

BRITISH STANDARD

**BS 2000 :
Part 0 :
Section 0.2 :
1996**

Methods of test for

Petroleum and its products

**Part 0. Section 0.2.
Specifications for IP standard reference
liquids**

(Identical with IP Appendix B)

Confirmed
January 2010

BSi
British Standards

National foreword

This British Standard was published under the authority of the Materials and Chemicals Sector Board and comes into effect on 29 February 1996.

This British Standard supersedes BS 2000 : Part 0 : Addendum 1 : 1987, which is withdrawn.

BS 2000 comprises a series of test methods for petroleum and its products that are published by the Institute of Petroleum (IP) and have been accorded the status of a British Standard. Each method should be read in conjunction with the preliminary pages of 'IP Standard methods for analysis and testing of petroleum and related products' which gives details of the BSI/IP agreement for publication of the series, provides general information on safety precautions, sampling and other matters, and lists the methods published as Parts of BS 2000.

Under the terms of the agreement between BSI and the Institute of Petroleum, BS 2000 : Part 0 : Section 0.2 will be published by the IP (in 'Standard methods for analysis and testing of petroleum and related products' and as a separate publication). BS 2000 : Part 0 : Section 0.2 : 1996 is identical with IP Appendix B.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

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The following BSI references
relate to the work of this
standard:

Committee reference PTU/13
Announcement in *BSI News*
March 1996

APPENDIX B



BS 2000 : Part 0:
Section 0.2 : 1996

SPECIFICATIONS FOR IP STANDARD LIQUIDS

1. HEPTANE. *Heptane* shall conform to the following requirements:

Purity	% v/v	99.75 min	ASTM D2268
Motor Octane Number		0.0 ± 0.2	ISO 5163
Density at 20°C	kg/m ³	683.80 ± 0.15	ISO 3838
Refractive Index n _D 20°C		1.38770 ± 0.00015	ISO 5661
Freezing Point	°C	-90.710 min	ASTM D1016
Distillation (at 101.3 kPa)			ASTM D1078
50% v/v recovered at	°C	98.427 ± 0.025	
80% v/v minus 20% v/v rec	°C	0.020 max	
Lead Content	g/m ³	5.0 max	ASTM D1368

2. 2,2,4-TRIMETHYLPENTANE (*iso-octane*). *2,2,4-Trimethylpentane* shall conform to the following requirements:

Purity	% v/v	99.75 min	ASTM D2268
Freezing Point	°C	-107.37 ± 0.05	ASTM D1016
Lead Content	g/m ³	5.0 max	ASTM D1368

3. HEXADECANE (*cetane*). *Hexadecane* shall conform to the following requirements:

Freezing Point	°C	16.2 min	ASTM D1015
Hydroxyl Number		Nil	ASTM D4274
Iodine Number		Nil	ASTM D460
Colour		Water white (1.0)	IP 17
Distillation			ASTM D850
5% v/v recovered at	°C	286.6 ± 1.0	
Range	°C	6.0 max	

4. HEPTAMETHYLNONANE. *Heptamethylnonane* shall conform to the following requirements:

Density at 20°C	kg/m ³	784.48 ± 0.2	ISO 5281
Refractive Index n _D 20°C		1.43990 ± 0.00020	ISO 5661
Bromine Number		1.0 max	ASTM D1159
Distillation			ASTM D850
50% v/v recovered at	°C	246.9 ± 1.0	
80% v/v minus 20% v/v rec	°C	4.0 max	

5. ACETONE. *Acetone* shall meet the following requirements:

Density at 20°C	kg/m ³	789.1 – 791.6	ISO 758
Colour (Pt-Co)		5 max	ISO 2211
Water Content	% m/m	0.3 max	ASTM D1364
Water Miscibility		Pass	ISO 757/3
Nonvolatile Matter	g/m ³	30 max	ISO 759
Acidity (as Acetic Acid)	% m/m	0.002 max	ISO 757/2
Alkalinity (as Ammonia)	% m/m	0.001 max	ASTM D1614
Permanganate Time	min	30 min	ASTM D1363
Distillation			ISO 918
Initial Boiling Point	°C	55.8 min	
Dry Point	°C	56.6 max	

6. 1,4-DIMETHYLBENZENE (*p-Xylene*). *1,4-Dimethylbenzene* shall conform to the following requirements:

Density at 20°C	kg/m ³	857–863	ISO 5281
Colour (Pt-Co)		25 max	ISO 2211
Purity			ASTM D3798
1, 4-Dimethylbenzene	% m/m	99.7 min	
Non-aromatics	% m/m	0.2 max	
Sulphur Content	mg/kg	10 max	ISO 5282
Distillation (at 101.3 kPa)			ISO 918
50% v/v recovered at	°C	138.35 ± 1.0	
Range	°C	2.0 max	
Freezing Point	°C	11.23 min	ASTM D1015
Flash Point	°C	27.2 ± 0.6	ASTM D56

APPENDIX B – SPECIFICATIONS

7. 1-METHYLNAPHTHALENE. *1-Methylnaphthalene* shall conform to the following requirements:

Density at 20°C	kg/m ³	1018 ± 1	ISO 5281
Purity	% m/m	98.0 min	GLC
Refractive Index n 20°C		1.616 ± 0.001	ISO 5661
Freezing Point	°C	-30.5 ± 1.0	ASTM D1015

8. PETROLEUM SPIRITS. *IP Petroleum Spirits* shall conform to the following requirements:

		40/60	60/80	100/120	
Density at 15°C	kg/m ³	640–670	670–690	720–740	ISO 3675
Distillation					ISO 3405
IBP	°C, min	35	55	95	
FBP	°C, max	65	90	125	
At least 90 % v/v rec between,	°C	40–60	60–80	100–120	
Existent Gum	g/m ³ , max	—	—	20	ISO 6246
	g/m ³ , max	20	20	—	ASTM D1353
Bromine Index	max	25	25	25	ASTM D2710
Doctor Test		Negative	Negative	Negative	ISO 5275
Benzene Content	mg/kg, max	50	50	50	ASTM D2600
Colour	min	+25	+25	+25	ASTM D156

9. BENZENE. *Benzene* shall generally meet the requirements of ISO 5271, as given below:

Clarity		Clear and free from visible impurities	Visual
Colour (Pt-Co)		20 max	ISO 2211
Density at 20°C	kg/m ³	878–881	ISO 5281
Undissolved water at 20°C		Absent	Visual
Acid wash colour		1 max	ASTM D848
Total Sulphur	mg/kg	2 max	ISO 5282
Neutrality		Neutral	ISO 5276
Residue on evaporation	g/m ³	50 max	ISO 5277
Crystallizing Point (dry)	°C	5.35 min	ISO 5278

10. METHYLBENZENES (Toluenes). *Methylbenzene* shall be of a quality meeting one of the two grades below, which are generally in accordance with ISO 5272:

		Grade A	Grade B	
Clarity		Clear and free from separated impurities		Visual
Colour (Pt-Co)		20 max	20 max	ISO 2211
Density at 20°C	kg/m ³	864–868	864–868	ISO 5281
Undissolved water at 20°C		Absent	Absent	Visual
Distillation Range	°C		1.0 max inc 110.6	ISO 4626
Acid wash colour		1 max	1 max	ASTM D848
Total Sulphur	mg/kg	2 max	150 max	ISO 5282
Neutrality		Neutral	Neutral	ISO 5276
Residue on evaporation	g/m ³	50 max	50 max	ISO 5277
Benzene Content	% m/m	0.10 max	0.50 max	ISO 5279
Non-aromatics	% m/m	0.25 max		ISO 5279
C8 aromatic Content	% m/m	0.10 max		ISO 5279
Copper Corrosion			1 max	ISO 2160
Thiol Content			Negative	ISO 5275

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