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512.6501-5 24 JUN 1943	RETURN TO: Director Research Institute Attn: A. J. Branch Maxwell A. B. Alabama
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463.7 (Enigma) A.I. 2G. 1056
AIR MINISTRY
THE PETROLEUM BOARD

SHELL-MEX, HOUSE,

STRAND,

W.C.2

TELEPHONE—TEMPLE BAR 1234

C. 16

File 1590 Enemy oils
+ Fuels
JUL 27/43 EPL

SJMA

24th June 1943

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

SECRET

Dear Sir,

Enemy Oils and Fuels

Fuels

Reports

Fuels Nos. AIR 306, AIR 307, AIR 308 and AIR 309 - reports attached.

Remarks

These samples are probably aviation fuels.

AIR 306 and AIR 307 are similar although differing somewhat in lead content and colour. They correspond to what have previously been considered to be Italian fuels.

AIR 308 has a high final boiling point and may be contaminated. It contains oil in solution. It is more likely to be Italian than German.

AIR 309 has high lead content and Octane Number for Italian fuels and more nearly corresponds to the German Blue type fuel, although the colour is reported as Bright Green.

Yours faithfully,

S.J.M. Auld
for The Petroleum Board

SJMA/EG

OK

Samples Nos. AIR 306, AIR 307, AIR 308 and AIR 309

Analyses received through Ministry of Aircraft Production (A.I.D., I.M.3), Harefield^{*}, from Aeronautical Inspection Department Test Laboratory, Aboukir (Test Report No.464)

Enemy Fuels ex Drums received from No.101 Salvage Depot at R.A.F.Station, Aboukir

AIR 306 - Marking on Drums: "I.N.F.R.A. GENOVA PEGLI" embossed on rim, "REGIA AERONAUTICA 269267. 200 LITRO" embossed on ends.
 AIR 307 - " " " Illegible. Drum very rusty.
 AIR 308 - " " " "I.N.F.R.A. GENOVA PEGLI" embossed on rim, "R.E." embossed on ends, "GASSOLIO" painted on ends.
 AIR 309 - " " " "KRAFTSTOFF 200L. 68840" embossed on ends.

	AIR 306	AIR 307	AIR 308	AIR 309
Specific Gravity	0.740	0.742	0.754	0.747
Colour	Very Pale Yellow	Light Blue	Dark Green	Bright Green
Distillation I.B.P.	52°C	45°C	53°C	54°C
Recovery at 75°C	26%	27%	20%	25%
100°C	60%	61%	56%	63%
150°C	97%	97%	89%	97%
F.B.P.	162°C	158°C	221°C	158°C
Total Recovery	99%	99%	98%	98.5%
Residue	0.5%	0.5%	1.5%	1%
Loss ..	0.5%	0.5%	0.5%	0.5%
Corrosive Sulphur ...	Nil	Nil	Nil	Nil
Total Sulphur	0.003%	0.01%	0.02%	0.02%
Vapour Pressure (lb./sq.in.).....	5 $\frac{3}{4}$	5 $\frac{3}{4}$	5	5 $\frac{1}{4}$
Freezing Point	Below -60°C	Below -60°C	Below -60°C	Below -60°C
Existent Gum (mg./100 mls.) (Air Ministry)***	Nil	7.2	78	6.0
Potential Gum (mg./100 mls.) (Air Ministry)	Nil	Negligible	Negligible	Negligible
Lead Content (mls.T.E.L./I.G.)	3.77	4.31	4.86	5.79
Octane Number	85 $\frac{1}{2}$	86	83	90
Bromine Number	1.7	2.1	2.2	1.5
Alcohol Content	Nil	Nil	Nil	Nil
Absorption by 100% Sulphuric Acid	15%	17.5%	20%	20%

*** In each instance an oily residue was obtained from the existent gum test.

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

* and War Office, M.I.10c,