

The Director of Intelligence,
Air Ministry (A.I.2.(g)),
King Charles Street, S.W.1.

A.I. 28.
AIR MINISTRY

8th October 1943

SECRET

Sample No. AIR 331

German Green C3 Aviation Gasoline

Report received from Shell, Cairo (Report S.298, Sample T.D.739)
covering analysis by The Anglo-Egyptian Oilfields, Limited, Suez

Specific Gravity	0.772
Colour (By inspection)	Brilliant, fluorescent green
Distillation - I.B.P.	52°C
Recovery @ 75°C	9%
100°C	46%
150°C	89%
F.B.P.	171°C
Total Recovery	98%
Residue	1%
Loss	1%
Odour	Good
Freezing Point	Below -60°C
Existent Gum	Nil
Vapour Pressure (lb./sq.in.)	4.0
Corrosive Sulphur (mg./100 ml.)...	0.27
Lead Content (mls.T.E.L./I.G.) ...	5.6
Sulphur	0.01%
Bromine No.	2
Octane No. (C.F.R. M.M.)	99

Hydrocarbon Analysis

Aromatics	41%
Paraffins	41%
Naphthenes	17%
Unsaturateds	1

Water Solubles	Nil
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The high octane number of 99 reported by Suez was not confirmed by a test on a sample received in U.K. The latter sample gave a figure of 96 which is in line with the octane number of recent German green fuels.

S.J.M.Auld
for The Petroleum Board

The Petroleum Board,
Shell-Mex House,
W.C.2.

SECRET

COPY

Department of Physical Chemistry,
Free School Lane,
Cambridge.

27th September 1943

The Secretary,
Petroleum Board Enemy Fuels Committee.

Enemy Fuel - Sample No. AIR 331 (Shell, Cairo Report S.298)

I give below spectroscopic analysis of this fuel made by examining the infra red and ultra violet spectra of the cuts of a distillation on the small I.C.I. still at the rate of 50 ml. per hour.

AROMATICS

The estimations were made on bulked cuts from a fast distillation in the small I.C.I. still (500 ml. distilled).

Benzene	6.8%
Toluene	11.3%
Xylenes (m/p = 4/1)	6.6%
Ethyl Benzene	4.5%
Hydrindenes	1.6%
<u>TOTAL</u>	<u>30.8%</u>

This total does not give the total aromatic in the fuel because the distillation was stopped at 150°C, and it was not possible to estimate the higher aromatics except the hydrindenes which are very strongly absorbing. In addition the residue showed an unidentified ultra violet absorption band.

OCTANES

An attempt was made with this fuel to estimate the individual octanes, although the cutting is not close enough to make the figures accurate. The values given for 22 DM Hexano, 223 and 233 TM Pontanes are certainly very inaccurate but those for 224 and 234 TM Pentanes and the total octano should be within 5-7% of the true values. Please note when comparing this analysis with previous ones that in the past 22 DM Hexano has been estimated with 224 TM Pentane, and 233 and 223 TM Pontanes with 234 TM Pontane.

224 TM Pentane	11.1%
22 DM Hexano	0.9%
223 TM Pentane	0.8%
234 TM Pentane	4.3%
233 TM Pentane	0.4%
<u>TOTAL</u>	<u>17.5%</u>

Yours faithfully,
(Sd) A.R.Philpotts.

SECRETGerman Ammunition

A captured German document published on 21st June, 1943, gives the following information on some types of ammunition now available for use against Tanks and aircraft fuel tanks:

<u>Calibre</u>	<u>Type</u>	<u>Target</u>
15 mm.	Armour-piercing with Tungsten carbide core (either percussion or electrically detonated)	Medium Tanks
20 mm. Gerlikon	Incendiary Tracer. (Day and night trace available)	Aircraft fuel tanks
20 mm. MG 151	Incendiary Tracer. (Day and night trace available). (Either percussion or electrically detonated)	Aircraft fuel tanks
3.7 cm.	Armour-piercing tracer (with Tungsten carbide core)	Heavy and Very Heavy Tanks

It is interesting to note the reference to 3.7 cm. ammunition; although no German aircraft with a weapon of this calibre has yet been identified in service in Italy or Africa, reports have been received that the Ju 87, armed with a 3.7 cm. gun, has been in use on the Russian front.

A.I.2(c)

25th September, 1943.

(A. LEWIS SEMOUR)

F/Lt.
for W/Odr.

/DISTRIBUTION:

AIR MINISTRY:

D.O.R.	1
D.A.T.	1
D.B. Ops.	1
D.F. Ops.	1
D.C. Ops.	1
A.D.I. (K)	1
E.45	1
No. 30 Mission	1
Air Tech. Sect. T.I.	27
D. of I. RAFDEL, Washington	3

HOME COME LINES:

Fighter Command	1
Tactical Air Force	1
Bomber Command	1
Coastal Command	1

OVERSEAS COME LINES:

H.Q., R.A.F., India	1
H.Q., R.A.F., M.E.	1
H.Q., M.W.A.A.F.	1
H.Q., R.A.F., Malta	1

DOMINION H.Q. in G.B.

H.Q., R.A.A.F.	1
H.Q., R.C.A.F.	1
H.Q., R.N.Z.A.F.	1
S.A. Air Liaison Officer	1

ARMY:

B.N.I.
N.A.D.

WAR OFFICE:

M.I.10.
C.I.S.A.

M.A.P.

C.A.D.
D. Arm. D.
R.D. Arm. 9.
R.D. Arm. 7.
R.D. Arm. 3(a).

The Director of Intelligence,
Air Ministry (A.I.2.(g)),
King Charles Street, S.W.1.

A.I. 26.1226

AIR MINISTRY

16th September 1943

SECRET

Samples Nos. AIR 324, AIR 325 and AIR 326 (received from Russia through Ministry of Economic Warfare - Ref.: M.E.W.No. 193)

AIR 324 - Used aviation lubricating oil from Focke-Wulf 200, Stalingrad Front, 20.3.43.

AIR 325 - Aviation lubricating oil from German plane "Heinkel", shot down on 17.6.43.

AIR 326 - Aviation lubricating oil taken out of drum No.5 on 1.2.43 in the region Velikiye Luki.

Analyses by Shell Marketing Co., Ltd., Fulham

AIR 324

Size of Sample	Approx.	$\frac{1}{2}$ -litre	$\frac{1}{2}$ -litre
Diluent		3.0%	3.0%
Sediment insoluble in 60/80°C I.P.Spirit		0.55%	0.24%
Ash (sulphated) ..		0.21%	0.11%
Nature		Essentially lead sulphate with some iron oxide.	

Tests on Used Oils after removal of diluent and filtration

Appearance	-	-	Red oil with slight greenish-blue bloom.	Dark red oil with medium green bloom.								
Specific Gravity	0.888	-	0.882	0.903								
Viscosity @ 100°F	<u>S.U.</u> 1321"	<u>Red.1</u> -	<u>C.s.</u> 286.0	<u>S.U.</u> 1310"	<u>Red.1</u> -	<u>C.s.</u> 283.6	<u>S.U.</u> 1211"	<u>Red.1</u> -	<u>C.s.</u> 262.2	<u>S.U.</u> 520"	<u>Red.1</u> -	<u>C.s.</u> 112.5
"40°F	-	366"	90.3	-	-	-	-	345"	85.3	-	165"	40.3
"10°F	105"	-	21.85	105"	-	21.78	104"	-	21.59	64"	-	11.54
Viscosity Index		100			100			105			98	
Ash	-	-	-	-	-	-	-	0.025%	-	-	0.015%	-
Nature	-	-	-	-	-	-	-	Sodium Sulphate	-	-	Sodium calcium and sulphate	-
Pour Point	-10°F	-	-	-	-	-	-	-10°F	-	-	- present	-
Saponification Value (mg.KOH/gm.)	0.30	-	-	-	-	-	-	0.50	-	-	0°F	-
Sulphur Content	0.33%	-	-	-	-	-	-	0.16%	-	-	0.10	-
Additives	Nitrogen, chlorine and phosphorus - absent.	-	-	-	-	-	-	0.72%	-	-	0.72%	-
Ramsbottom Coke No.	0.33	-	-	-	-	-	-	Nitrogen, chlorine and phosphorus - absent.	-	-	-	-
								0.20			0.32	

Two separate samples of AIR 324, used aviation lubricating oil, were received and differences between the results of sediment and sulphated ash determinations suggested that the samples represented two different used oils. However, further work indicated that the diluent and sediment free oils were similar so the

The Director of Intelligence,
Air Ministry (A.I.2.(g)),
King Charles Street, S.W.1.

SECRET

16th September 1943

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Samples Nos. AIR 324, AIR 325 and AIR 326 (received from Russia through Ministry of Economic Warfare - Ref.: M.E.W. No.193)

examination was completed on one sample only.
It is probable that the samples were taken from
different parts of the oil system of one engine
or from different engines of this particular
aircraft.

AIR 324 and AIR 325 are typical high-grade aero lubricants of the non-compounded 100 grade generally employed by the Germans. Both are of the low specific gravity, high V.I., low sulphur type, and are probably solvent extracted distillates blended with Bright Stock or solvent extracted long residuums.

AIR 326 is not a normal aero oil and is not typical of any product known to be in general use by the Germans. 60" oils are of course known to be used for special aviation purposes and AIR 326 may represent a special product for use at low temperature. Although the viscosity is so much lower, however, it is to be noted that the pour point is higher than that of AIR 324 and AIR 325. This oil, like the other two, is probably a blend of a solvent-treated distillate with a small proportion of Bright Stock.

S.J.M.Auld
for The Petroleum Board

The Petroleum Board,
Shell-Mex House,
W.C.2.

The Director of Intelligence,
Air Ministry (A.I.2.(g)),
King Charles Street, S.W.1.

16th September 1943

SECRET

Samples Nos. AIR 318, AIR 319, AIR 320 and AIR 321 (received through
Ministry of Economic Warfare - Ref.: M.A.F.4106/1)
Sample No. AIR 327 (received through Ministry of Economic Warfare
from Middle East - 5 x 10-gln. drums)

Green C3 German Aviation Gasoline

Analysis by The Petroleum Board, Vauxhall

These nine samples, by preliminary examination being identical, were
treated as one. Quantity on arrival approximately 72 gallons.

Specific Gravity	.7712
Colour	Green
Distillation - I.B.P.	48°C
Recovery at 70°C	7%
75°C	12½%
100°C	46%
105°C	52%
140°C	84%
150°C	89½%
F.B.P.	173°C
Total Recovery	97½%
Residue	1%
Freezing Point	Below -60°C
Vapour Pressure (lb./sq.in.)	4.6
Total Sulphur	0.02%
Existent Gum (mg./100 nls.)	5.0
Lead Content (nls.T.E.L./I.G.)	5.68
Octano Number	96/97
Octane Number of Base Fuel	83
Octane Number - Research Method....	0.56 ccs. T.E.L./U.S.gln.in Iso-octane
3C Rich Mixture Rating	Better than 125% of 130 grade.
<u>Hydrocarbon Analysis</u>	
Aromatics	42.5%
Paraffins	40.3%
Naphthenes	17.2%
<u>Individual Aromatics</u>	
Benzene	6.5%
Toluene	17.0%
Xylenes	11.0%
Higher Aromatics	8.0%
Bromine Number	1.5
Water Solubles	Nil
Phenols	0.0001%
<u>Deleaded and Aromatic Free Fuel</u>	
Aniline Point	62.8°C
Octane Number	79
Iron Carbonyl	Nil

This is a German Green C3 Gasoline of the recent modified type.

S.J.M.Auld
for The Petroleum Board

The Petroleum Board,
Shell-Mex House,
W.C.2.

THE PETROLEUM BOARD

SHELL-MEX HOUSE,

STRAND,

W.C.2.

TELEPHONE—TEMPLE BAR 1234

SJMA

SECRET

3rd September 1943

ENEMY OILS AND FUELS

OILS

OILS - Nos. AIR 313, AIR 314, AIR 315, AIR 316;
MAR.188, MECH.336, MECH.337, MECH.338, MECH.339, MECH.340;
MECH.341, MECH.342, MECH.343, MECH.351, MECH.358.

The attached reports on 15 enemy lubricating oils represent samples of captured material presumably selected locally by the Mobile Petroleum Laboratory as likely to be of particular interest. The analyses are cross referred to the Analysis Bulletin serials of the No.1 Mobile Petroleum Laboratory, R.A.S.C.

The reports may be commented upon as follows:

AIR 313 and AIR 314 - These, from their viscosities, are not aero engine oils and are probably used for motor transport purposes. They are probably mainly distillates from indigenous German crude oil of the "Reithbrook" type.

AIR 315 - This is an aero oil of the "120 second" class and is of the Pennsylvanian type containing appreciable quantities of Bright Stock. Its description as being "Clarenty Refined" is understood to refer to an arrangement made prior to the entry of Italy into the War in 1940 for the purchase from various American suppliers of aviation grade oils. "Clarenty" does not therefore refer to an individual refining company but to the purchasing agency.

AIR 316 - This is a mineral hydraulic oil somewhat similar in nature to previous oils of this description taken from the Italians.

MAR.188 is a marine steam cylinder oil possibly of asphaltic Rumanian crude oil origin. It has no special features.

MECH.336 - This is a blended M.T.oil of S.A.E.40 category. It contains some residual oil and may be a blend of such material with a solvent refined Rumanian distillate.

MECH.337 is a high-grade S.A.E.40 oil having a Viscosity Index of 100. It is solvent-refined and may be a blend of distillate and Bright Stock or derived from the treatment of a long residuum.

MECH.338 - This is similar in some respects to a solvent refined asphaltic Rumanian distillate, but its sulphur content and specific gravity are rather high for oil of this origin.

3rd September 1945

ITALIAN OILS AND FUELS

OILS - Nos. AIR 513, AIR 514, AIR 515, AIR 516;
AIR.168, MECH.336, MECH.337, MECH.338, MECH.339, MECH.340;
MECH.341, MECH.342, MECH.343, MECH.351, MECH.358.

MECH.339, MECH.340, MECH.341 and MECH.342 are all Ultradense in grade and the variation in viscosity between the oils (408 - 512 secs. Redwood 1 at 100°F) indicates the extent to which Italian oils of the same grade may vary in viscosity. The four oils are generally similar in physical properties and they may consist of "Reitbrook" oil. MECH.341 from its specific gravity value appears to contain a small amount of fatty matter.

MECH.343 - This is a high V.I. oil probably made up from solvent refined distillate and Bright Stock. From its specific gravity value this also appears to contain a small amount of fatty oil.

MECH.358 - The origin of this oil is not evident from the analysis.

MECH.351 - This is a high-grade high viscosity oil and resembles solvent refined German oils of the Hanover type. It is described as a Diesel Oil but would be heavy for motor transport work and may have been employed specially for heavier stationary engines.

The Director of Intelligence,
Air Ministry (A.I.2.(g)),
King Charles Street, S.W.1.

SECRET

3rd September 1945

Samples Nos. AIR 313, AIR 314, AIR 315 and AIR 316 (received through Ministry of Economic Warfare from Cairo - Ref.: M.A.F.4751/1 and M.A.F.4751/2.
(Compare Analyses L.32, L.33, L.35 and L.51 (respectively) of No.1 Mobile Petroleum Laboratory, R.A.S.C.).

AIR 313 - L.32; Olio Minerale Fluido R.A.
AIR 314 - L.33; Olio Minerale Semidensso R.A.
AIR 315 - L.35; Olio Minerale Denso III R.A. Clarenty Refined Oils. Made in U.S.A.
AIR 316 - L.51; Olio Minerale Incongoliabile Extrafluido Avio R.A.

Analyses by Shell Marketing Co., Ltd., Fulham

	AIR 313 3-pints	AIR 314 3-pints	AIR 315 3-pints	AIR 316 1-gallon
Size of Sample Approx.				
Appearance	Light red oil with slight green bloom	Red oil with slight green bloom	Dark red oil with heavy green bloom	Pale oil with slight blue bloom
Colour	-	-	-	1 (G)
Specific Gravity	0.917	0.921	0.894	0.888
Viscosity:				
Kinematic @ 32°F C.s.	-	-	-	112.4
" " 100°F "	92.2	200	355	15.06
" " 140°F "	29.8	55.3	106.8	-
" " 210°F "	8.10	12.62	25.17	3.11
Redwood 1 @ 140°F Secs.	124	226	433	-
Saybolt Universal @ 100°F "	426	926	1,640	-
" " 210°F "	52	68	120	-
Viscosity Index	41	37	100	59
Ash	← less than 0.01% →			
Flash Point, P.M., Closed	-	-	-	320°F
Open	-	-	-	345°F
Pour Point	Minus 20°F	Minus 10°F	Plus 10°F	Minus 55°F
Neutralization Value (mg.KOH/gm.)	-	-	-	Less than 0.05
Saponification Value (mg.KOH/gm.)	← Less than 0.05 →			
Sulphur	0.86%	0.94%	0.14%	0.11%
Addition Agents	← Nitrogen, Chlorine and Phosphorus - absent →			
Ramsbottom Coke No.	0.15	0.19	0.97	-
Aniline Point	-	-	-	82.8°C
Aniline Point after sulphonation (D.T.D.44-D Method)	-	-	-	92.4°C

The Petroleum Board, Shell-Mex House, W.C.2.

ENEMY OILS AND FUELS

Samples Nos. MAR.188, MECH.336, MECH.337, MECH.338, MECH.339 and MECH.340 (received through Ministry of Economic Warfare from Cairo - Ref.: M.A.F. 4731/1 (Compare Analyses L.36, L.31, L.34, L.37, L.38 and L.39 (respectively) of No.1 Mobile Petroleum Laboratory, R.A.S.C.)).

MAR. 188 - L.36; Ramsa Olio Interno Per La Lubrificazione Interna Di Macchine Marine. Minerale S.A. Fiumo.
 MECH.336 - L.31; Olio Minerale Semidenso Auto.
 MECH.337 - L.34; Semidenso Olio Lubrificante Freccia Azzurra.
 MECH.338 - L.37; LE OIL PBE. D.S.A.F. 209-181.
 MECH.339 - L.38; Olio Ultradenso R.E.Vacuum S.A. Prod. Petroliferi Genova.
 MECH.340 - L.39; Olio Minerale Ultradenso Societa NA-FTA. Genova.

Analyses by Shell Marketing Co., Ltd., Fulham

	<u>MAR.188</u>	<u>MECH.336</u>	<u>MECH.337</u>	<u>MECH.338</u>	<u>MECH.339</u>	<u>MECH.340</u>
Size of Sample	3-pints	3-pints	3-pints	3-pints	3-pints	3-pints
Appearance	Dark oil with dark-green bloom	Dark red oil with medium dark-green bloom	Dark red oil with heavy light-green bloom	Dark red oil with green bloom	Dark oil with heavy green bloom	Dark oil with dark-green bloom
Specific Gravity	0.966	0.915	0.892	0.934	0.932	0.931
Viscosity:						
Kinematic	@ 100°F .. C.s.	2295	198.5	175.4	184.7	563.1
"	" 140°F .. "	339.2	58.2	74.3	50.6	138.8
"	" 210°F .. "	39.73	13.92	15.87	11.55	26.82
Rodwood 1	@ 140°F .. Socs.	1,374	238	301	207	562
Saybolt Universal	@ 100°F .. Socs.	10,603	917	810	853	2,602
"	" 210°F .. "	184.5	73	80.5	64	127
Viscosity Index	-28	63	100	25	68	66
Ash	0.01%	Loss than 0.01%	Loss than 0.01%	Loss than 0.01%	Loss than 0.01%	0.01%
Nature of Ash	Iron oxide	-	-	-	-	Iron oxide
Pour Point	35°F	5°F	10°F	0°F	30°F	30°F
Saponification Value (mg.KOH/gm.)...	0.8	0.3	0.2	0.3	0.5	0.5
Sulphur	0.62%	0.24%	0.22%	0.59%	0.97%	0.81%
Addition Agents ..	Nitrogen present	← Chlorine, Phosphorus and Nitrogen - absent →				
Ramsbottom Coko No.	1.24	0.39	0.85	0.30	1.39	1.27

ENGINE OILS AND FUELS

Samples Nos. MECH.341, MECH.342, MECH.343, MECH.351 and MECH.358 (received through Ministry of Economic Warfare from Cairo - Ref.: M.A.F.4731/1 and M.A. F.4731/2 (Compare Analyses L.40, L.41, L.42, L.52 and L.43 (respectively) of No.1 Mobile Petroleum Laboratory, R.A.S.C.)).

MECH.341 - L.40; Leopoldo Garollo Genova Ultradense R.E.

MECH.342 - L.41; Ultradense Gastaldi & Co. R.E.

MECH.343 - L.42; ~~ROMSA~~ Olio Extradense per Motori. AGIP Tripoli. Raffineria di Olii Minerali S.A.Fiume.

MECH.351 - L.52; Prodotto Nolla Raffineria di Napoli. Gargoylo Diesel Oil FT 45. Vacuum Oil Co., Societa Anonima Italiana, Genova.

MECH.358 - L.43; Aquila S.A.Denso.

Analyses by Shell Marketing Co., Ltd., Fulham

	<u>MECH.341</u>	<u>MECH.342</u>	<u>MECH.343</u>	<u>MECH.351</u>	<u>MECH.358</u>
Size of Sample	3-pints	3-pints	3-pints	1-gallon	3-pints
Appearance	Dark red oil with dark green bloom	Dark red oil with dark green bloom	Clear, light red oil with pale green bloom	Clear red oil with green bloom	Clear light red oil with pale blue-green bloom
Specific Gravity	0.930	0.930	0.899	0.898	0.913
Viscosity:					
Kinematic @ 100°F ... C.s.	411.3	390.4	386.0	357.6	357.6
" " 140°F ... "	110.4	100.9	121.4	108.5	73.7
" " 210°F ... "	22.26	21.35	25.80	23.23	16.18
Redwood 1 @ 140°F ... Secs.	447	408	491	439	299
Saybolt Universal @ 100°F .. Secs.	1,904	1,805	1,784	1,652	1,220
" " 210°F .. "	107	103	123	111	81
Viscosity Index	68	66	96	89	58
Ash	0.04%	0.01%	0.01%	< 0.01%	0.02%
Nature of Ash ..	Essentially iron oxide	Essentially iron oxide	Essentially iron oxide	-	Essentially iron oxide
Pour Point	20°F	25°F	25°F	10°F	5°F
Saponification Value (mg.KOH/gm.)....	3.6	< 0.1	4.2	0.1	0.2
Sulphur ..	1.0%	0.70%	0.10%	0.4 5%	0.20%
Addition Agents	Chlorine, Nitrogen and Phosphorus - absent				
Ramsbottom Coke No.	1.18	1.16	1.06	0.52	0.28

The Director of Intelligence,
Air Ministry, A.I.2.(g),
King Charles Street, S.W.1.

3rd September 1943

SECRET

Sample No. AIR 305 (received through Air Ministry, A.I.2.(g))

Green Fuel taken from F.W.190 crashed near Eastbourne 14.6.43.

Analysis by The Petroleum Board, Vauxhall

Specific Gravity	.7705
Colour	Green
Distillation - I.B.P.	45°C
Recovery at 75°C	15%
100°C	46%
150°C	89%
F.B.P.	177°C
Total Recovery	98%
Residue	1%
Freezing Point	Below -60°C
Vapour Pressure (lb./sq.in.)	4.0
Total Sulphur	0.02%
Existent Gum (mg/100 mls.)	7.0
Lead Content (mls. T.E.L./I.G.) ..	5.48
Octane Number (C.F.R. M.M.)	95
Octane Number of Base Fuel	82
Octane Number - Research Method...	0.35 c.cs. T.E.L./U.S.gln. in Iso-octane
30 Rich Mixture Rating	Better than 125% of 130 Grade
Bromine Number	1.5
<u>Hydrocarbon Analysis</u>	
Aromatics	37.0%
Paraffins	41.0%
Naphthenes	22.0%
Unsaturateds	-
<u>Individual Aromatics</u>	
Benzene	8.0%
Toluene	12.0%
Xylenes &c.	10.0%
Higher Aromatics	7.0%
Water Solubles	Nil
Phenols	0.02%

This fuel is similar to recent German Green fuels having very good rich mixture rating and higher octane number than the original green fuels.

S.J.N.Auld
for The Petroleum Board

The Petroleum Board,
Shell-Mex House,
W.C.2.

The Director of Intelligence,
Air Ministry (A.I.2.(g)),
King Charles Street, S.W.1.

A.I. 2 G.
AIR MINISTRY

3rd September 1943

SECRET

Sample No. AIR 270 (received through Ministry of Economic Warfare
from Petroleum Inspectorate, G.H.Q., H.E.F.)

Italian Aviation Petrol, 7.2.43 El Daba, in 200 litre barrels.

Analysis by The Petroleum Board, Vauxhall

Size of Sample	Approx.	$\frac{1}{2}$ -gallon
Specific Gravity		.7532
Colour		Green
Distillation - I.B.P.		50°C
Recovery at 70°C		11.5%
75°C		15.5%
100°C		55%
105°C		60.5%
150°C		87.5%
200°C		94%
F.B.P.		246°C
Total Recovery		97.5%
Residue		1.5%
Freezing Point		Below -60°C
Total Sulphur		0.03%
Existent Gum (mg./100 mls.)		37.2 (oily)
Lead Content (mls.T.E.L./I.G.)...		5.30
Octane Number		85 $\frac{1}{2}$
Bromine Number		2.6
<u>Hydrocarbon Analysis</u>		
Aromatics		32.0%
Paraffins		62.0%
Naphthenes		6.0%
Water Solubles		Nil

This is not a typical German Green fuel. Although the lead content corresponds to that normally found in German Aviation fuels, the Octane Number is low. The sample appears to be contaminated with a small proportion of kerosine.

S.J.M.Auld
for The Petroleum Board

The Petroleum Board,
Shell-Mex House,
W.C.2.