〈부 록〉

아시아 지역 국가별 휘발유 규격

1. 中國

Standard for RON 90# gasoline & actual test results

Test items	National Standard GB484-93	Actual test result	Test method	
			Standards in China	Correspondents
Anti-knock test				
RON	min. 90	90.8	GB/T 5487	ASTM D2699
Anti-knock index	min. 85	85.5	GB/T 503	ASTM D2700
Lead content. g/ℓ	max. 0.35	0.22	GB/T 6535	ISO 2083
Distillation			GB/T 6536	ASTM D86
10% recovered ℃	max. 70	56		
50% recovered ℃	max. 120	104		
90% recovered ℃	max. 190	174		
End point ℃	max. 205	199		
RVP. kpa			GB/T 8017	ASTM D323
Winter	max. 88	57		
Summer	mac. 74	–		
Existent gum.				
mg/100mℓ	min. 5	1.9	GB/T 8019	ISO 6206
Induction period				
minute	max. 480	876	GB/T 8018	ASTM D525
Sulfur. %(m/m)	max. 0.15	0.005	GB/T 380	lamp method
Copper corrosion				
50℃ 3h. class	max. 1	1	GB/T 5096	ASTM D130
Acidity				
mgKOH/100mℓ	max. 1	0.1	SH/T 0116	
Water & impurities	nil.	nil		
Doctor test	pass.	pass	SH/T 0174	ISO 5275

Standards for MON 70# gasoline & actual test results

Test items	Trade Standard SH 0112-92	Actual test result	Test method	
			Standards in China	Correspondents
MON	min. 70	72.0	GB/T 503	ASTM D2699
Lead. g/ℓ	max. 0.35	0.10	GB/T 6535	ISO 2083
Distillation			GB/T 255	–
10% recovered	max. 79 ℃	64		
50% recovered	max. 145℃	102		
90% recovered	max. 195℃	161		
End point	max. 205℃	193		
Residue	max. 1.5%(v/v)	1.0		
Residue & loss	max. 4.5%(v/v)	3.0		
RVP. kpa			GB/T 257	–
Winter	max. 80	52		
Summer	max. 67			
Existent gum	max. 5mg/100mℓ	2.1	GB/T 509	–
Induc. period	min. 480min	502	GB/T 256	–
Sulfur	max. 0.15%(m/m)	0.011	GB/T 380	lamp method
Copper corrosion 50℃ 3h.	max. 1 class	1	GB/T 5096	ASTM D130
Reaction	neutral	neutr.	GB/T 258	–
Acidity(mgKOH/100mℓ)	max. 3	0.1	SH/T 0116	–
Water & Impurities	nil.	nil		

Standard SH0041-93 for un-leaded gasoline

Test items	Limits			Test method	
	90#	93#	95#	Standard in China	Correspondent
Anti-knock test					
RON. min	90	93	95	GB/T 5487	ASTM D2699
(RON + MON)/2. min	85	88	90	GB/T 503	ASTM D2700
Lead. g/ℓ max	0.013			GB/T 8020	ASTM D3237
Distillation				GB/T 6536	ASTM D86
10% recovered. C. max	70				
50% recovered. C. max	120				
90% recovered. C. max	190				
End point. C. max	205				
Residue. %(v/v). max	2				
RVP. kpa				GB/T 8017	ASTM D323
1 Sep.-29 Feb. max	88				
1 Mar.-31 Aug. max	74				
Gum. mg/100mℓ. max	5			GB/T 8019	ISO 6206
Induction period. minute. min	480			GB/T 8018	ASTM D525
sulfur. %(m/m). max	0.15			GB/T 380	lamp method

Doctor test.	pass	SH/T 0174	ISO 5275
Mercaptan sulfur. %(m/m). max	0,001	GB/T 1792	ASTM D3227
Copper corrosion (50℃. 3h) class. max.	1	GB/T 5096	ASTM D130
Acidity. mgKOH/100mℓ	nil	GB/T 259	–

Classified gasoline products % shares in 1992

Classification		% share	Classification		% share
Leaded	MON 70#	26.1		MON 70#	28.1
	RON 90#	27.2	Unleaded 46%	RON 90#	15.6
54%	RON 93#. 97#	0.7		RON 93#. 97#	2.3

2. 印度

DRAFT UPDATE CEN UNLEADED GASOLINE SPECIFICATION

	PREMIUM	REGULAR(a)	TEST METHOD
RON min	95.0	–	ISO 5164
MON min	85.0	–	ISO 5163
LEAD. g/l max	0.013	0.013	ASTM D3237
BENZENE. % vol. max	5.0	5.0	ASTM D2267
SULPHUR. % wt max	0.10(b)	–	EN 41
GUM. mℓ/100mℓ. max	5	1	ISO 2160
APPEARANCE	CLEAR AND BRIGHT VISUAL		
OXIDATION STABILITY. mins. min.	380		
Density. kg/cu. m.	725~780		
OXYGENATES	AS PER DIRECTIVE 85/536/EEC		
WATER TOLERANCE	TO BE DEFINED		

VOLATILITY	CLASS				
	1	2	3	4	5
RVP kpa	350~700	450~800	550~900	600~950	700~1050
E70% vol.	10~45	10~45	15~47	15~57	20~50
VLI max (RVP+7E70)	900	1000	1100	1200	1300
E100% vol.	38~65	38~65	43~70	43~70	43~70
E180% vol. min	85	85	85	85	85
EBP degc max.	215	215	215	215	215

(a) PROPERTIES MARKED MUST BE SPECIFIED IN NATIONAL STANDARD.
(b) SULPHUR REDUCED To 0.05% wt. FROM 1995

3. 인도네시아

SPECIFICATION PREMIUM GASOLINE AND PREMIX GASOLINE

CHARACTERISTIC	UNIT	PREMIUM[1]		PREMIX[2]		TEST METHOD	
		MIN	MAX	MIN	MAX	ASTM	OTHER
RON	ON	88		91.5		D.2669	
TEL Content	mℓ/AG		1.5		1.5	D.2547	
Distillation						D.36	
10% vol. evac. at	℃		74		74		
50% vol. evac. at	℃	88	125[3]	88	125[3]		
90% vol. evac. at	℃		180		180		
End Point	℃		205		205		
Residu	% vol		2.0		2.0		
R. V. P	PSi		9[3]		9[3]	D.323	
Existent Gum	mg/100mℓ		4		4	D.381	
Induction Period	min	240		240		D.525	
Sulphur Content	% wt		0.20		0.20	D.1266	
Copperstrip Corrotion 3 hrs/122 of	ASTM No.		No.1		No.1	D.130	
Doctor Test or			Neg.		Neg.		IP30
Alternative Mercaptan Sulphur	% wt		0.0025		0.0025	D.1219	
Colour		Yellow		Orange			
Dye Content	g/100AG	Yellow 0.5		Red 0.5			
MTBE	% vol			10			
Odour		Marketable		Marketable			

Note :
1. The Decree of Director General for Oil and Gas Number : 18K/72/DOJM/1990 :
2. The Decrea of Director General for Oil and Gas Number : 21K/72/DOJM/1990 :
3. Permitted by using voiatility Adjustment Table.

4. 이 란

Standard and typical annual average (1993) specifications of super gasoline

Property	Limiting Values	Typical Values	Test' Method ASTM
Appearance	Clear and bright		
Colour (1kg/1000m³)	Light blue		D.2392
Specific gravity at 60/60°F	To be reported	0.7495	D.1298
Distillation			D.86
10% evaporated at (℃)	45 max.	58.5	
50% evaporated at (℃)	115 max.	92.2	
90% evaporated at (℃)	180 max.	141.3	

Final boiling point at(℃)	205 max.	169.6	
Residue(% vol)	3 max.	0.8	
Loss(% vol)	To be reported	0.6	
Sulphur, total(wt %)	0.1 max.	0.0219	D.1266
Copper strip corrostion (3 hr at 50℃) Class	No. 1	No.1	D.130
Reid Vapor Pressure Seasonal(Psi) :			D.323
Mid Nov.-Mid March	10 max.	7	
Mid March-Mid May	9 max.	7	
Mid May-Mid Sept	8 max.	7	
Mid Sept-Mid Nov.	9 max.	7	
Gum Existent(mg/100mℓ)	4 max.	2	D.381
Oxidation resistance at 100℃ (Induction Period)	480 min.	···	D.525
Lead(gm/U.S. Gallons)	2.11 max.	1.55	D.526
Research Octane numer	95 min.	95.1	D.2699
Mercaptan Content(ppm)	5 max.	3	D.1219

1. The latest issues of the relevant test methods shall be used

Standard and typical annual average (1993) specifications of regular gasoline

Property	Limiting Values	Typical Values	Test' Method ASTM
Appearance	Clear and bright		
Colour(1kg/1000m³)	Light red		
Specific gravity at 60/60°F	To be reported	0.722	D.1298
Distillation			D.86
10% evaporated at(℃)	65 max.	54	
50% evaporated at(℃)	115 max.	81	
90% evaporated at(℃)	180 max.	134.6	
Final boiling point at(℃)	205 max.	165.1	
Residue(% vol)	2 max.	0.9	
Loss(% vol)	To be reported	0.9	
Sulphur, total(wt %)	0.1 max.	0.0211	D.1266
Copper strip corrosion (3 hr at 50℃) Class	No. 1	No.1	D.130
Reid Vapor Pressure Seasonal(Psi) :			D.323
Mid Nov.-Mid March	10 max.	7.9	
Mid March-Mid May	9 max.	7.9	
Mid May-Mid Sept	8 max.	7.9	
Mid Sept-Mid Nov.	9 max.	7.9	
Gum Existent(mg/100mℓ)	4 max.	1.3	D.381

Oxidation resistance at 100℃ (Induction Period)	480min.	〉700	D.525
Lead(gm/U.S. Gallons)	2.11max.	1.13	D.526
Research Octane numer	87min.	87.1	D.2699
Mercaptan Content(ppm)	5 max.	〈5	D.1219

1. The latest issues of the relevant test methods shall be used

5. 말레이시아

PREMIUM MOGAS

Date : 1 February 1993

NO.	PROPERTIES	UNIT	MIN	MAX	METHOD
1	Density @ 15℃	kg/ℓ	Report		ASTM D 1298
2	Colour		Orange		Visual
3	Vapour Pressure(Reid)	kPa		70	ASTM D 323
4	Distillation				ASTM D 86
	Initial boiling point	℃		40	
	10% evaporated	℃	75	74	
	50% evaporated	℃		115	
	90% evaporated	℃		180	
	Final boiling point	℃		215	
	Residue	vol. %		2.0	
5	Lead	g/ℓ		0.15	ASTM D 3341
6	Total Sulphur	wt %		0.15	ASTM D 3120
7	RON		97.0		ASTM D 2699
8	Copper Corrosion(3 hours. 50℃)			1	ASTM D 130
9	Existent Gum	mg/100mℓ		4	ASTM D 381

UNLEADED PREMIUM MOGAS

Date : 1 February 1993

NO.	PROPERTIES	UNIT	MIN	MAX	METHOD
1	Density @ 15℃	kg/ℓ	Report		ASTM D 1298
2	Colour		Yellow		Visual
3	Vapour Pressure(Reid)	kPa		70	ASTM D 323
4	Distillation				ASTM D 86
	Initial boiling point	℃		40	
	10% evaporated	℃	75	74	
	50% evaporated	℃		115	
	90% evaporated	℃		180	
	Final boiling point	℃		215	
	Residue	vol. %		2.0	
5	Lead	g/ℓ		0.013	ASTM D 3237
6	Total Sulphur	wt %		0.15	ASTM D 3120

7	RON		97.0		ASTM D 2699
8	Copper Corrosion(3 hours. 50℃)			1	ASTM D 130
9	Existent Gum	mg/100mℓ		4	ASTM D 381

REGULAR MOGAS RON 92

Date : 1 February 1993

NO.	PROPERTIES	UNIT	MIN	MAX	METHOD
1	Density @ 15℃	kg/ℓ	Report		ASTM D 1298
2	Colour		Orange		Visual
3	Vapour Pressure(Reid)	kPa		70	ASTM D 323
4	Distillation				ASTM D 86
	Initial boiling point	℃		40	
	10% evaporated	℃	75	74	
	50% evaporated	℃		115	
	90% evaporated	℃		180	
	Final boiling point	℃		215	
	Residue	vol. %		2.0	
5	Lead	g/ℓ		0.15	ASTM D 3341
6	Total Sulphur	wt %		0.15	ASTM D 3120
7	RON		92.0		ASTM D 2699
8	Copper Corrosion(3 hours. 50℃)			1	ASTM D 130
9	Existent Gum	mg/100mℓ		4	ASTM D 381

Note : Only available at Sabah and Sarawak effective from 1st July 1992

REGULAR MOGAS RON 85

Date : 1 February 1993

NO.	PROPERTIES	UNIT	MIN	MAX	METHOD
1	Density @ 15℃	kg/ℓ	Report		ASTM D 1298
2	Colour		Orange		Visual
3	Vapour Pressure(Reid)	kPa		70	ASTM D 323
4	Distillation				ASTM D 86
	Initial boiling point	℃		40	
	10% evaporated	℃	75	74	
	50% evaporated	℃		115	
	90% evaporated	℃		180	
	Final boiling point	℃		215	
	Residue	vol. %		2.0	
5	Lead	g/ℓ		0.15	ASTM D 3341
6	Total Sulphur	wt %		0.15	ASTM D 3120
7	RON		85.0		ASTM D 2699
8	Copper Corrosion(3 hours. 50℃)			1	ASTM D 130
9	Existent Gum	mg/100mℓ		4	ASTM D 381

6. 네 팔

Nepalese National Standards for Motor gasoline (petrol)

S. no.	Characteristics	Requirements		Method of test ref. to part of NS : 237
		83 Octane	93 Octane	
1	Colour, visual	Orange	red	–
2	Copper strip corrosion for 3 hrs at 50℃	Not worse than No. 1	Not worse than No. 1	part :
3	Density at 15℃	Not limited but to be reported	Not limited but to be reported	part : 3
4	Distillation			
a)	Initial boiling point	Not limited but to be reported	Not limited but to be reported	part : 4
b)	Recovery up to 70℃ percent by volume, Min	10	10	part : 4
c)	Recovery up to 125℃ percent by volume, Min	50	50	part : 4
d)	Recovery up to 180℃ percent by volume, Min	90	90	part : 4
e)	Final boiling point, Max	215℃	215℃	part : 4
f)	Residue, percent by volumn, Max.	2	2	part : 4
5	Octane number (research method) Min.	83	93	part : …
6	Oxidation stability in minutes, Min	360	360	part : …
7	Residue on evaporation, mg/100mℓ, max.	4.0	4.0	part : …
8	Sulphur, total, % by weight, Max.	0.25	0.2	part : …
9	Lead content (as Pb), gm/ℓ, Max.	0.56	0.80	part : …
10	Reid vapour pressure at 38℃ kgf/㎠, Max.	0.70	0.70	part : …

7. 泰 國

SPECIFICATION FOR AUTOMOTIVE GASOLINE

TEST ITEMS	LIMITS	REGULAR GASOLINE	PREMIUM GASOLINE				TEST METHOD ASTM
			LEADED		UNLEADED		
			TYPE Ⅰ	TYPE Ⅱ	TYPE Ⅰ	TYPE Ⅱ	
1. OCTANE NUMBER							
RESEARCH OCTANE NUMBER							D2699
PRODUCER	MIN	87.0	95.0	95.0	95.0	95.0	
RETAILER	MIN	86.6	94.6	94.6	94.6	94.6	
MOTOR OCTANE NUMBER							D2700
PRODUCER	MIN	76.0	84.0	84.0	84.0	84.0	
RETAILER	MIN	75.6	83.6	83.6	83.6	83.6	
2. LEAD CONTENT, g/ℓ							D3341
BEFORE 1 JAN. 1995	MAX	0.15	0.15	0.15	0.013[1]	0.013[1]	D3116[1]
SINCE 1 JAN. 1995	MAX	0.013[1]	0.15	0.15	0.013[1]	0.013[1]	
3. SULPHUR CONTENT, %wt.	MAX	0.15	0.15	0.15	0.10	0.10	D1266
4. PHOSPHORUS CONTENT, g/ℓ	MAX	–	–	–	0.0013[2]	0.0013[2]	D3231
5. COPPER STRIP CORROSION, NUMBER	MAX	1	1	1	1	1	D130

6. OXIDATION STABILITY. MINS.	MAX	360	360	360	360	360	D525
7. EXISTENT GUM. g/100mℓ	MAX	0.004	0.004	0.004	0.004	0.004	D381
8. DISTILLATION. ℃							D86
10% vol. EVAPORATED	MAX	70	70	70	70	70	
50% vol. EVAPORATED	MIN	70	70	70	70	70	
	MAX	110	110	110	110	110	
90% vol. EVAPORATED	MAX	170	170	170	170	170	
FBP. ℃	MAX	200	200	200	200	200	
RESIDUE. %vol.	MAX	2.0	2.0	2.0	2.0	2.0	
9. REID VAPOUR PRESSURE @ 37.8℃ kpa							
NON-OXYGENATE BLENDS	MAX	62	62	62	62	62	D323
OXYGENATE BLENDS	MAX	62	62	62	62	62	D4953
10. BENZENE. % vol.	MAX	3.5	3.5	3.5	3.5	3.5	D3606
11. AROMATIC. % vol.							D4420
SINCE. 1 JAN. 1994	MAX	–	50	50	50	50	
SINCE. 1 JAN. 2000	MAX	–	35	35	35	35	
12. COLOUR		RED[3]	PALE[4] YELLOW	PALE[4] YELLOW	GREEN[5]	GREEN[5]	(1) VISUAL INSPECT
HUE							(2) D2392
DYE CONTENT. mg/ℓ	MIN	10.0	–	–	4.0	4.0	
INTENSITY	MIN	–	0.5	0.5	–	–	(3) D1500
	MAX	–	1.0	1.0	–	–	
13. WATER. % wt.							
NON-OXYGENATE BLENDS	MAX	NIL	NIL	NIL	NIL	NIL	VISUAL INSPECT
OXYGENATE BLENDS	MAX	0.7	0.7	0.7	0.7	0.7	E203
14. OXYGENATED COMPOUNDS. % vol.	MIN	–	–	5.5	–	5.5	D4815
	MAX	10.0	10.0	10.0	10.0	10.0	–
15. PFI/IVDC ADDITIVE							
BEFORE 1 JAN. 1995	MIN	–	X	X	X	X	DCR
SINCE 1 JAN. 1995	MIN	X	X	X	X	X	REQUIREMENT
16. APPEARANCE		BRIGHT AND CLEAR				VISUAL INSPECT	

Notes : 1. Test Method for Unleaded Premium Gasoline and Unleaded Regular Gasoline
2. Conduct the Test When Having Phosphorus in the Additive
3. Use Alkyl Derivative Compounds of Azobevzeve-4-AZO-Naphthol and use test Method (1) or (2)
4. Use Test Method (3) YELLOW YELLOW

SPECIFICATION FOR HIGH SPEED DIESEL

Properties	Limits	No. 1	No. 2	Test Methods
1. Specific Gravity	MIN	0.81	0.81	ASTM D 1298
at 15.6/15.6℃	MAX	0.87	0.87	
2. Cetane Mumber of	MIN	47	47	ASTM D 613
Calculated Cetane Index	MIN	47	47	ASTM D 976
3. Viscosity at 40℃ cst	MIN	1.8	1.8	ASTM D 445
	MAX	4.1	4.1	
4. Pour Point. ℃	MAX	10	10	ASTM D 97