TABLE 32

Gasoline Storage Data at 43.3 °C (110 °F), mg/100 ml[1]

Gasoline[2]	Inorganic residue	Insoluble gum	Soluble gum	Total gum	Inorganic residue	Insoluble gum	Soluble gum	Total gum
	Initial tests				8 weeks test			
1	0.0	0.4	1.3	1.7	0.5	0.5	2.2	2.7
2	0.0	.2	.9	1.1	.4	.5	1.9	2.4
3	.1	.2	7.5	7.7	.1	.4	8.5	8.9
4	.0	.2	1.1	1.3	.1	.4	1.6	2.0
5	.0	.3	2.0	2.3	.0	.3	2.8	3.1
6	.1	.2	1.1	1.3	.1	.2	1.5	1.7
7	.1	.1	3.3	3.4	.3	.3	5.3	5.6
8	.2	.2	2.6	3.0	.1	.3	4.1	4.4
9	.2	.2	2.7	2.9	11.6	1.7	8.3	10.0
10	.1	.3	2.9	2.3	1.5	.7	4.4	5.1
11	.1	.2	1.6	1.8	.7	.6	2.4	3.0
12	.0	.2	2.1	2.3	.2	.6	4.2	4.8
13	.0	.4	1.2	1.6	.1	.2	1.5	1.7
	16 weeks test				32 weeks test			
1	4.8	1.0	4.7	5.7	10.7	2.1	8.0	10.1
2	1.0	.7	5.0	5.7	9.5	6.6	57.0	63.6
3	.4	.7	7.9	8.6	3.0	1.2	10.1	11.3
4	.2	.5	2.1	2.6	1.4	1.2	6.4	7.6
5	.4	.4	4.5	4.9	11.0	1.7	9.8	11.5
6	.1	.4	1.8	2.2	.2	.6	3.8	4.4
7	.7	.6	7.5	8.1	2.3	1.8	18.0	19.8
8	.5	.4	6.2	6.6	1.2	1.5	10.3	11.8
9	19.0	2.9	8.2	11.0	29.1	3.3	28.5	31.8
10	3.2	1.1	6.2	7.3	13.2	3.2	41.9	45.1
11	2.0	.7	3.3	4.0	5.9	2.9	7.3	10.2
12	.9	1.5	8.1	9.6	18.8	8.6	93.2	101.8
13	.1	.2	1.4	1.6	.1	.4	1.9	2.3
	44 weeks test				52 weeks test			
1	-	-	-	-	20.3	3.8	15.9	19.9
2	11.0[3]	8.1[3]	102.2[3]	110.3[3]	34.4	8.6	139.4	148.0
3	7.5	2.0	31.5	33.5	19.5	4.4	52.5	56.9
4	3.4	7.1	70.0	77.1	8.6	5.8	92.0	97.8
5	27.5	2.9	8.9	11.8	32.3	2.7	7.4	10.1
6	11.2	2.5	50.3	52.8	17.9	1.7	70.8	72.5
7	7.3	2.8	37.0	39.8	23.1	4.8	58.5	63.3
8	2.6	1.3	18.9	20.2	5.3	2.3	26.9	29.2
9	47.0	3.1	56.8	59.9	65.1	3.4	65.1	68.5
10	39.9	4.7	90.4	95.1	60.4	3.9	91.7	95.6
11	13.2	1.4	26.9	28.3	28.4	4.6	58.7	63.3
12	48.5[4]	7.0[4]	95.0[4]	102.0[4]	67.0	8.9	151.7	160.6
13	2.5	.8	2.3	3.1	3.9	1.2	5.2	6.4

[1] Average of duplicate bottle storage.
[2] Commercial and military gasolines.
[3] [illegible]-week storage of gasoline 2 bottle only.

Ta. [illegible]m Reference No. 99

TABLE 33

Oven Tests of Commercial and Military Gasolines, 16 Hours at 93.3 °C (200 °F) in Bottles[1]

Gasoline	Initial tests				16 hours						
	Inorganic residue	Insoluble gum	Soluble gum	Total gum	Inorganic residue	Insoluble gum	Soluble gum	Total gum	O_2 in air in outage, pct	MF_{16}[2]	O_2 reacted, pct
					SET 1						
1	0.0	0.4	1.3	1.7	2.0	1.2	3.8	5.0	17.3	0.58	17.6
2	.0	.2	.9	1.1	1.0	1.3	6.5	7.8	4.0	5.43	81.0
3	.1	.2	7.5	7.7	1.6	1.0	9.3	10.3	17.3	.46	17.6
4	.0	.2	1.1	1.3	.3	.8	2.5	3.3	17.8	.30	15.2
5	.0	.3	2.0	2.3	6.0	.9	5.2	6.1	17.1	.71	18.6
6	.1	.2	1.1	1.3	.1	1.2	2.1	3.3	20.3	.07	3.3
7	.1	.1	3.3	3.4	1.5	1.0	11.4	12.4	15.9	2.19	24.3
8	.2	.2	2.8	3.0	1.0	1.0	6.2	9.2	16.9	1.21	19.5
9	.2	.2	2.7	2.9	7.3	1.8	10.4	12.2	9.2	5.23	56.2
10	.1	.3	2.0	2.3	2.1	.8	5.3	6.1	13.9	1.28	33.8
11	.1	.2	1.6	1.8	1.8	1.2	5.6	6.8	15.3	1.36	27.1
12	.0	.2	2.1	2.3	1.0	3.7	10.8	14.5	1.0	11.61	95.2
13	.0	.4	1.2	1.6	.4	1.2	2.1	3.3	20.8	.02	1.0
					SET 2						
1	0.0	0.3	1.4	1.7	2.7	1.6	4.8	6.4	17.9	0.70	14.8
2	.1	.4	3.4	3.8	1.4	1.8	11.8	13.6	1.5	9.10	92.9
3	.1	.2	7.8	8.0	1.6	1.0	10.2	11.2	15.4	.85	26.7
4	.1	.1	1.5	1.6	.2	1.0	2.7	3.7	18.2	.28	13.3
5	.1	.2	1.7	1.9	3.8	1.0	7.7	8.7	18.3	.88	12.9
6	.0	.3	2.1	2.4	.4	.8	1.9	2.7	20.4	.01	2.9
7	.0	.3	5.2	5.5	1.6	.9	11.6	12.5	14.5	2.17	31.0
8	.0	.2	2.3	2.5	1.3	.8	8.5	9.3	16.5	1.45	21.4
9	.0	.4	2.7	3.1	6.8	1.9	9.0	10.9	11.7	3.46	44.3
10	.1	.2	2.2	2.4	2.6	.8	8.7	9.5	7.7	4.49	63.3
11	.1	.2	1.8	2.0	1.9	1.0	4.8	5.8	15.3	1.03	27.1
12	.1	.2	5.2	5.4	.9	2.0	12.2	14.2	1.3	6.25	93.8
13	.0	.2	2.0	2.2	.4	1.0	1.9	2.9	20.8	.01	1.0

[1] Gum and residue data presented as mg gum/100 ml gasoline.

[2] $MF_{16} = \frac{\text{pct } O_2 \text{ reacted}}{100}$ (total gum after 16 hours - total initial gum)

Taken from Reference No. 99

TABLE 34

Comparison of Determined and Predicted Gum Formation in 43.3 °C (110 °F) Storage, mg/100 ml

Gasoline No.	8 weeks			16 weeks			32 weeks		
	Determined	Predicted	Deviation	Determined	Predicted	Deviation	Determined	Predicted	Deviation
1	2.7	3.0	-0.3	5.7	3.4	+2.3	10.2	8.8	+1.4
2	2.4	4.0	-1.6	5.7	8.0	-2.3	63.6	68.8	-5.2
3	8.9	9.1	- .2	8.6	9.4	-0.8	11.3	14.9	-3.6
4	2.0	2.6	- .6	2.6	2.7	- .1	7.6	5.2	+2.4
5	3.1	3.7	- .6	4.9	4.1	+ .8	11.5	10.8	+0.7
6	1.7	2.5	- .8	2.2	2.5	- .3	4.4	2.9	+1.5
7	5.6	5.1	+ .5	8.1	6.3	+1.8	19.8	24.5	-4.7
8	4.4	4.5	- .1	6.6	5.2	+1.4	11.8	16.4	-4.6
9	10.0	5.1	+4.9	11.0	7.5	+3.5	31.8	43.9	-12.1
10	5.1	4.2	+ .9	7.3	5.8	+1.5	45.1	29.9	+15.2
11	3.0	3.3	- .3	4.0	3.9	+ .1	10.2	14.0	-3.8
12	4.8	5.8	-1.0	9.6	11.2	-1.6	102	94	+8
13	1.7	2.8	-1.1	1.6	2.9	-1.3	2.3	4.2	-1.9
14	3.4	4.2	- .8	3.7	4.3	- .6	5.3	5.6	- .3
15	3.3	3.6	- .3	5.1	3.7	+1.4	12.3	4.4	+7.9
16	1.9	3.7	-1.8	2.9	3.7	- .8	3.4	3.7	- .3
17	1.9	2.3	- .4	3.5	2.7	+ .8	8.2	8.7	- .5
18	2.1	3.4	-1.3	3.7	4.1	- .4	10.8	15.4	-4.6
19	2.1	2.8	- .7	3.9	3.2	+ .7	8.4	8.3	+ .1
20	4.0	3.2	+ .8	5.0	4.3	+ .7	10.8	21.0	-10.2
21	1.8	2.5	- .7	2.9	2.6	+ .3	5.0	5.1	- .1
22	5.1	4.8	+ .3	5.2	5.4	- .2	10.5	13.9	-3.4
23	2.7	2.2	+ .5	2.6	2.2	+ .4	3.7	2.6	+1.1
24	4.7	3.0	+1.7	4.7	3.0	+1.7	6.3	3.6	+2.7

Taken from Reference No. 2

TABLE 35

Comparison of Determined and Predicted Precipitate Formation in 43.3 °C (110 °F) Storage, mg/100 ml

Gasoline	8 weeks			16 weeks			32 weeks		
No.	Determined	Predicted	Deviation	Determined	Predicted	Deviation	Determined	Predicted	Deviation
1	0.5	1.0	-0.5	4.8	1.2	+3.6	10.7	5.0	+5.7
2	.4	0.9	- .5	1.0	1.1	-0.1	9.5	3.0	+6.5
3	.1	1.0	- .9	0.4	1.1	- .7	3.0	3.7	-0.7
4	.1	.9	- .8	.2	0.9	- .7	1.4	1.4	0
5	0	1.1	-1.1	.4	1.6	-1.2	11.0	9.3	+1.7
6	.1	.9	- .8	.1	.9	- .8	0.2	1.4	-1.2
7	.3	1.0	- .7	.7	1.1	- .4	2.3	3.7	-1.4
8	.1	.9	- .8	.5	1.1	- .6	1.2	3.0	-1.8
9	11.6	1.2	+10.4	19.0	1.9	+17.1	29.1	13.1	+16.0
10	1.5	1.0	+ .5	3.2	1.2	+2.0	13.2	5.0	+8.2
11	.7	1.0	- .3	2.0	1.2	+ .8	5.0	4.2	+ .8
12	.2	.9	- .7	.9	1.0	- .1	18.8	2.6	+16.2
13	.1	.9	- .8	.1	1.0	- .9	.1	1.6	-1.5
14	.1	.9	- .8	.1	1.0	- .9	.4	1.9	-1.5
15	.1	.9	- .8	.2	.9	- .7	2.2	1.2	+1.0
16	.1	.9	- .8	.1	.9	- .8	.1	1.2	-1.1
17	.1	1.0	- .9	.5	1.2	- .7	3.7	4.7	-1.0
18	.1	1.1	-1.0	.4	1.5	-1.1	5.5	8.6	-3.1
19	.2	1.0	- .8	.4	1.2	- .8	3.3	4.3	-1.0
20	.4	1.2	- .8	1.0	1.8	- .8	10.3	11.9	-1.6
21	0	1.0	-1.0	.1	1.1	-1.0	1.1	3.1	-2.0
22	.1	1.0	- .9	.5	1.3	- .8	5.0	5.4	- .4
23	.1	.9	- .8	.2	.9	- .7	.3	1.4	-1.1
24	.2	.9	- .7	.3	.9	- .6	.4	1.4	-1.0

Taken from Reference No. 2

Table 36

Test Properties of 24 Gasolines From 43.3 ° C (110 ° F) And 93.3 ° C (200 ° F) Stability Tests

Gasoline test properties[1]	Fresh sample	Storage at 110° F: 8 weeks	16 weeks	32 weeks	52 weeks	16-hr oven test, 200° F
Gasoline No. 1:						
Total gum	1.7	2.7	5.7	10.2	19.9	5.7
Precipitate	.0	.5	4.6	10.7	20.3	2.4
Oxygen	21.0					17.6
Gasoline No. 2:						
Total gum	1.1	2.4	5.7	63.6	148	10.1
Precipitate	.0	.4	1.0	9.5	34.4	1.2
Oxygen	21.0					2.7
Gasoline No. 3:						
Total gum	7.7	8.9	8.6	11.3	66.9	10.8
Precipitate	.1	.1	.4	3.0	19.5	1.6
Oxygen	21.0					16.3
Gasoline No. 4:						
Total gum	1.3	2.0	2.6	7.6	97.8	3.5
Precipitate	.0	.1	.2	1.4	9.6	.3
Oxygen	21.0					18.0
Gasoline No. 5:						
Total gum	2.3	3.1	4.9	11.5	10.1	7.4
Precipitate	.0	.0	.4	11.0	32.3	4.9
Oxygen	21.0					17.7
Gasoline No. 6:						
Total gum	1.3	1.7	2.2	4.4	72.5	3.0
Precipitate	.1	.1	.1	.2	17.9	.3
Oxygen	21.0					20.3
Gasoline No. 7:						
Total gum	3.4	5.6	8.1	19.8	83.3	12.5
Precipitate	.1	.3	.7	2.3	23.1	1.8
Oxygen	21.0					15.4
Gasoline No. 8:						
Total gum	3.0	4.4	6.6	11.8	29.2	9.3
Precipitate	.2	.1	.5	1.2	5.3	1.2
Oxygen	21.0					16.7
Gasoline No. 9:						
Total gum	2.9	10.0	11.0	31.8	68.5	11.6
Precipitate	.2	11.6	19.0	29.1	65.1	7.1
Oxygen	21.0					10.4
Gasoline No. 10:						
Total gum	2.3	5.1	7.3	45.1	95.6	7.8
Precipitate	.1	1.5	3.2	13.2	60.4	2.4
Oxygen	21.0					10.8
Gasoline No. 11:						
Total gum	1.8	3.0	4.0	10.2	63.3	6.3
Precipitate	.1	.7	2.0	5.0	28.4	1.9
Oxygen	21.0					15.3
Gasoline No. 12:						
Total gum	2.3	4.8	9.6	102	161	14.4
Precipitate	.0	.2	.9	18.8	57.0	1.8
Oxygen	21.0					1.2
Gasoline No. 13:						
Total gum	1.6	1.7	1.6	2.3	6.4	3.1
Precipitate	.0	.1	.1	.1	3.9	.4
Oxygen	21.0					20.6
Gasoline No. 14:						
Total gum	3.0	3.4	3.7	5.3	8.5	7.5
Precipitate	.1	.1	.1	.4	5.8	.6
Oxygen	21.0					20.3
Gasoline No. 15:						
Total gum	2.4	3.3	5.1	12.3	38.6	4.5
Precipitate	.0	.1	.2	2.2	17.2	.2
Oxygen	21.0					20.1
Gasoline No. 16:						
Total gum	2.5	1.9	2.9	3.4	6.3	2.9
Precipitate	.0	.1	.1	.1	5.4	.2
Oxygen	21.0					21.0
Gasoline No. 17:						
Total gum	0.9	1.9	3.5	8.2	12.3	5.1
Precipitate	.1	.1	.5	3.7	15.6	2.2
Oxygen	21.0					17.7
Gasoline No. 18:						
Total gum	1.9	2.1	3.7	10.8	13.3	7.1
Precipitate	.1	.1	.4	5.5	25.2	4.5
Oxygen	21.0					15.8
Gasoline No. 19:						
Total gum	1.5	2.1	3.9	8.4	12.6	4.6
Precipitate	.8	.2	.4	3.3	15.8	2.0
Oxygen	21.8					16.9
Gasoline No. 20:						
Total gum	1.5	4.0	5.0	10.8	15.0	8.7
Precipitate	.1	.4	1.0	10.3	28.5	6.4
Oxygen	21.0					12.9
Gasoline No. 21:						
Total gum	1.2	1.8	2.9	5.0	10.3	4.0
Precipitate	.1	.0	.1	1.1	8.1	1.3
Oxygen	21.0					18.8
Gasoline No. 22:						
Total gum	3.4	5.1	5.2	10.5	16.0	6.9
Precipitate	.0	.1	.5	5.0	14.9	2.6
Oxygen	21.0					14.9
Gasoline No. 23:						
Total gum	1.0	2.7	2.8	3.7	8.3	2.2
Precipitate	.0	.1	.2	.3	2.6	.3
Oxygen	21.0					20.3
Gasoline No. 24:						
Total gum	1.6	4.7	4.7	6.3	8.4	3.4
Precipitate	.0	.2	.3	.4	.5	.3
Oxygen	21.0					20.1

[1]Gum and precipitate in mg/100 ml of fuel, oxygen in percent. Oxygen not determined for 43.3 ° C (110° F) storage test.

Taken from Reference No. 2 and 104

TABLE 37

Results of Sample Analyses for MIL-G-46015 Gasoline, Automotive, Combat, Referee Grade

	ASTM D-381, Existent gum (mg/100 ml)	I.S.D. Index (mg/100 ml)	ASTM D-525, Oxidation Stability (minutes)	ASTM D-2550 W.S.I.M.
Specification Limit	4 max.	2 max.[1]	480 min.	N.R.[2]
4th. Month Sampling From				
Lab Control[3]	4	0.1	975	60
Sample Tank[4]	92	1.1	1300	27
Control S[5]	11	0.1	1080	–
Control W[6]	7	0.2	1400	45
Control E[7]	4	0.1	1300	–
6th Month Sampling From				
Lab Control	3	0.0	1020	55
Sample Tank	136	2.7	1400	20
Control S	9	0.5	810	–
Control W	12	0.3	1350	50
Control E	14	0.3	1250	–
8th Month Sampling From				
Lab Control	3	0.0	1050	48
Sample Tank	153	3.5	1350	13
Control S	8	0.3	945	–
Control W	9	0.3	1400	42
Control E	13	0.3	1300	–
12th Month Sampling From				
Lab Control	5	0.8	990	40
Sample Tank	213	4.3	1300	21
Control S	6	0.4	1400	–
Control W	10	0.1	870	32
Control E	5	0.1	1400	–

[1]The 2.0 maximum for Induction System Deposition is a proposed limit.
[2]Not required for this specification.
[3]One gallon of fuel stored at controlled laboratory temperature.
[4]Fuel stored in 500-gallon collapsible container.
[5]Fuel stored in 55 gallon standard olive drab drum at ambient conditions.
[6]Fuel stored in 55 gallon white drum at ambient conditions.
[7]Fuel stored in 55 gallon drum with experimental solar reflective olive drab exterior coaing at ambient conditions.

Taken from Reference No. 69

TABLE 38

Properties of Federal Specification Gasolines Indicative of Storage Stability

Sample	Storage Period, Months	Reid Vapor Pressure, lb	Oxidation Stability, Minutes	Existent Gum mg/100 ml	
				Unwashed	Washed
Low Leaded Gasoline[1]	0	8.7	>1440	5.4	0.8
	6	9.4	>1440	3.8	0.5
Low Leaded Gasoline[1]	0	10.3	>1440	66	0.2
	6	10.0	>1440	69	0.2
Unleaded Gasoline[1]	0	10.8	>1440	117	0.5
	6	5.2	>1440	137	0.3
Low Leaded Gasoline[1]	0	11.7	>1440	0.7	0.5
	6	11.6	>1440	2.4	1.2
Low Leaded Gasoline[1]	0	11.6	>1440	2.0	0.2
	6	11.6	>1440	4.9	3.4
Unleaded Gasoline[1]	0	9.8	555	0.9	0.4
	6	8.9	430	3.2	1.9
Low Leaded Gasoline[1]	0	11.4	420	2.1	1.3
	6	11.2	385	4.1	3.0
Low Leaded Gasoline[1]	0	11.3	>1440	2.4	1.1
	6	10.3	>1440	7.2	2.0
Leaded Gasoline[2]	0	10.9	>1440	3.1	1.0
	6	9.0	>1440	3.8	2.2
Leaded Gasoline[2]	0	11.0	>1440	1.3	0.1
	6	10.6	>1440	2.7	1.3
Leaded Gasoline[2]	0	10.3	>1440	4.0	1.3
	6	6.1	>1440	5.6	2.0
Leaded Gasoline[2]	0	11.5	>1440	16.6	0
	6	10.4	>1440	19.7	0.6

[1] Gasoline samples meeting VV-G-001690 requirments
[2] Gasoline samples meeting VV-G-768 requirements

Taken from Reference No. 11

TABLE 39

43.3° C (110° F) Storage Test Data for Leaded Gasolines (Regular) (gum, mg/100 ml)

Sample[1]	Initial				4th Week				8th Week				16th Week				32nd Week			
	Soluble		Insol.	Precip.	Soluble		Insol.	Precip.	Soluble		Insol.	Precip.	Soluble		Insol.	Precip.	Soluble		Insol.	Precip.
	Unwashed	Washed			Unwashed	Washed			Unwashed	Washed			Unwashed	Washed			Unwashed	Washed		
7417	2.2	0.2	0	0	A - 28.1[2]	1.1	1.0	3.1	A - 4.2	0.5	0.7	0.1	A - 4.3	1.7	0.6	0.2	A - 5.8	3.9	2.6	2.2
					B - 3.3	0.9			B - 3.9	1.3			B - 3.2	1.4			B - 6.8	3.0		
7431	2.7	0.2	0	0	A - 3.7	0.8	0.5	0.5	A - 3.7	1.2	0.6	0.6	A - 5.6	2.8	1.1	5.4	A - 6.5	4.6	1.4	10.5[3]
					B - 3.5	1.2			B - 4.3	2.6			B - 5.4	3.3			B - 6.7	5.0		
7478	138	3.9	0	0	A - 141	0.7	0.5	0.1	A - 143	0.4	0.5	0.1	A - 157	1.9	1.0	1.2	A - 157	2.6	1.6	7.1
					B - 132	0.8			B - 138	0.6			B - 188	1.4			B - 147	1.3		
7483	18.9	0	0	0	A - 18.3	0.6	0.5	0.1	A - 19.2	1.3	0.5	0.1	A - 18.8	2.3	0.8	0.6	A - 22.8	0.8	0.6	0.2
					B - 17.0	0.7			B - 15.6	0.6			B - 18.2	2.2			B - 24.9	1.2		
7496	0.8	0.1	0	0	A - 0.9	0.3	0.8	0.8	A - 2.7	1.4	0.7	0.3	A - 2.2	0.3	0.8	0.5	A - 2.2	0.4	0.8	0.2
					B - 1.4	0.4			B - 1.6	0.6			B - 2.4	0.3			B - 2.1	0.6		
7502	2.4	0.8	0	0	A - 3.6	1.8	0.5	0.5	A - 9.5	0.7	1.1	2.1	A - 17.1	10.9	2.3	4.7	A - 17.5	11.9	2.4	7.2
					B - 3.9	2.4			B - 10.8	8.0			B - 11.8	8.1			B - 22.1	16.4		
7507	0.1	0	0	0	A - 0.4	0	0.5	0	A - 0.7	0.2	0	0	A - 0.9	0.3	0.3	0.2	A - 0.5	0	0.2	0.6
					B - 0.3	0.1			B - 0.5	0.2			B - 1.0	0.6			B - 0.4	0		
7513	3.2	1.1	0	0	A - 4.6	1.7	0.1	0	A - 10.5	14.2	2.5	15.5[3]	A - 24.8	17.9	4.6	39.6[3]	A - 29.0	15.5	5.4	54.6[3]
					B - 4.4	1.5			B - 19.7	14.2			B - 31.2	25.3			B - 30.8	17.0		
7578	31.3	0.3	0	0	A - 33.5	1.3	0.7	0.1	A - 32.9	0.1	0.5	0	A - 44.1	2.1	0.6	0.1	A - 36.0	0.2	0.4	0.1
					B - 30.4	1.0			B - 33.8	0.4			B - 52.1	1.8			B - 35.8	0.1		
7581	5.9	2.7	0	0	A - 11.2	7.0	0.7	0.3	A - 11.9	7.8	4.4	0.5	A - 80.2	70.0	10.0	8.4	A - 52.1	47.2	24.4	48.1
					B - 13.2	8.8			B - 13.2	9.9			B - 30.4	25.2			B - 104	98		
6951	2.3	—	0	0	A - 3.5	2.3	0.8	0.4	A - 2.5	1.6	0.5	0.4	A - 4.8	2.5	0.3	0.7	A - 6.5	3.4	0.9	2.4
					B - 3.6	1.6			B - 1.7	1.4			B - 4.3	2.3			B - 4.7	3.1		
6951[4]	2.3	—	—	—	1.5	—	0.5	0	3.9	—	0.7	0	4.2	—	0.3	0.2	5.4	—	1.0	0.2

[1]Leaded gasoline purchased from service stations
[2]Two independent determinations of soluble gum
[3]Lead salt precipitate
[4]Data from earlier program using different aeration procedure

Taken from Reference No. 10

BLE 40
43.3° C (110° F) Storage Test Data for Unleaded Gasolines[1] (gum mg/100 ml)

Sample[1]	Initial				4th Week				8th Week				16th Week				32nd Week			
	Soluble		Insol.[2]	Precip.	Soluble		Insol.[2]	Precip.	Soluble		Insol.[2]	Precip.	Soluble		Insol.[2]	Precip.	Soluble		Insol.[2]	Precip.
	Unwashed	Washed			Unwashed	Washed			Unwashed	Washed			Unwashed	Washed			Unwashed	Washed		
7418	6.8	0	0	0	A - 5.0[3]	0.4	0.2	0.1	A - 9.4	1.1	0.3	0.1	A - 9.3	1.4	0.3	0.1	A - 9.5	0.1	0.5	0.1
					B - 2.5[3]	0.4			B - 7.0	1.2			B - 6.6	0.3			B - 7.1	2.1		
7430	17.0	0	0	0	A - 17.5	0.4	0.7	0.1	A - 16.1	1.8	0.6	0.1	A - 16.2	1.2	0.8	0.4	A - 13.2	1.8	0.8	0.2
					B - 16.5	0.4			B - 13.1	1.5			B - 10.5	2.0			B - 12.3	3.4		
7479	0.9	0	0	0	A - 1.0	0.7	0.3	0.1	A - 2.0	0.9	0.6	0.1	A - 3.3	2.1	0.8	0.1	A - 5.4	4.5	1.1	0.6
					B - 1.2	1.0			B - 1.1	0.7			B - 3.3	2.7			B - 4.8	4.1		
7486	68.1	2.8	0	0	A - 73.2	0.7	0.5	0.2	A - 83.8	1.7	0.6	0	A - 98.4	21.6	0.9	0.2	A - 126	38.6	4.8	0.6
					B - 72.1	1.0			B - 78.9	1.1			B - 93.5	12.6			B - 126	44.2		
7494	19.2	0.1	0	0	A - 18.4	0.6	0.7	0.7	A - 18.5	0.9	0.7	0.1	A - 24.5	0.1	0.8	0.5	A - 24.5	0	1.1	0.1
					B - 18.4	0.4			B - 18.5	0.9			B - 18.9	0.3			B - 20.3	0		
7501	1.0	0.6	0	0	A - 3.4	1.2	0.8	0.2	A - 2.9	1.9	0.7	0.1	A - 3.1	2.2	1.0	0.1	A - 3.5	2.8	0.5	0
					B - 3.4	1.3			B - 2.7	1.6			B - 3.2	2.2			B - 3.9	3.3		
7506	5.3	1.0	0	0	A - 4.8	1.0	0.8	0.2	A - 7.3	2.0	0.6	0	A - 8.3	2.9	0.5	0.3	A - 11.3	10.6	2.8	0.5
					B - 4.7	0.8			B - 6.2	1.0			B - 8.3	3.9			B - 7.9	6.8		
7510	3.6	0.6	0	0	A - 2.6	1.3	0.1	0	A - 3.0	0.7	0.7	0.1	A - 3.4	1.8	0.7	0.2	A - 7.5	3.2	0.5	0.1
					B - 1.7	1.2			B - 1.8	0.4			B - 2.7	2.1			B - 8.1	3.8		
7577	13.4	0.1	0	0	A - 5.7	2.1	0.7	0.1	A - 5.7	1.9	0.6	0	A - 8.6	3.4	0.5	0.9	A - 8.2	1.5	0.9	0.1
					B - 5.4	2.6			B - 4.9	2.3			B - 10.2	3.8			B - 8.4	1.6		
7582	1.5	1.1	0	0	A - 2.0	0.8	0.5	0.1	A - 2.8	1.4	0.7	0	A - 4.1	2.4	0.6	0.1	A - 2.5	1.4	0.7	0.1
					B - 1.8	0.7			B - 2.7	1.4			B - 3.0	2.2			B - 2.2	1.4		
6976	4.0	0	0	0	A - 4.2	2.3	0.6	0	A - 1.5	0.8	0.4	0.1	A - 2.6	0.5	0.4	0.1	A - 4.1	1.9	0.8	1.2
					B - 3.3	1.5			B - 1.6	0.7			B - 2.6	0.6			B - 2.6	1.1		

[1] Unleaded gasolines purchased from service stations
[2] Sum of adherent plus filterable gum
[3] Two independent determinations of soluble gum

Taken from Reference No. 10

TABLE 41

Light-Scattering Data for Diesel Fuels

Fuel Composition[1]	Storage Time, Days	45 ° Scatter Intensity		Dissymmetry Coefficient	
		110 ° F. storage	130 ° F. storage	110 ° F storage	130 ° F. storage
100% RM SR	0	5.4	5.4	0.5	0.5
	2	7.3	7.3	0.7	0.6
	5	8.3	7.6	0.8	0.7
	8	9.0	8.2	0.9	0.8
	12	9.1	8.6	0.9	0.6
	18	10.8	12.6	1.1	1.3
	27	13.0	15.8	1.3	1.7
	55	23.0	34	2.4	3.3
100% WT CC	0	9.1	9.1	0.5	0.5
	2	11.3	16.1	0.3	0.8
	3	16.2	178	0.8	9.2
	8	93	252	5.6	12.2
	12	130	—	7.5	—
50% WT SR	0	7.3	7.3	0.1	0.1
50% WT CC	3	8.2	11.2	0.2	0.5
	6	14.4	34	0.9	2.6
	9	29	71	2.1	4.6
	13	45	85	3.3	5.7
	16	49	177	3.6	5.9
50% WMC SR	0	—	9.7	—	0.1
50% WMC CC	2	—	29	—	1.9
	6	—	67	—	3.9
	12	—	191	—	9.3
50% WMC SR	0	—	14.5	—	0.5
50% WMC CC	2	—	14.7	—	0.5
+ 0.01% additive B	6	—	14.2	—	0.4
	15	—	14.2	—	0.4
	19	—	14.4	—	0.4
50% EMC SR	0	6.5	6.5	0.1	0.1
50% EMC CC	3	40	81	3.6	6.4
	6	154	148	8.5	7.7
	9	169	190	7.3	8.5
	13	221	437	7.7	16.2
50% EMC SR	0	20	20	1.5	1.5
50% EMC CC	3	19	20	1.3	1.3
+ 0.02% additive A	6	17	18	1.1	1.2
	9	17	43	1.0	3.4
	13	38	86	2.9	6.6
	16	54	—	4.3	—
70% WMC SR	0	7.5	7.5	0.2	0.2
30% WMC CC	3	39	16.4	3.0	1.0
	6	76	38	5.5	3.3
	9	76	39	5.3	3.2
70% WMC SR	0	26	26	1.9	1.9
30% WMC CC	3	26	22	1.8	1.4
+ 0.01% additive B	6	23	19	1.7	1.3
	9	19	15	1.3	0.9

[1]SR. Straight run.
CC. Catalytically cracked.
RM. Rocky Mountain.
WT. West Texas.
EMC Eastern mid-continent
WMC. Western mid-continent.

TABLE 42

Accelerated Stability Data on British Navy Diesel Fuels[1]

	Period of storage[3]	Sediment (mean results) mg/100 ml[2]					
		A	B	C	D	E	F
A,B,C,F[4]	2weeks	0.5	0.2	0.8			16.2
D and E	1 week				0.1	2.8	
A,B,C,F	6 weeks	0.3	0.2	0.6			49.0[5]
D and E	4 weeks				0.2	4.1	
A,B,C,F	13 weeks	0.3	0.2	0.8			18.3
D and E	13 weeks				0.4	3.2	
A,B,C,F	25 weeks	0.2	0.2	1.4			15.8
D and E	25 weeks				0.2	2.2	
A,B,C,F	37 weeks	0.2	0.2	1.6			13.3
D and E	41 weeks				0.2	1.2	
A,B,C,F	53 weeks	0.2	0.2	1.0			8.7
D and E	65 weeks				0.2	1.1	
A,B,C,F	77 weeks	0.4	0.6	1.9			3.6
D and E	79 weeks				Nil	3.1	
A,B,C,F	115 weeks	0.2	0.2	0.4			1.6
D and E	103 weeks				0.3	1.7	
A,B,C,F	117 weeks	0.3	0.7	1.9			1.7
D and E	165 weeks				0.4	1.6	

[1] Diesel fuels generally meeting requirements of British Navy.
[2] Accelerated Stability Test; oil aged for 16 hours at 99 ° C (210 ° F), sediment determined by filtering and weighing.
[3] Period of time oil was stored in tanks prior to test.
[4] Fuel F had higher sulfur content and lower cetane number than allowed by Royal Navy specifications.
[5] This is regarded as an outlier result.

Taken from Reference No. 92

TABLE 43

Storage Stability Data on British Navy Diesel Fuels[1]

	Period of storage[3]	Sediment (mean results) mg/100 ml[2]					
		A	B	C	D	E	F
A,B,C,F[4]	2weeks	0.5	0.3	0.4	0.5	3.1	16.0
D and E	1 week						
A,B,C,F	6 weeks	0.3	0.3	0.5	0.4	1.3	5.6
D and E	4 weeks						
A,B,C,F	13 weeks	0.3	0.3	0.7	0.1	3.0	29.0
D and E	13 weeks						
A,B,C,F	25 weeks	0.5	0.8	0.9	0.5	1.5	15.4
D and E	25 weeks						
A,B,C,F	37 weeks	0.3	0.3	0.7	0.5	0.7	5.1
D and E	41 weeks						
A,B,C,F	53 weeks	0.4	0.6	0.9	0.6	1.6	2.8
D and E	65 weeks						
A,B,C,F	77 weeks	0.7	2.1	3.4	0.8	3.0	4.3
D and E	79 weeks						
A,B,C,F	115 weeks	0.3	2.4	1.8	1.4	1.3	3.8
D and E	103 weeks						
A,B,C,F	177 weeks	1.6	4.1	3.2	1.5	3.5	4.6
D and E	165 weeks						
A,B,C,F	380 weeks	---	4.9	3.3	1.1	4.9	3.4
D and E	368 weeks						

1 Diesel fuels generally meeting requirements of British Navy.
2 Fuel aged 4 weeks at 49 °C (120 °F), sediment determined by filtering and weighing.
3 Period of time oil was stored in tanks prior to test.
4 Fuel F had higher sulfur content and lower cetane number than allowed by Royal Navy specifications.

Taken from Reference No. 92

TABLE 44

43.3 °C (110 ° F) Storage Data on Marine Diesel Fuels

BPRC sample number	Fuel type	Storage period at 43.3 °C (110 ° F)													
		0 Weeks		6 Weeks			12 Weeks			24 Weeks			36 Weeks		
		Gum, mg/100 ml	% Light	Gum, mg/100 ml		% Light	Gum, mg/100 ml		% Light	Gum, mg/100 ml		% Light	Gum, mg/100 ml		% Light
		soluble	trans.	insoluble	soluble	trans.	insoluble	soluble	trans.	insoluble	soluble	trans.	insoluble	soluble	trans.
237	SR[4]	1	89	0	5	85	0	2	86	--	--	--	--	--	--
238	CR[5]	10	87	0	14	82	0	19	81	--	--	--	--	--	--
242	--	9	69	0.6	17	62	0.7	14	59	1.3	10	39[2]	--	--	--
242-C[1]	--	--	--	0.5	3	68	--	--	--	.9	6	68[2]	--	--	--
243	--	3	81	.7	18	78	.9	13	64	1.8	11	40[2]	--	--	--
243-C[1]	--	--	--	.5	8	73	.8	8	69	.9	5	68[2]	--	--	--
245	SR	6	97	.3	8	97	.7	4	98	.5	2	91[2]	--	--	--
248	--	3	91	0	1	87	.8	5	84	.6	3	78[2]	--	--	--
248-C[1]	--	--	--	0	3	92	.4	4	86	.4	2	85[2]	--	--	--
256	SR	4	84	.5	4	69	.7	5	68	--	--	--	1.4	5	63
256-C[1]	--	--	--	0	4	80	.3	2	80	--	--	--	1.0	3	77
257	SR	1	96	0	0	97	0	1	93[2]	--	--	--	--	--	--
257-C[1]	--	--	--	0	1	99	0	1	91[2]	--	--	--	--	--	--
262	--	1	95	.5	3	78	0	3	70[2]	--	--	--	--	--	--
262-C[1]	--	--	--	.4	3	91	No sample		--	--	--	--	--	--	--
263	SR	1	98	--	--	--	.9	2	83	--	--	--	1.0	3	74
263A	SR	1	99	--	--	--	.8	1	93[2]	--	--	--	--	--	--
263B	SR	2	98	--	--	--	1.2	3	82[2]	--	--	--	--	--	--
264	--	7	98	.4	2	91	0	4	85[2]	--	--	--	--	--	--
264-C[1]	--	--	--	.4	1	94	0	3	90[2]	--	--	--	--	--	--
265	SR	1	98	--	--	--	.7	1	90[2]	--	--	--	--	--	--
267	SR	1	100	--	--	--	0	2	93[2]	--	--	--	--	--	--
268	SR	4	99	--	--	--	0	2	90[2]	--	--	--	--	--	--
269	--	1	100	--	--	--	0	2	93[2]	--	--	--	--	--	--
270	SR	1	100	--	--	--	0	1	97	--	--	--	1.1	5	89
272	SR	2	100	--	--	--	0	2	93	--	--	--	1.6	2	83
273	SR	2	99	--	--	--	0	2	84[2]	--	--	--	--	--	--
274	SR	2	99	--	--	--	0	2	77[2]	--	--	--	--	--	--
276	CR	6	63	1.2	9	64	1.7	8	58[2]	--	--	--	--	--	--
276-C[1]	--	--	--	.7	6	76	.5	9	69[2]	--	--	--	--	--	--
277	CR	8	97	--	--	70	2.1[3]	8	65	--	--	--	7.4	15	31
277-C[1]	--	--	--	--	--	83	.8[3]	5	79	--	--	--	3.1	8	45

Continued on next page

[1] 50:50 Blend with Bahrein number 245 for compatibility.
[2] Storage test completed.
[3] Tests after 10 weeks' storage
[4] SR = straight-run fuel
[5] CR = cracked fuel.

Taken from Reference No. 1

TABLE 44

43.3 °C (110 ° F) Storage Data on Marine Diesel Fuels --continued

BPRC sample number	Fuel type	Storage period at 43.3 °C (110 ° F)														
		0 Weeks		8 Weeks			12 Weeks			24 Weeks			36 Weeks			
		Gum, mg/100 ml	% Light	Gum, mg/100 ml		% Light	Gum, mg/100 ml.		% Light	Gum, mg/100 ml.		% Light	Gum, mg/100 ml		% Light	
		soluble	trans.	Insoluble	Soluble	trans.	Insoluble	Soluble	trans.	Insoluble	Soluble	trans.	Insoluble	Soluble	trans.	
278	CR	1	98	--	--	--	.4	9	65	--	--	--	3.1	9	51	
278-C[1]	--	--	--	--	--	--	0	5	80	--	--	--	1.5	6	67	
285	CR	1	93	--	--	--	1.2	5	63	--	--	--	3.8	12	38	
285-C[1]	--	--	--	--	--	--	.6	3	81	--	--	--	2.5	11	50	
286	CR	0	97	--	--	--	1.4	5	68	--	--	--	3.9	11	35	
286-C[1]	--	--	--	--	--	--	.6	4	84	--	--	--	2.3	16	53	
287	CR	1	88	--	--	--	1.1	6	64	--	--	--	1.9	7	59	
287-C[1]	--	--	--	--	--	--	.6	8	73	--	--	--	2.1	7	59	
288	CR	1	90	--	--	--	1.7	5	59	--	--	--	2.5	4	58	
288-C[1]	--	--	--	--	--	--	.5	8	76	--	--	--	1.9	4	53	
296	SR	2	99	--	--	--	.2	1	98	--	--	--	.6	1	94	
306	SR	4	53	--	--	--	1.2	5	27	--	--	--	4.1	18	23	
310	CR	4	78	--	--	--	.3	5	69	--	--	--	0.2	9	49	
310-C[1]	--	--	--	--	--	--	2.7	3	48	--	--	--	6.3	11	31	
311	CR	4	78	--	--	--	1.5	5	58	--	--	--	3.5	8	55	
311-C[1]	--	--	--	--	--	--	.8	3	62	--	--	--	2.7	10	50	
312	SR	3	87	--	--	--	0	4	33	--	--	--	2.3	23	16	
323	CR	4	81	--	--	--	2.0	10	64	--	--	--	2.6	7	56	
323-C[1]	--	--	--	--	--	--	1.7	9	65	--	--	--	3.8	11	38	
330	CR	4	94	--	--	--	2.3	7	63	--	--	--	2.3	6	66	
330-C[1]	--	--	--	--	--	--	1.2	6	69	--	--	--	1.3	9	61	
335	CR	4	94	--	--	--	2.0	9	61	--	--	--	2.1	7	64	
335-C[1]	--	--	--	--	--	--	1.3	7	70	--	--	--	1.4	9	62	
341	CR	3	84	--	--	--	1.8	7	53	--	--	--	3.1	9	53	
341-C[1]	--	--	--	--	--	--	.8	5	69	--	--	--	1.2	9	59	
355	SR	6	81	--	--	--	1.4	11	44	--	--	--	2.7	9	18	
364	CR	6	68	--	--	--	.9	4	46	--	--	--	1.3	5	27	
364-C[1]	--	--	--	--	--	--	.8	2	68	--	--	--	1.7	5	40	
365	CR	5	68	--	--	--	.9	3	56	--	--	--	1.6	5	31	
365-C[1]	--	--	--	--	--	--	.9	2	74	--	--	--	2.7	6	39	
366	CR	1	91	--	--	--	.8	2	70	--	--	--	1.0	3	50	
366-C[1]	--	--	--	--	--	--	.9	1	85	--	--	--	1.1	3	68	

[1] 50:50 Blend with Bahrein number 245 for compatibility.
[2] Storage test completed.
[3] Tests after 10 weeks' storage
[4] SR = straight-run fuel
[5] CR = cracked fuel.

Taken from Reference No. 1

TABLE 45

Stability Data Comparison On Marine Diesel Fuels[1]

Sample number	Soluble gum, mg/100 ml	British static beaker test[2], total sediment, mg/100 ml	Accelerated stability 16 hr at 95 °C (203 °F) Total insolubles, mg/100 ml		Storage Stability 12 weeks at 43.3 °C (110 °F) Insoluble gum, mg/100 ml
			Bureau of Mines	Oil company	
237	1	-	0	-	0
238	10	-	0	-	0
242	9	-	0	-	.7
243	3	-	0	-	.9
245	6	-	0.2	-	.7
248	3	-	0	-	.8
256	4	-	.4	0.3	.7
257	1	-	.4	.2	0
262	1	-	.6	1.1	0
263	1	-	.4	2.3	.9
263A	1	-	.1	.3	.8
263B	2	-	.2	1.9	1.2
264	7	-	.2	.3	0
265	1	-	.2	.2	.7
267	1	-	.6	.3	0
268	4	-	.5	.2	0
269	1	-	.7	-	0
270	1	-	.5	.5	0
[illegible]	2	-	.2	1.8	0
[illegible]3	2	-	.2	.8	0
274	2	-	0	.6	0
276	6	-	.4	.6	1.7
277	8	-	.6	.4	2.1[3]
278	1	-	.4	.2	.4
283	-	0	-	1.4	-
284	-	0	-	-	-
285	1	0.3	.7	.5	1.2
286	0	.4	.6	.5	1.4
287	1	.1	.6	1.0	1.1
288	1	.1	.6	.9	1.7
291	-	0	-	.1	-
296	2	.1	0	.8	.2
306	4	1.9	2.0	.2	1.2
310	4	.3	.6	.6	.3
311	4	1.3	.5	1.0	1.5
312	3	.4	.3	1.4	0
323	4	.5	.6	.9	2.0
330	4	.3	.7	-	2.3
335	4	.3	.8	-	2.0
341	3	0	.7	-	1.8
355	6	.6	.8	-	1.4
364	6	.4	.7	1.5	.9
365	5	.4	.8	1.5	.9
[illegible]	1	.7	1.4	1.5	.8

M.. Diesel Fuels meeting MIL-F-0016884(Ships) Specifications
16 hours at 98.9 °C(210 °F).
After 10 weeks in storage.

Taken from Reference No. 1

TABLE 46

Results of Sample Analyses for Fuel Oil Diesel, Grade DF-1[1]

	ASTM D-381, Existent gum (mg/100 ml)	ASTM D-2274, Accelerated Stability (mg/100 ml)	ASTM D-524, Carbon Residue (% wt.)	ASTM D-2550, W.S.I.M.
Specification Limit	N.R.[2]	2.0 max.	0.15 max.	N.R.
4th. Month Sampling From				
Lab Control[3]	10	0.9	0.07	20
Sample Tank[4]	23	2.9	0.04	9
Control S[5]	20	0.9	0.05	–
Control W[6]	19	0.6	0.07	15
Control E[7]	21	0.6	0.06	–
6th Month Sampling From				
Lab Control	16	1.0	0.05	18
Sample Tank	27	1.7	0.09	8
Control S	22	1.1	0.05	–
Control W	16	0.4	0.06	13
Control E	19	0.8	0.07	–
8th Month Sampling From				
Lab Control	20	1.1	0.06	21
Sample Tank	38	2.7	0.13	5
Control S	23	0.9	0.06	–
Control W	25	0.7	0.08	11
Control E	20	0.9	0.07	–
12th Month Sampling From				
Lab Control	25	1.1	0.06	20
Sample Tank	58	3.3	0.19	3
Control S	30	1.1	0.07	–
Control W	20	1.0	0.07	10
Control E	22	1.2	0.09	–

[1]Grade DF-1 Fuel Oil Diesel meeting Military Specification VV-F-800.
[2]Not required for this specification.
[3]One gallon of fuel stored at controlled laboratory temperature.
[4]Fuel stored in 500-gallon collapsible container.
[5]Fuel stored in 55 gallon standard olive drab drum at ambient conditions.
[6]Fuel stored in 55 gallon white drum at ambient conditions.
[7]Fuel stored in 55 gallon drum with experimental solar reflective olive drab exterior coaing at ambient conditions.

Taken from Reference No. 69

TABLE 47

Results of Sample Analyses for Fuel Oil Diesel, Grade DF-2[1]

	ASTM D-381, Existent gum (mg/100 ml)	ASTM D-2274, Accelerated Stability (mg/100 ml)	ASTM D-524, Carbon Residue (% wt.)	ASTM D-2550, W.S.I.M.
Specification Limit	N.R.[2]	2.5 max.	0.20 max.	N.R.[2]
4th. Month Sampling From				
Lab Control[3]	10	0.3	0.05	30
Sample Tank[4]	12	0.7	0.07	34
Control S[5]	12	0.4	0.03	–
Control W[6]	13	0.4	0.05	23
Control E[7]	12	0.3	0.05	–
6th Month Sampling From				
Lab Control	8	0.2	0.04	25
Sample Tank	16	0.5	0.07	9
Control S	10	0.4	0.05	–
Control W	15	0.4	0.03	26
Control E	10	0.4	0.04	–
8th Month Sampling From				
Lab Control	9	0.2	0.04	20
Sample Tank	18	0.7	0.05	7
Control S	12	0.5	0.04	–
Control W	11	0.1	0.04	22
Control E	19	0.4	0.04	–
12th Month Sampling From				
Lab Control	7	0.3	0.05	22
Sample Tank	22	0.9	0.07	4
Control S	12	0.3	0.04	–
Control W	11	0.1	0.05	25
Control E	13	0.2	0.04	–

[1]Grade DF-2 Fuel Oil Diesel meeting Military Specification VV-F-800, high sulfur content.
[2]Not required for this specification.
[3]One gallon of fuel stored at controlled laboratory temperature.
[4]Fuel stored in 500-gallon collapsible container.
[5]Fuel stored in 55 gallon standard olive drab drum at ambient conditions.
[6]Fuel stored in 55 gallon white drum at ambient conditions.
[7]Fuel stored in 55 gallon drum with experimental solar reflective olive drab exterior coating at ambient conditions.

Taken from Reference No. 69

TABLE 48

Results of Sample Analyses for Fuel Oil Diesel, Grade DF-2[1]

	ASTM D-381, Existent gum (mg/100 ml)	ASTM D-2274, Accelerated Stability (mg/100 ml)	ASTM D-524, Carbon Residue (% wt.)	ASTM D-2550, W.S.I.M.
Specification Limit	N.R.[2]	2.5 max.	0.20 max.	N.R.[2]
4th. Month Sampling From				
Lab Control[3]	15	0.1	0.04	10
Sample Tank[4]	16	0.2	0.10	6
Control S[5]	15	0.1	0.06	–
Control W[6]	18	0.2	0.03	7
Control E[7]	14	0.2	0.03	–
6th Month Sampling From				
Lab Control	16	0.1	0.03	7
Sample Tank	19	0.3	0.08	5
Control S	14	0.2	0.05	–
Control W	13	0.1	0.03	5
Control E	14	0.1	0.03	–
8th Month Sampling From				
Lab Control	13	0.1	0.04	7
Sample Tank	22	0.4	0.07	4
Control S	19	0.2	0.04	–
Control W	13	0.1	0.03	5
Control E	18	0.2	0.04	–
12th Month Sampling From				
Lab Control	12	0.1	0.03	8
Sample Tank	26	0.3	0.07	3
Control S	14	0.2	0.05	–
Control W	14	0.1	0.03	6
Control E	12	0.3	0.04	–

[1]Grade DF-2 Fuel Oil Diesel meeting Military Specification VV-F-800, low sulfur content.
[2]Not required for this specification.
[3]One gallon of fuel stored at controlled laboratory temperature.
[4]Fuel stored in 500-gallon collapsible container.
[5]Fuel stored in 55 gallon standard olive drab drum at ambient conditions.
[6]Fuel stored in 55 gallon white drum at ambient conditions.
[7]Fuel stored in 55 gallon drum with experimental solar reflective olive drab exterior coating at ambient conditions.

Taken from Reference No. 69

TABLE 49

Results of Sample Analyses for Fuel Oil Diesel, Marine[1]

	ASTM D-381, Existent gum (mg/100 ml)	ASTM D-2274, Accelerated Stability (mg/100 ml)	ASTM D-524, Carbon Residue (% wt.)	ASTM D-2550, W.S.I.M.
Specification Limit	N.R.[2]	2.5 max.	0.20 max.	N.R.[2]
4th. Month Sampling From				
Lab Control[3]	21	0.6	0.02	20
Sample Tank[4]	52	1.8	0.07	6
Control S[5]	29	0.8	0.02	–
Control W[6]	30	0.5	0.04	18
Control E[7]	25	0.7	0.04	–
6th Month Sampling From				
Lab Control	34	0.5	0.04	15
Sample Tank	68	2.9	0.16	12
Control S	41	1.0	0.08	–
Control W	30	0.9	0.07	19
Control E	36	1.1	0.04	–
Month Sampling From				
Lab Control	30	0.7	0.05	19
Sample Tank	54	3.1	0.19	10
Control S	28	1.5	0.10	–
Control W	36	1.3	0.09	15
Control E	40	1.1	0.11	–
12th Month Sampling From				
Lab Control	36	0.6	0.07	21
Sample Tank	66	3.0	0.24	3
Control S	30	1.7	0.11	–
Control W	34	0.8	0.10	18
Control E	43	1.6	0.09	–

[1]Fuel Oil Diesel, Marine, meeting Military Specification MIL-F-16884.
[2]Not required for this specification.
[3]One gallon of fuel stored at controlled laboratory temperature.
[4]Fuel stored in 500-gallon collapsible container.
[5]Fuel stored in 55 gallon standard olive drab drum at ambient conditions.
[6]Fuel stored in 55 gallon white drum at ambient conditions.
[7]Fuel stored in 55 gallon drum with experimental solar reflective olive drab exterior coating at ambient conditions.

Taken from Reference No. 69

TABLE 50

Particulate Contamination Values[1] for Diesel Fuels Stored in 100 BBL Tanks at Ambient Conditions

Storage Interval, months	mg/500 ml.			
	Fuel A[2]	Fuel B[2]	Fuel C[2]	Fuel D[2]
1	17.8	30.5	22.3	11.8
2	8.3	2.7	1.5	8.5
3	6.7	70.1	47.5	14.7
4	2.9	8.9	3.5	11.5
5	0.9	3.7	3.1	6.2
6	2.6 (2.8)	3.2 (5.6)	2.7 (4.4)	4.9 (6.2)
7	3.9	6.5	4.5	7.8
8	2.3	1.1	0.9	3.5
9	1.4	0.3	1.3	2.2
10	2.6	0.2	0.7	2.0
11	2.0	3.4	2.1	2.5
12	3.3 (3.2)	2.4 (4.8)	3.8 (1.8)	3.6 (6.6)
15	1.0	0.6	2.7	3.1
18	2.4 (2.6)	1.0 (2.0)	0.8 (2.0)	2.7 (2.6)
21	2.1	1.5	2.9	4.9
24	0.2 (1.2)	0.8 (0.4)	1.1 (2.1)	1.7 (2.3)

[1]Values shown were averages of top, middle and bottom samples. Those values shown in parenthesis are the laboratory control sample results.
[2]Diesel fuels meeting Fed. Spec. VV-F-800a.

Taken from Reference No. 70