

What are Vehicle Emissions Standards?

Worksheet

Vehicle emissions standards regulate the maximum amount of pollutants (NO_x, PM, CO, HC) that a vehicle engine can emit. Europe's Euro standards (Euro 1 through Euro 6) set progressively stricter limits to protect air quality.

Questions

1. Euro 1 through Euro 6 represent...
 - A) vehicle sizes
 - B) engine power levels
 - C) emissions tiers from least to most strict
 - D) fuel types
2. Approximately how much stricter is Euro 6 than Euro 4 for NO_x?
 - A) 10% stricter
 - B) 25% stricter
 - C) 76% stricter
 - D) same limit
3. A used car built in 2005 (Euro 4) in 2026 must meet...
 - A) Euro 4 only
 - B) Euro 6
 - C) local regulations in the registration country
 - D) no standard
4. Which pollutants do Euro standards limit?
 - A) only CO₂
 - B) CO, HC, NO_x, PM, and others
 - C) only fuel consumption
 - D) engine size and weight
5. A Euro 5 vehicle must emit no more than 168 mg/km of NO_x. What about Euro 6?
6. A truck built to Euro 4 standard; can it pass a Euro 6 inspection?
7. In which year did Euro 5 begin for new cars?
8. Define: What do emissions standards regulate?
9. Define: What does Euro 6 mean?
10. Define: Why do emissions standards exist?

Answer Key

1. C) emissions tiers from least to most strict — Euro 1 is oldest/most lenient; Euro 6 is newest/strictest. Each reduces allowed pollutants.
2. C) 76% stricter — Euro 4 = 250 mg/km; Euro 6 = 60 mg/km. ($60/250 \approx 0.24$, so 76% reduction).
3. B) Euro 6 — Many countries now require used cars to meet current standards to stay registered.
4. B) CO, HC, NO_x, PM, and others — Standards address NO_x, particulate matter (PM), CO, HC to protect air quality.
5. Euro 6 limit is 60 mg/km of NO_x. This is a 64% reduction from Euro 5. Euro 6 is stricter to protect air quality better.
6. No — Euro 4 trucks emit 250 mg/km NO_x. Euro 6 limit is 60 mg/km. The truck exceeds the limit and fails.
7. Euro 5 began in 2009 for new cars. It reduced NO_x from 500 mg/km (Euro 4) to 168 mg/km. This was a significant environmental step.
8. The maximum amount of pollutants (NO_x, PM, CO, HC) from vehicle engines.
9. The 6th tier of European emissions standards, strictest so far (60 mg/km NO_x).
10. To reduce air pollution and protect public health and the environment.

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