroleum & Chemical Corporation (Sinopec), China National Petroleum Corporation (CNPC) and China National Offshore Oil Corporation (CNOOC). Despite its massive export market, China remains a net importer of crude, predominantly from the Middle East (44% ) followed by Russia and Africa.

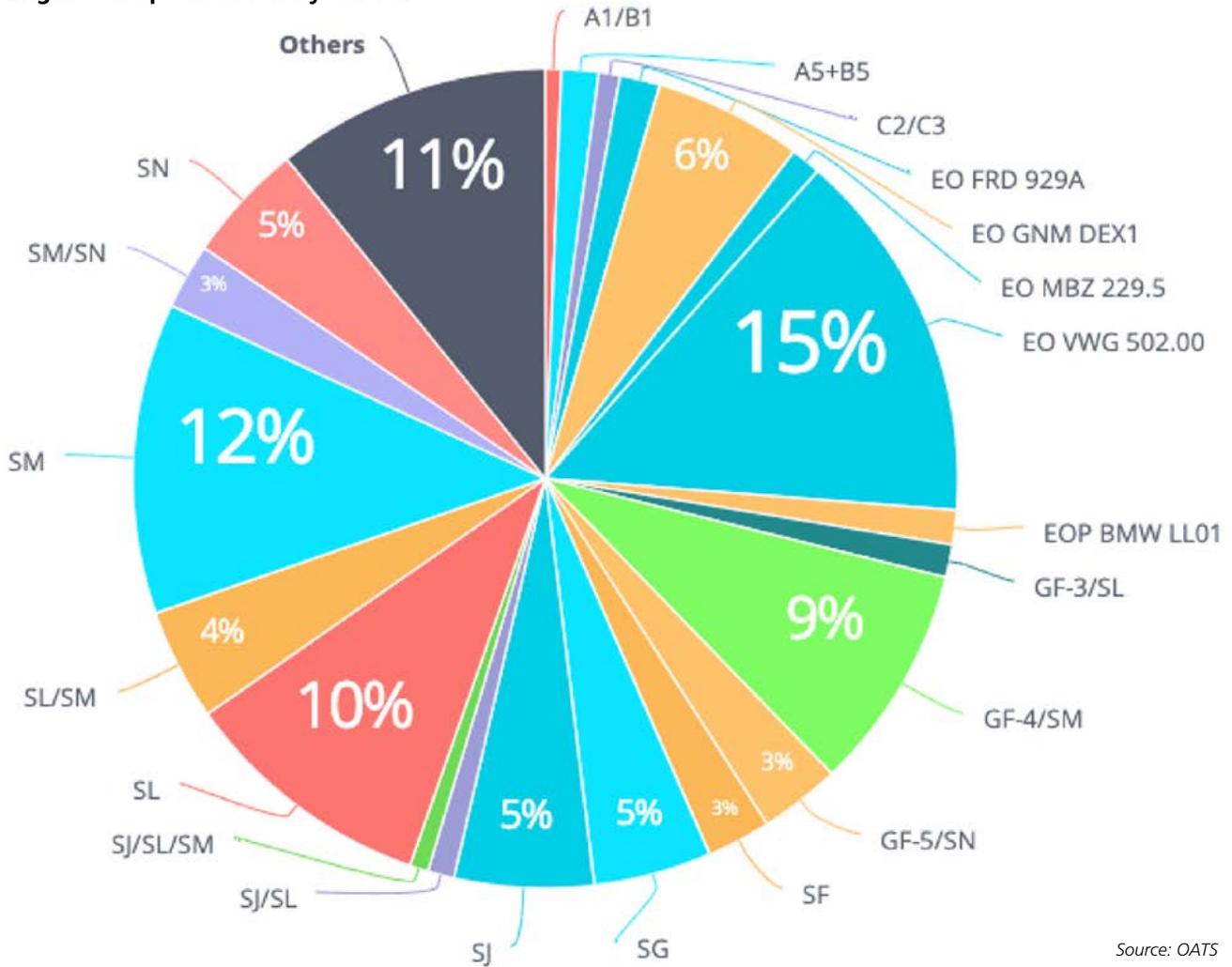
In 2018, the country consumed an estimated 14.5m b/d of petroleum liquids – up nearly 4% from 2018. Diesel consumption usage accounted for 27% of requirements, whilst gasoline was 24%. Consumption is forecast to decline slightly due to the fall in overall GDP growth, with further pressure coming from China's increasingly draconian environmental legislation and the rise in EVs.

### **The lubricants market**

Whilst China's automotive engine technology has been previously satisfied by lower specifications such as API CD, and CF-4 type lubricating oils, the introduction of imported engine design, technology and manufacture has been a key driver for a more sophisticated, higher-specification market. This has been further enhanced by the dramatic acceleration in emissions regulations from China 1, first implemented nationwide in 2000, to five iterations of China 5 in just six years to 2018, with China 6a set for national roll-out in 2021 and China 6b to follow just two years later – taking the regulations to parity and beyond Euro 6 standards.

As a result of these developments, existing lubricants specifications are being enhanced to meet the latest National Standard GB1122. At the same time, the

## Engine Oil Specification by Car Parc %



Source: OATS

newer vehicle parc is increasing demand for engines needing low ash engine oil such as ACEA C Grades, API CJ-4, JASO DH-2 and DL-1.

As the chart above demonstrates, high -performance synthetics are now prevalent – with SL and SM lubes taking the majority share. OEM-specific products are also in demand, with VW specs predominant in line with brand popularity.

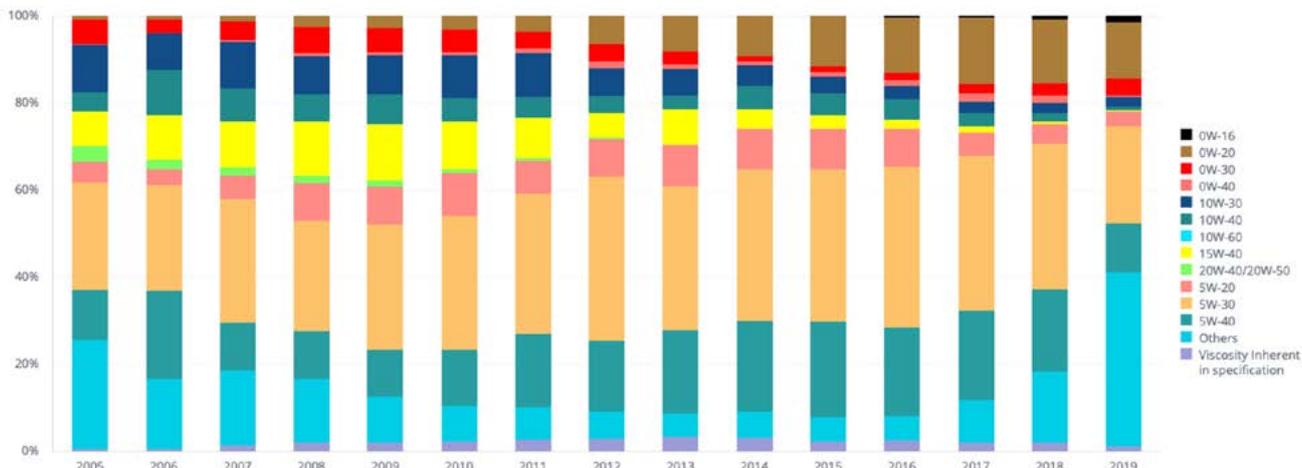
As with other ‘developing’ nations in an automotive sense, the significant improvement in engine and transmission performance requirements across the parc has led Chinese OEM’s and oil companies to consider creating their own lubes specifications for the domestic auto industry. This is further emphasized in China by enhanced fuel characteristics relating to sulphur, aromatics, etc. In the heavy-duty industry, the call for a China standard is being

driven by a consortium of the five dominant vehicle manufacturers, lubricant and additive companies and number of influential independents.

In terms of product marketing, many vehicle owners in China have access to the internet and can order the required fluids on-line. However, the passenger car engine oil market remains predominantly ‘do it for me’ rather than DIY. Mirroring the increased demand for higher grade products, the global trend towards low and ultra-low viscosities is reflected in the Chinese market.

Particularly since 2018, demand for the market-dominant heavy grade 5W-30 has fallen significantly, with the 0W-20 and even 0W-16 now starting to influence consumer figures. The chart also shows a major increase in “others” which are mainly OEM-specific viscosities.

## Parc % by Year of Manufacture by significant Viscosities



Source: OATS

### Summary

The sheer scale of China's vehicle and lubricant markets have already had a significant influence on global sales strategies in recent years and will only become more influential as China's prosperity grows in relation to other global powers.

The fact there are now strong calls for a domestic lubricants standard indicates the speed and maturity of the industry. Whilst this can be justified based on the sheer scale of domestic production volumes and vehicle parc, questions remain regarding the potential impact on consumer costs and vehicle exports, the latter coming with another new spec attached to those already set by API, ACEA or JASO.

More likely, as with Western OEMs, a compromise is the most realistic outcome, with Chinese automakers creating their own extra fluid tests and specifications to sit alongside the existing base ACEA or API specs.

While this may restrict independent or smaller national oil companies from being able to supply OEM-specific fluids - and potentially prevent non-OEM dealer-approved centres from undertaking warranty service - the scale of the overall parc is almost certainly large enough to keep both OEMs and independents in business.

As has been highlighted in other OATS' Country Reports, the drive for lower emissions, improved fuel economy and growth in alternative powered vehicles are likely to be the strongest influences on global lubricants markets. China is no exception. In fact,

with the nation's challenging emissions regulations and its stated aim of becoming the global leader in EV technology, China is set to become a major influencer in the future of the global lubricants industry. For those overseas producers looking to gain access to the market, expect some tough questions being asked about finished products and competition from fast-moving, imitative domestic developers.