(4) PETROLEUM PRODUCTS. Petroleum products means gasoline, gasoline/alcohol-ether blends, aviation gasoline, automotive gasoline, kerosene, fuel oil, burner fuel oil and diesel fuel oil.

(5) PETROLEUM PRODUCT USER. Petroleum product user means a user who has its own storage location and who does not receive its petroleum products from a pipeline terminal, marine terminal, pipeline tank farm or bulk plant in this state or from such a facility located in Michigan, Minnesota, Iowa or Illinois that is inspected by the department, and who uses such petroleum products for its own consumption.

History: Cr. Register, July, 1980, No. 295, eff. 8-1-80.

PART II—PETROLEUM PRODUCT SPECIFICATIONS

Ind 10.04 Gasoline specifications. (1) GASOLINE, AUTOMOTIVE GASOLINE, AND GASOLINE/ALCOHOL-ETHER BLENDS. Gasoline, automotive gasoline, and gasoline/alcohol-ether blends sold or offered for sale in this state shall be visually free of undissolved water, sediment and suspended matter and shall be clear and bright at the ambient temperature or 70° F (21° C), whichever is higher.

(a) *Gasoline.* Any petroleum product designated by name or reference as gasoline shall meet the requirements of Table 10.04-A.

TABLE 10.04-A
MINIMUM REQUIREMENTS FOR GASOLINE

Test	Requirement	ASTM Test Method[a/]
Distillation temp., deg F (deg C):		D86
Initial boiling point (max.)	131° F (55° C)	
Not less than 10% evaporation	167° F (75° C)	
Not less than 50% evaporation	284° F (140° C)	
Not less than 90% evaporation	392° F (200° C)	
End point (max.)	437° F (225° C)	
Natural residue (max.)	2%	

[a/] Pursuant to s. 168.07, Stats., the latest revision of the ASTM Book of Standards of the American Society for Testing and Materials shall be used.

(b) *Automotive gasoline.* Any petroleum product designated by name or reference as automotive gasoline shall meet the requirements of tables 10.04-B1 and 10.04-B2.

TABLE 10.04-B1
REQUIREMENTS FOR AUTOMOTIVE GASOLINE

Test	Gasoline Volatility Class C	Gasoline Volatility Class D	Gasoline Volatility Class E	ASTM Test Method [a]
Distillation temperature, deg F (deg C):				D86
10% Evaporation (max.)	140° F (60° C)	131° F (55° C)	122° F (50° C)	
50% Evaporation (min.)	170° F (77° C)	170° F (77° C)	170° (77° C)	
50% Evaporation (max.)	240° F (116° C)	236° F (113° C)	230° F (110° C)	
90% Evaporation (max.)	365° F (185° C)	365° F (185° C)	365° F (185° C)	
End point (max.)	437° F (225° C)	437° F (225° C)	437° F (225° C)	
Residue (max.)	2%	2%	2%	
Vapor/Liquid Ratio				D2533
Test temperature	124° F (51° C)	116° F (47° C)	105° F (41° C)	
Vapor/liquid (max.)	20	20	20	
Reid Vapor Pressure (psi. max.)	11.5	13.5	15.0	D323 or D2551
Lead Content (g/gal. max.)				D2547
Unleaded	.05	.05	.05	(Below 0.5 g/gal. use D2547, D2599 or D3237)
Conventional	4.2	4.2	4.2	
Corrosion (copper strip) (max.)	No. 1	No. 1	No. 1	D130
Gum (mg/100 ml, max.)	5	5	5	D381
Sulfur (weight, % max.)				D1266 or D2622
Leaded	.25	.25	.25	
Unleaded	.25	.25	.25	
Anti-Knock Index[b]				D2700, D2885 or D2699

[a] Pursuant to s. 168.07, Stats., the latest revision of the ASTM Book of Standards of the American Society for Testing and Materials shall be used.

[b] The anti-knock index $\left[\frac{(R + M)}{2}\right]$ shall be posted on the pump and the number shall be rounded off to a whole number or half number equal to or less than the determined octane rating.

Note: Under an emergency situation, such as a shortage of gasoline, the department may accept the requirements established in the ASTM Emergency Standard Specifications for Automotive Gasoline (ES 5-79).

TABLE 10.04-B2
WISCONSIN SCHEDULE OF SEASONAL VOLATILITY CLASSES

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
E	E	E/D	D	D/C	C	C	C	C	C/D	D/E	E

(c) *Gasoline/alcohol-ether blends.* Alcohol-ether may be added to gasoline provided the original gasoline product meets the requirements of section Ind 10.04 (1) (b). The alcohol or ether concentrations shall not exceed the following:

1. Methyl tertiary butyl ether (MTBE). A concentration of 7 volume percent or less.

2. Tertiary butyl alcohol (TBA). A concentration of 7 volume percent or less.

3. Ethyl alcohol. A concentration of 10.5 volume percent or less.

4. Methyl alcohol. A concentration of one volume percent or less. Department approval is required on any concentrations exceeding the one volume percent.

(2) AVIATION GASOLINE. Any petroleum product designated as aviation gasoline shall meet the requirements of Table 10.04-C.

TABLE 10.04-C
REQUIREMENTS FOR AVIATION GASOLINES [a/]

Minimum Grade Requirements	Grade 80	Grade 100	Grade 100LL	ASTM Test Method [b/]
Knock value, min. octane number, lean rating	80	100	100	D 2700 [c/]
Knock value, min. octane number, rich rating	87	isooctane plus 1.28 ml of tetraethyllead per gallon	isooctane plus 1.28 ml of tetraethyllead per gallon	D 909
Color	red	green	blue	D 2392
Dye content:				
Permissible blue dye, max. mg/gal	0.5	4.7	5.7	
Permissible yellow dye, mg/gal	none	5.9	none	
Permissible red dye, max. mg/gal	8.65	none	none	
Tetraethyllead [d/], max. ml/gal	0.5	4.0	2.0	D 2547, D 2599 or D 3341
Net heat of combustion, min. Btu/lb	18 720	18 720	18 720	D 1405 or D 3338

Requirements for all Grades (Table 10.04-C continued)

Distillation temperature, deg F (deg C):		
10% evaporated, max. temp.	167 (75)	D 86
40% evaporated, min. temp.	167 (75)	
50% evaporated, max. temp.	221 (105)	
90% evaporated, max. temp.	275 (135)	
Final boiling point, max. deg F (deg C)	338 (170)	
Sum of 10 and 50% evaporated temperatures, min. deg F (deg C)	307 (135)	
Distillation recovery, min. percent	97	
Distillation residue, max. percent	1.5	
Distillation loss, max. percent	1.5	
Acidity of distillation residue	shall not be acid	D 1093
Vapor pressure, max. lb.	7.0	D 323 or D 2551
Copper strip corrosion, max.	No. 1	D 130
Potential gum (5 h aging gum), max. mg/100 ml	6	D 873
Visible lead precipitate e/, max. mg/100 ml	3	D 873
Sulfur, wt. max., percent	0.05	D 1266 or D 2622
Freezing point, max. deg F (deg C)	-72 (-58)	D 2386
Water reaction	volume change not to exceed ± 2 ml	D 1094
Permissible antioxidants f/, max. lb/1000 bbl (42 gal)	4.2	

a/ Aviation gasoline shall be free from water, sediment and suspended matter. The odor of the fuel shall not be nauseating or irritating. No substances of known dangerous toxicity under usual conditions of handling and use shall be present.

b/ Pursuant to s. 168.07, Stats., the latest revision of the ASTM Book of Standards of the American Society for Testing Materials shall be used.

c/ The knock values shown in Table 10.04 represent aviation method ratings. Motor octane ratings obtained by ASTM method D 2700 should be converted to aviation ratings, or method D 614 may be used to obtain ratings directly. (See Appendix for conversion table.)

d/ The tetraethyllead shall be added in the form of an antiknock mixture containing not less than 61 weight percent of tetraethyllead and sufficient ethylene dibromide to provide 2 bromine atoms per atom of lead. The balance shall contain no added ingredients other than kerosene, and an approved inhibitor, and blue dye.

e/ The visible lead precipitate requirement applies only to leaded fuels.

f/ Permissible antitoxidants are as follows:

N, N′ — diisopropyl-para-phenylenediamine
N, N′ — di-secondary-butyl-para-phenylenediamine
2, 4 — dimethyl-6-tertiary-butylphenol
2, 6 — ditertiary butyl-4-methylphenol
2, 6 — ditertiary butylphenol

Mixed tertiary butylphenols, composition:
75% 2, 6 — ditertiary butylphenol
10 to 15% 2, 4, 6 — tritertiary butylphenol
10 to 15% o-tertiary butylphenol.
72% min 2, 4-dimethyl-6-tertiary butylphenol, and 28% max monomethyl and dimethyl tertiary butylphenols. These inhibitors may be added to the gasoline separately or in combination, in total concentration not to exceed 4.2 lb of inhibitor (not including weight of solvent) per 1000 bbl (42 gal).

History: R. and recreate from Ind 10.03, Register, July, 1980, No. 295, eff. 8-1-80; Table 10.04-B1 reprinted to correct error, Register, September, 1980, No. 297.