BMW 5 Series

520I M SPORT PETROL RWD AUTOMATIC

Sustainability Rating

2025 ★★½☆☆ 46%

Clean Air
6.5 /10

Energy Efficiency
4.7 /10

Greenhouse Gases
2.7 /10

Driving Experience

Consumption & Range
ADEQUATE

Cold Winter Performance
NOT APPLICABLE

Charging Capability
NOT APPLICABLE

Our verdict

Tested here is the BMW 520i – a premium limousine equipped with a 2 litre turbo-charged petrol engine supported by a 48 V-mild hybrid system. Given its luxurious specification and relatively high unladen weight of 1,800 kg, the vehicle achieves an adequate score of 46% and collects 2½ Green stars. The most challenging area of assessment are the greenhouses gases, where the car scores poorly due to the combustion of relatively high amounts of fossil fuel.

- The exhaust emissions control system keeps pollutants very low, providing minimal air quality impact. The tyre abrasion score is good, but brake abrasion reduction potential is limited. The production and fuel supply emissions slightly worsen the score.
- Fuel use is moderate but limits the sustainability scoring. Lab test measurement resulted in 5.6–7.8 l/100 km, while the mixed trip On-road test needed 5.7 l/100 km.
- Fossil fuel combustion drives high GHG emissions: the average direct propulsion GHG emissions are measured with 149 g CO_2/km. The additional emissions from the other LCA phases further reduce the score.

Disclaimer

Think before you print

Clean Air

6.5 /10

Comments

The BMW's exhaust aftertreatment is efficient and robust under a variety of conditions. The typical pollutants are kept low even under harsh acceleration conditions in the Highway Test. Particle number is far below the legal limit. The On-road tests confirm these findings. Thanks to its exhaust performance, the 520i proves to have a minimal impact on local air quality. It scores well for tyre abrasion but collects only about one fourth of the points for brake abrasion mitigation due to the limited energy recuperation capacity of the mild hybrid system. The pollutants associated with vehicle production and supply of the fuel deteriorate the final Clean Air Index score slightly.

Exhaust emissions

Exhaust pollutant emissions are produced from combustion engines. Although current emission legislation is very strict, this type of emission directly affects air quality, and not all vehicles perform equally well. Read more

GOOD ● **8.1** /10

In laboratory

Green NCAP performs a wide range of tests on cars in the laboratory. This is the best way to ensure controlled conditions and guarantee that all cars are tested in the same way, making their results comparable. Read more

GOOD ● **7.4** /10

	NMHC	NO_x	NH_3	CO	PN	PM	Score
Legal test (WLTP)	●	●	●	●	●	●	**5.8** /8
Warm weather	●	●	●	●	●	●	**8.3** /10
Highway	●	●	●	●	●	●	**6.8** /10
Winter cold start	●	●	●	●	●	●	**7.3** /10
Winter warm start	●	●	●	●	●	●	**8.3** /10

On road

An on-road driving test , using portable emissions measuring equipment complements Green NCAP's laboratory tests. Read more

GOOD ● **9.2** /10

	NMHC	NO_x	NH_3	CO	PN	PM	Score
Real-world mixed drive	●	●	●	●	●	●	**8.7** /10
Short city trip	●	●	●	●	●	●	**9.4** /10
Congestion	●	●	●	●	●	●	**2.0** /2

● good ● adequate ● marginal ● weak ● poor ● not applicable

Clean Air

6.5 /10

Non-exhaust emissions

Driving a vehicle also produces emissions different from those of the exhaust pipe. Green NCAP evaluates vehicle properties that contribute to tyre and brake abrasion.

MARGINAL **5.1**/10

Tyre wear

Tyre abrasion releases small particles during driving, and some vehicle properties have major impact on it. Heavier vehicles, wheel alignment causing increased slip angle, and aggressive acceleration responses all increase tyre wear and particle emissions. Read more

ADEQUATE **4.5**/6

	Result	Score
Influence of mass		1.5/3
Wheel alignment		1.0/1
Accelerator response		2.0/2

Brake wear

Brake dust, produced by friction brakes, can be mitigated through filters, enclosed brake systems (like drums), or by reducing friction brake use with regenerative braking in electrified vehicles. Containment keeps dust inside the system, while recuperation lowers brake wear. However, heavier vehicles still generate more brake abrasion due to their greater stopping demands. Read more

WEAK **1.6**/6

	Result	Score
Brake dust mitigation		0.0/4
Brake dust containment		0.0/6
Recuperative braking - warm test		1.6/6

good adequate marginal weak poor not applicable

Clean Air

6.5 /10

Additional Life Cycle Assessment information

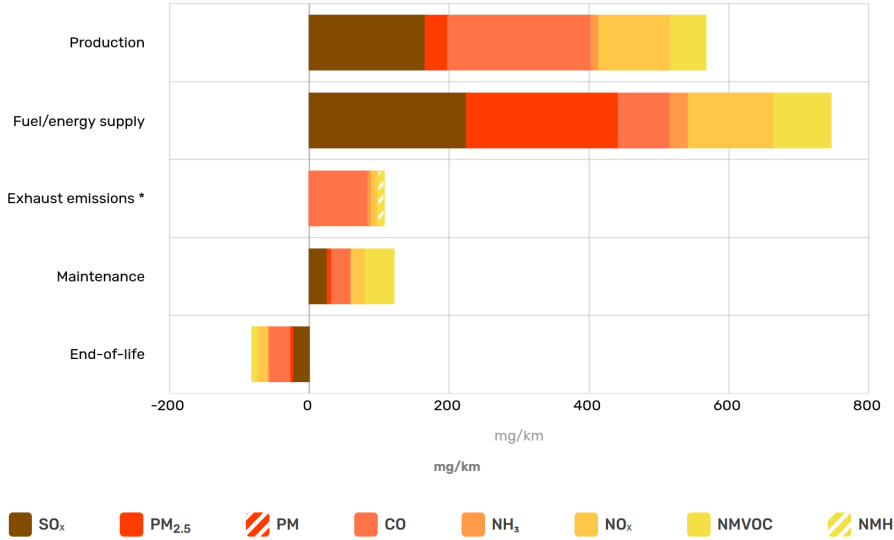
Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime, 'from cradle to grave'. In this section, pollutants are estimated in the various stages of a vehicle's life other than use. The chart also displays the measured emissions related to usage, which are taken as an average from the tests and are scored separately in the 'Exhaust emissions' part above. The end-of-life approach uses results in negative values because the benefit of materials recovery and recycling exceeds the effort of obtaining and processing virgin raw materials.

MARGINAL

3.3 /10

Pollutants

Most of the vehicle exhaust pollutant species are also emitted in others life cycle phases. These are health- and nature-damaging compounds, the amount of which should be reduced as well.



* Exhaust emissions are not contributing to the score in Additional Life Cycle Assessment information because they are scored in the Exhaust emissions section above

good adequate marginal weak poor not applicable

Energy Efficiency

4.7 /10

Comments

The car's petrol consumption figures are adequate for a vehicle of this type but the large BMW does not impress in the area of energy efficiency. Consumption figures of 7.4 l/100 km in the -7°C Cold Winter test or 7.8 l/100 km in the Highway Test limit the car's sustainability performance. In a real-world mixed On-road trip, Green NCAP measured 5.7 l/100 km while the short urban trip needed 6.8 l/100 km. In terms of life cycle assessment, the total primary energy demand benefits from the absence of a heavy battery, the production of which would further increase the need for energy. Nevertheless, the amounts of fuel needed by the conventional combustion engine to propel the large 5 series limit the achievable score also in this section.

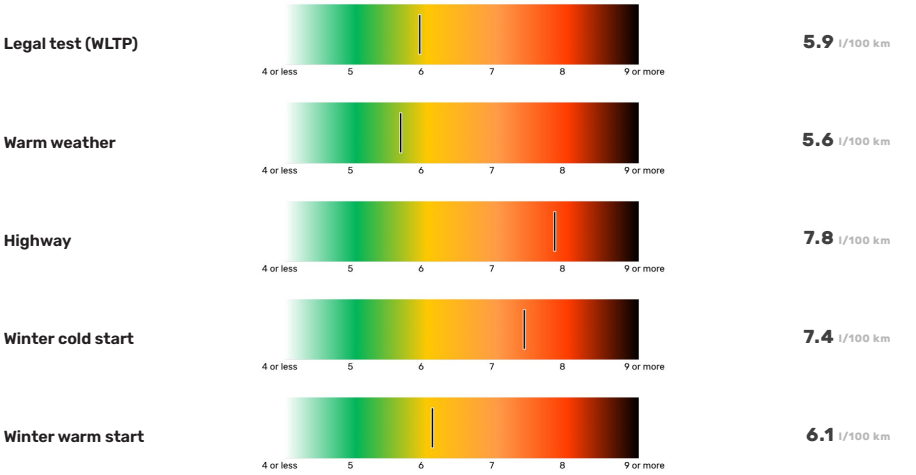
Energy demand

MARGINAL **4.7** /10

Propulsion energy consumption in laboratory

WEAK **2.7** /10

The vehicle's measured consumption figures are displayed in the bar chart. The colour scheme positions the values relative to low and high figures in a typical range. The ranges are different for combustion engine and pure electric vehicles.



good adequate marginal weak poor not applicable

Energy Efficiency

4.7 /10

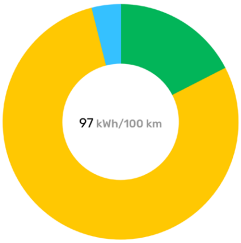
Additional Life Cycle Assessment information

GOOD

9.9/10

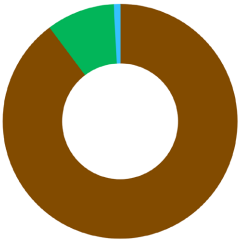
Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime 'from cradle to grave'. In this section, the total vehicle life cycle primary energy demand is displayed. The scoring does not consider the direct propulsion energy use, because it is scored separately in the 'Propulsion energy consumption in laboratory'.

Total LCA energy consumption



- Production & recycling 17.5%
- Battery production 0.0%
- Fuel/energy supply * 78.6%
- Maintenance 3.9%

Energy source share in total LCA consumption



- Fossil 89.8%
- Renewable 9.4%
- Other 0.8%

Direct propulsion energy share is not shown, it is included in 'Fuel/energy supply'.

Rolling resistance

Rated here is the vehicle's resistance to movement at low speeds. Different factors have an impact on it, but the most significant one is mass.

MARGINAL

5.7/10

good | adequate | marginal | weak | poor | not applicable

Greenhouse Gases

2.7 /10

Comments

While the production of a conventional vehicle emits less greenhouse gases compared to an electric car, the subsequent combustion of fossil fuels disproportionally increases the emissions, leaving the BMW with a low score in this part of the assessment. The average direct GHG emissions in Green NCAP's lab tests are 149 g CO_2-eq./km. A further 100 g CO_2 -eq./km are added, which are related to production, maintenance and end-of-life treatment, as well as the emissions originating from the petrol fuel supply processes.

Exhaust GHG emissions

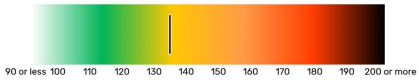
Combustion of conventional fuels releases greenhouse gases at the vehicle's tailpipe. The most significant of these gases are the emissions of CO_2. Green NCAP's assessment considers methane (CH_4) and laughing gas (N_2O) as well. Together, these are counted with their global warming potential to a sum known as CO_2 equivalent.

WEAK

1.2 /10

In laboratory

Green NCAP performs a wide range of tests on cars in the laboratory. This is the best way to ensure controlled conditions and guarantee that all cars are tested in the same way, making their results comparable. Read more



Legal test (WLTP)	133.1 g CO_2-eq./km
Warm weather	128.0 g CO_2-eq./km
Highway	177.5 g CO_2-eq./km
Winter cold start	168.0 g CO_2-eq./km
Winter warm start	138.3 g CO_2-eq./km

good adequate marginal weak poor not applicable

Greenhouse Gases

2.7 /10

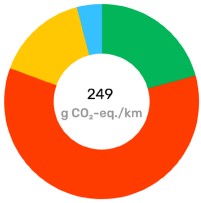
Additional Life Cycle Assessment information

Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime, 'from cradle to grave'. In this section, the total vehicle life cycle greenhouse gas emissions are displayed.

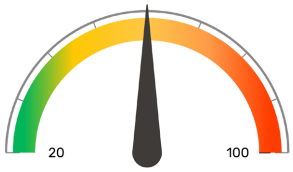
ADEQUATE

7.7 /10

Total LCA GHG emissions



- Production & recycling 20.8%
- Battery production 0.0%
- Tailpipe emissions * 59.8%
- Fuel/energy supply 15.3%
- Maintenance 4.0%



tonnes CO_2-equivalent/vehicle

Vehicle Life Cycle average emissions **60** (+/-)
(best **53** | worst **68**)

* The scoring does not consider the direct exhaust GHG emissions at the tailpipe, because they are scored separately in 'Exhaust GHG emissions' above.

good | adequate | marginal | weak | poor | not applicable

Driving Experience

Consumption & Range

ADEQUATE

Cold Winter Performance

NOT APPLICABLE

Charging Capability

NOT APPLICABLE

Green NCAP Comment

The Driving Experience evaluation of conventional vehicles focuses only on the performance in the section 'Consumption and Range'. The BMW 520i's estimated real-world consumption figures are seen as adequate in all conditions – warm weather and cold winter, urban, rural, highway and mixed driving scenarios. The consumption readings on the board computer display are very accurate.

Consumption & Range

ADEQUATE

Estimated actual consumption

ADEQUATE

What consumption can be expected in real world conditions?

In-laboratory measured consumption values are only partially representative of real-world use. Green NCAP's estimates aim at providing more realistic figures, which are based on measured results, modified by correction factors.

Conditions	Urban	Rural	Highway	Mixed	
Warm weather	7.8	5.3	6.2	6.8	l/100 km
Cold Winter	10.0	5.8	7.3	8.1	l/100 km

Accuracy of display

GOOD

Is the consumption figure on the display correct?

good adequate poor not applicable

Cold Winter Performance

NOT APPLICABLE

good adequate poor not applicable

Charging Capabilities

NOT APPLICABLE

good adequate poor not applicable

Specifications

Vehicle class
Large Family Car

System power/torque
153 kW/330 Nm

Engine size
1,998 cc

Declared consumption
5.9 l/100 km

Declared driving range
Overall n.a.
City n.a.

Declared CO_2
133 g/km

Declared battery capacity
Usable (net) n.a.
Installed (gross) n.a.

Mass
1,805 kg

Heating concept
Waste heat

Tyres
245/40 275/35 R20

Emissions class
Euro 6 EA

Tested car
WBA11FJ010CV1xxxx

Publication date
12 2025

Also covered by this rating

Variants

BMW 5 Series
520i M Sportpaket Pro Steptronic petrol RWD automatic

BMW 5 Series
520i M Sportpaket Steptronic petrol RWD automatic

BMW 5 Series
520i Steptronic petrol RWD automatic