

Octane Rating

Most of us have Drivers Handbooks for our cars which state the required octane rating recommended for our cars. With my MG's it recommends a minimum rating of 98. There are only a few stations around here that provide 94 octane and most 91 octane. The result is some owners purchase octane booster to add to the fuel. Depending what fuel you are purchasing this might not be necessary as we use a different octane rating system than Britain. Britain and most of Europe use RON while we and the USA use AKI

Measurement methods

Research Octane Number (RON)

The most common type of octane rating worldwide is the **Research Octane Number (RON)**. RON is determined by running the fuel in a test engine with a variable compression ratio under controlled conditions, and comparing the results with those for mixtures of iso-octane and n-heptane. The Compression ratio is varied during the test in order to challenge the fuel's antiknocking tendency as an increase in the compression ratio will increase the chances of knocking.

Motor Octane Number (MON)

Another type of octane rating, called **Motor Octane Number (MON)**, is determined at 900 rpm engine speed instead of the 600 rpm for RON. MON testing uses a similar test engine to that used in RON testing, but with a preheated fuel mixture, higher engine speed, and variable ignition timing to further stress the fuel's knock resistance. Depending on the composition of the fuel, the MON of a modern pump gasoline will be about 8 to 12 octane lower than the RON, but there is no direct link between RON and MON. Pump gasoline specifications typically require both a minimum RON and a minimum MON

Anti-Knock Index (AKI) or (R+M)/2

In most countries in Europe (also in Australia, Pakistan and New Zealand) the "headline" octane rating shown on the pump is the RON, but in Canada, the United States, Brazil, and some other countries, the headline number is the simple mean or average of the RON and the MON, called the **Anti-Knock Index (AKI)**, and often written on pumps as **(R+M)/2**.

Difference between RON, MON, and AKI

Because of the 8 to 12 octane number difference between RON and MON noted above, the AKI shown in Canada and the United States is 4 to 6 octane numbers lower than elsewhere in the world for the same fuel. This difference between RON and MON is known as the fuel's sensitivity and is not typically published for those countries that use the Anti-Knock Index labelling system.

See the table for comparison.

EURO RON	Canada & US (R+M)/2
90	85.9
92	87.8

95	90.7
96	91.6
98	93.5
100	95.5
105	100.2
110	105