

# Germany

Paul Stephenson, OATS Ltd



## The economy

Germany's economy, like most EU, EEA & UK economies, has been hit with further outbreaks of COVID-19 via the Omicron variant in Q4 2021 and early Q1 2022, and now faces a very uncertain 2022 with the Russian invasion of Ukraine. With economic sanctions being applied on Russia, and reductions in imports on Russian gas and oil on which the German economy depends, the forecasts from the EU European Economic Forecast Winter 2022 of 3.6% GDP growth and 3.7% inflation both look decidedly high and low respectively. Inflation will soar in 2022 due to oil and gas prices continuing to rise due to the war and the need for alternative supplies, and according to Trading Economics, inflation has already hit 5% in the last four months, even before the Russian hostilities began. Crude oil prices are at at least a decade level high, although at the time of writing, prices have dropped by 13% due to signs of a potential negotiable settlement. Prices though are likely to remain on the high side for some time, so this will feed its way through into finished lubricant prices, driving up value sales but likely to have an effect on volume and major lubricant users & distributors favouring white label and other lower priced options.

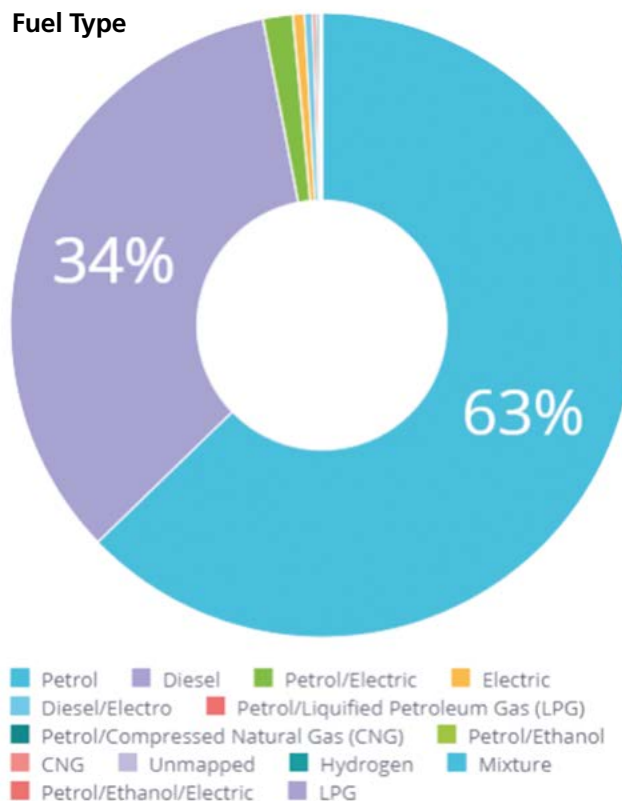
## The passenger and light commercial vehicle parc and developments

According to the UEIL 2021 Industry Statistics report, Lubricant sales decreased slightly in 2019, and then due to the pandemic, they decreased sharply in 2020, with total sales falling from 976,000 to 787,000 metric tonnes. The majority of this decrease came from industrial sales, with the automotive market remaining fairly stable. Nevertheless, as in the past, Germany continues to be the largest lubricants producer in Europe.

The German passenger & light commercial vehicle industry still also dominates the German and European markets, although in 2021, there was a reduction of 10% vs 2020 of new vehicles registered. The big news is that of the 2.6m registered, 26% were electric - PHEV, BEV or FC – with BEV growing by 11% and PHEV declining by 16% according to

the VDA. In December 2021, Electric accounted for 35% of sales, so the industry is investing rapidly in the EV future. Some €220bn is being invested by the whole industry into electromobility according to the VDA between 2022 and 2026. This does not include the charging infrastructure, which is going to have to move very fast to keep up with the growth in EV. Currently there are only 55,000 charging points, including 8k fast charging points. The target of 1m by 2030 will require 2000 new charging points per week! Having said that, the majority of the existing parc continues to be petrol dominated:

Fuel Type



Source: OATS Data showing fuel types across full German car parc up to end 2020.

In Germany, in terms of Vehicles in Operation up to December 2020, nearly 26m were produced by VAG, MB, BMW & Porsche representing 54% of total VIO. If you add Opel and Ford to this, the % VIO is closer to 70%. Interestingly, if we focus on VIO for 2018-2020, then the % remains just under 70% for the German marques plus Opel and Ford, so the domestic industry continues to keep its grip on the market.

## Last 3 Years - VIO and Total Volume (L) by OEM, Models and Fuel Type

OEM	Vehicles in Operation	Total Volume (L)
VOLKSWAGEN	1.8M	8.55M
MERCEDES-BENZ	937.6K	6.47M
FO...	758.9K	4.32M
BMW	683.3K	3.43M
SKODA	625.3K	2.73M
OPEL	605.1K	2.53M
AUDI	530.9K	2.72M
RENAULT	398.7K	1.83M
HYUNDAI	367.4K	1.37M
SEAT	367.3K	1.59M

Source: OATS Data showing engine oil volume based on one change per year for models registered 2018-2020.

The VAG and MB models which are most important from an engine oil volume perspective are VW Golf/ Golf Plus/Golf Sportsvan, Polo, Transporter, Passat, Touran, Caddy, Tiguan & Multivan and MB C-Class, E-Class, A-Class, B-Class, Sprinter 3.5t and Vito, all of which offer an annual 1m litres of oil potential with an average of one oil change per year. The difference is that whilst all the MB models show a positive VIO change in the last 5 years vs the previous 5 years, so their % of oil volume continues is generally growing, only the VW Golf Sportsvan, Passat, Touran, Multivan show the same VIO growth, whilst the rest are in decline.

In terms of German manufacturing sales dominance in Europe incl Russia, there are just over 150m on the road (including Opel and Ford), which represents 43% of the total parc. This shows a slight increase in the last 3 years to 44%, which indicates the continuing success and investment in the German auto industry, despite the disruption of the pandemic.

Germany has also enacted the first legislation anywhere in the world to legalise autonomous driving with the "Act Amending the Road Traffic Act and the Compulsory Insurance Act – Act on Autonomous Driving." Automated driving is enabled in different environmental conditions, on highways, in urban areas, and out of town for different vehicle classes and body types. The scenarios in which autonomous driving will be rolled out initially will be limited to valet parking and hub to hub truck routes within a facility, but it is certainly the start of an exciting new chapter.

## Base oil

Germany continues to be totally dependent on imported crude oil and will be seeking alternative sources mainly from the Middle-East, including pushing to get the sanctions lifted on Iranian oil, given the volatility in Russia.

Whilst it is the third largest refiner in Europe, the major oil companies are exiting or converting refining operations into renewables. Shell Rhineland Wesseling complex is shifting its capability to produce hydrogen, sustainable aviation fuel and bio LNG. BP Lingen is developing a zero-carbon hydrogen project to produce 9000t/year with 50MW electrolyser with the potential to expand to 500 MW. Hydrogen is being seen as the best green energy source for long distance HD transportation.

## Lubricants

In 2020, Germany's market for automotive lubricants was approx. 355m litres, which was a small increase on 2019, despite the pandemic, whereas most of the other major markets declined. The market volume is likely to have declined in 2021 based on passenger car sales and the % being EV. Engine oil continues to dominate the market, accounting for 67% of consumption in 2020, but Transmission oil continues to grow fast due to DCT and CVTs requiring more oil. Engine oil volume for passenger cars and light commercial vehicles was approximately 150m litres in 2020 assuming one oil change per year, and transmission oil volume approx. 73m litres assuming a refill every two years.

Of transmission oil specifications for all passenger car & light commercial vehicle registrations, unsurprisingly five out of the top 10 specifications by volume are VW gear oils – VW 52182, 52527, 52171, 55512 and 55529 and three are Mercedes Benz ATFs – 236.14, 236.15 and 236.17. GL-4 continues to be an important specification however with 20% of 2020 registered vehicles still calling for it.

The ones which have seen the most change in VIO in the period 2016-2020 vs 2011-2015 however which offer significant volume are Ford 200E1 which is found on the Manual transmissions for EcoBlue models including the Vans, ATF ASW-1 and ASW-2 which appear in a wide range of OEM Auto transmissions including Opel, ATF MB 236.22 which is a DCT fluid for A, B, CLA< GLA and GLB

## % VIO Change, Capacity, Volume and Parc % by Specifications

Specifications	%VIO Change (L5Y vs P5Y)	Avg Capacity	Total Parc%	Total Volume (L)	LY Parc%	L3Y Parc%	L10Y Parc%
GL-4	3.0%	2.2	23.20%	23.49M	19.32%	19.71%	21.81%
GO PN VWG 52182	32.8%	5.5	8.27%	21.92M	9.07%	9.76%	10.10%
ATF MBZ 236.14	-57.8%	8.3	5.09%	20.30M	0.23%	1.05%	3.52%
GO PN VWG 52527	19.9%	2.1	18.03%	18.24M	22.25%	24.71%	24.87%
ATF MBZ 236.15	34.6%	7.0	3.89%	13.15M	5.37%	5.41%	5.22%
GO PN VWG 52171	-29.1%	2.4	11.37%	12.79M	5.98%	7.32%	12.67%
ATF ZEF LFG9	23.9%	8.7	2.77%	11.61M	3.65%	4.58%	4.62%
GO PN VWG 55512	-23.2%	1.8	12.58%	10.82M	8.78%	10.94%	15.45%
ATF MBZ 236.17	263.6%	10.0	1.99%	9.69M	6.23%	5.28%	3.29%
GO PN VWG 55529	351.5%	6.1	2.87%	8.50M	9.20%	8.39%	5.34%

Source: OATS data showing top transmission specifications by volume for total German parc. Volume calculated base on one refill per year, so actual annual volume is likely to be much lower, but relative numbers will be similar.

Class models since 2018, MB 235.10 which is a long established spec for manual transmissions but is still being used on new CLA, GLB, Marco Polo, V-Class, X-Class, Sprinter and Vito models and BMW auto transmission specifications BMW 6 and BMW MTF-2 but these are typically filled for life so offer little in the way of refill volume opportunity.

In terms of engine oils, the latest Light Duty specifications being used in Germany are the latest ACEA specifications for grades such as C3, C5 and C6 for low ash requirements and A3/B3/B4 for other engines. For Heavy Duty, the industry awaits the release of the ACEA E8 and E11 to replace E6 and E9 and other grades which remain current. The shift continues towards lower kinematic and HTHS viscosity specifications and products across the whole of Europe, but particularly amongst the German OEMs. Viscosities for parc years 2018-2020 show 0W-30 and 0W-20 both now appear in just under 50% of the registered vehicles for those years, and whilst 5W-30 still enjoys the highest % of the parc and volume potential, the 0W's are on course to individually overtake it, particularly 0W-20, which has grown in VIO by 300% in the last five years versus the previous 5 years. 0W-8 has made an appearance but only in 0.21% of the parc in 2020.

### In summary

The pandemic and now Russia's clear military aggression will accelerate the shift towards renewable energy, particularly in Germany which, despite its championing of green policies, has been rather slow in shifting its reliance on Russian gas and oil.

The auto industry is intent on moving as fast as possible to EVs, but as in all countries, the charging infrastructure needs to catch up. Clearly sales of EVs shows consumers are willing to switch, but with energy prices set to rise

considerably, EVs may not be as economical to run, so enthusiasm could dampen.

In short, it is impossible to predict how this year will run. It is going to be a third disruptive year for sure.

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