

Automotive fuel — High octane (super) unleaded petrol — Specification

ICS 75.160.20

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The preparation of this British Standard was entrusted to Technical Committee PTI/2, Liquid fuels, upon which the following bodies were represented:

- Association United Kingdom Oil Independents
- Automobile Association
- Chemical Industries Association
- Confederation of Passenger Transport
- Consumer Policy Committee of BSI
- Department of the Environment, Transport and the Regions
- Department of Trade and Industry (Oil and Gas Division)
- Federation of British Historic Vehicle Clubs
- Federation of Petroleum Suppliers
- Freight Transport Association
- Institute of Petroleum
- Institute of Road Transport Engineers
- Institute of Trading Standards Administration
- Ministry of Defence
- Motor Cycle Industry Association
- National Farmers' Union
- Petrol Retailers Association
- Road Haulage Association
- Society of Motor Manufacturers and Traders
- United Kingdom Petroleum Industry Association

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Foreword

This British Standard has been prepared under the direction of Technical Committee PTI/2 liquid fuels. This revision supersedes BS 7800:1998 which is withdrawn.

In preparing this revision, the Technical Committee recognized that since the 1992 edition was prepared, a grade of high octane unleaded petrol containing valve seat recession protection additives has become commercially available. That grade is not included in this British Standard.

The first edition of this British Standard was prepared to provide a specification for the quality of high octane unleaded petrol¹⁾ and was also consistent with the provisions of EEC Directive 85/210/EEC (since withdrawn) concerning the lead and benzene contents of petrol. The quality of leaded petrol is specified in BS 4040, and that of “premium” and “regular” grades of unleaded petrol in BS EN 228. The same EEC Directive also covered the lead and benzene contents of these fuels.

The first edition of this standard was published at the request of the Department of Transport to enable oil companies who wished to market a grade of unleaded petrol with a higher octane rating than that defined as “premium” in BS EN 228 to identify such fuels as separate from the “premium” unleaded grade. In this British Standard, provision was made for a high octane grade of unleaded petrol with a minimum research octane number (RON) of 98 and for uniform marking.

This standard specifies maximum lead and benzene contents, minimum values for research octane number (RON) and motor octane number (MON), and defines limiting requirements for other essential properties. It also incorporates requirements for volatility levels appropriate to seasonal temperature variations in the UK for petrol supplied to and sold from filling stations, in line with those in BS EN 228.

The fuels covered by this standard are intended for use in petrol-engined road vehicles which require high octane unleaded petrol.

The second edition reduced the sulfur limit to 0.05 % (*m/m*) and changed the method for determining vapour pressure to the air saturated method.

The principal changes from the 1998 edition in this revision are as follows:

- a) the oxygenate requirements have been revised to conform to EU Directive 98/70/EC;
- b) hydrocarbon content requirements have been introduced to conform to EU Directive 98/70/EC;
- c) the maximum benzene content has been reduced from 5 % (V/V) to 1 % (V/V) to conform to EU Directive 98/70/EC;
- d) the oxidation stability has been increased from 240 minutes to 360 minutes when tested by BS EN ISO 7536;
- e) the maximum sulfur content has been reduced to 150 mg/kg;
- f) a maximum density has been introduced;
- g) a reduction in RON from 98 to 97 and MON from 87 to 86.

NOTE When laboratory testing petrol for conformance with the requirements of clause 4 of this British Standard, it is necessary to use equipment and procedures exactly as laid down in the appropriate test methods. In particular, it is essential to use properly inspected and maintained standard Co-operative Fuel Research Committee (CFR) engines for the determination of both RON and MON. A useful guide to the satisfactory operation and test precision of a CFR engine can be obtained by including it in the Engine Test Correlation Programme of the Institute of Petroleum. Details of this programme are available from the Institute of Petroleum or the British Standards Institution.

¹⁾ The term “petrol” is used in this British Standard as being that most generally used by motorists in the UK: “gasoline” and “motor spirit” are alternatives.

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