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PART II. SAMPLES.

Object.

On previous trips some samples of fuels and lubricants have been obtained for detailed examination in the U.K. The samples obtained, however, do not cover more than a very small number of the products used by Germany during the war and further samples are required. It is the object of this proposed trip to obtain samples of products which have not hitherto been obtained.

Samples Required.

These are detailed in the attached lists, and comprise:-

- (a) Finished and blended fuels, lubricants and speciality products to the various Wehrmacht and other official specifications,

and,

- (b) Individual components of these materials.

Information Required Concerning Samples.

Supporting information should, if possible, be obtained as follows:-

- (a) Finished and Blended Products.

Composition and complete specification to which the product was manufactured. The origin of each component should also be ascertained if possible.

- (b) Individual Components.

Place and date of manufacture and manufacturing specifications.

It is appreciated that it may not be possible to obtain all this information in all cases, but it will be appreciated that this information is important as a means of ensuring that the samples taken are authentic and every effort should be made to obtain it.

The attached lists of samples required include all materials of which we have knowledge at the moment and of which no samples are

already available for examination in the U.K. On the other hand, if opportunity offers, samples of other materials should be obtained and to avoid the collection of unnecessary items a table is attached listing the samples obtained on previous trips.

Packing and Labelling of Samples.

Drums of various sizes and jerry cans should be employed as sample containers, and it is important that these be rinsed out with the sample before filling. New washers should, if possible, be used on all bungs. Bungs should be wired after tightening. Elaborate precautions should be taken to ensure freedom from leakage.

All samples should be numbered, the first one taken should be numbered BIOS.101 and the remainder BIOS.102, BIOS.103, etc., etc. All should be stencilled with the following address clearly marked:-

DR. A. PARKER,
FUEL RESEARCH STATION,
EAST GREENWICH,
LONDON,
E N G L A N D.

*Final copy
for T.I.C.*

After collection, the samples will be disposed of as directed by G (T) & CW at 21 ARMY GROUP MAIN H.Q.

Places to find Samples.

The WIFO Stations at Hitzacker, Nienburg, Farge and Eicheloh are likely places to find samples - See CAFT Reports 136, 57, 154 and 51 respectively and attachments which are included in this dossier. The underground store at FLEMHUDE may be fruitful (Report 146) as also may be the targets described in Reports 71, 122 and 146 attached.

The following personnel may be able to give valuable information concerning the location of samples and should be contacted.

G. GUBISCH - director of OLEX DEUTSCHE BENZIN und PETROLEUM GESELLSCHAFT. He is known to be in Hamburg and if he has no personal knowledge of the location of samples, he should be able to find some other German who has.

RUMPT, SEELES and GOLDHOFER of Rhenania, at Hamburg are known to be knowledgeable on greases, lube oils, etc., supplied to the Wehrmacht (i.e., Army, Air Force and Marine). GOLDHOFER is also the Chief Rhenania Technician for waxes and lube oil extracts. LEUDTKEMEYER, also of Rhenania (a chemist), is a gasoline expert who

was the Rhonania contact man on several petroleum committees set up by the German Government. Prof. ZERBE, also at Hamburg was the head of Shell Research.

Rhonania Department ZL handled all Wehrmacht Specifications and contacts and may be able to give valuable information.

Dr. BANDTE - Chief Chemist of Deutsche Erdol A.G. is at Hamburg.

The following smaller Oil Companies who handled speciality products should not be neglected:

JULIUS SCHLINDLER, HAMBURG

- See Report 79.

HARMSSEN, KIEL

- See Reports 95 & 118

ERNST SCHLIEMANN, HAMBURG

- See Report 124

SCHLAPHORST CHEMISCHEWERKE,
HAMBURG

- See Report 133

and the INTAVA Research Laboratories at BAD OLDESLOE and SCHULAU are also expected to yield valuable information (see Report 77 attached).

LIST OF SAMPLES ALREADY OBTAINED ON PREVIOUS
TRIPS.

R Oil ex $AlCl_3$ polymerisation for Lube Oil Manufacture

RR oil do.

do.

do.

- s/o partly lost.

Ester Oil 504

Y Axle Oil

Synthetic Lube V.120

KSE Anti Corrosion Dope

Mesulfol II do.

Ester Oil E.455

Ester Oil 30223

Nachlaufschmierstoff

Gear Oil 8E

Glysantin

Abschmierfett TL.6014B

Methanol Anti-freeze

Product J.7

Product M.320

LIST OF SAMPLES REQUIRED.A. BLENDED AVIATION FUELS

Item No.	Description	Priority	Quantity Required Imperial Gallons	Suggested Locations for Samples		CAFT Report Reference
				Target	Title	
1	A.3 AVIATION GASOLINE	A	40		WIFOS	136, 57, 154, 51
2	B.4 AVIATION GASOLINE (Unleaded if possible)	A	40		WIFOS	136, 57, 154, 51
3	C.3 AVIATION GASOLINE (Unleaded if possible)	A	40		WIFOS	136, 57, 154, 51
4	K.1 AERO DIESEL FUEL	A	10		WIFOS	136, 57, 154, 51
5	DK.1 AERO DIESEL FUEL	A	10		WIFOS	136, 57, 154, 51
6	J.2 JET PROPULSION FUEL	A	40		WIFOS	136, 57, 154, 51
7	E ₁ FUEL FOR FLYING BOMBS	B	10		WIFOS	136, 57, 154, 51
8	MAI EXPERIMENTAL FUEL	B	10		WIFOS	136, 57, 154, 51

LIST OF SAMPLES REQUIRED.B. BLENDED LUBRICATING OILS

Item No.	Description	Priority	Quantity Imperial Gallons	Suggested Location for Samples		CAFT Report Reference
				Target No.	Title	
9	S.3 AERO LUBE (FLUGMOTORENSCHMIEROL)	A	40		WIFOS	136, 57, 154, 51
10	V.2 AERO LUBE (FLUGMOTORENSCHMIEROL) (Sometimes known as ASM) (Believed to be the same as AEROSHELL MITTEL)	A	40		WIFOS	136, 57, 154, 51
11	INTAVA RODRING 100	A	10		DVAG OSLEBS-HAUSEN or SCHULAU	50, 61, 96
12	TORPEDO LUBRICANTS STANDARD GRADE (LP295 111 EN)	B	5		RHENANIA - GRASSBROOK	155, 45 or 140
13	TRACKLESS GRADE (ET.42)	B	5		do.	155, 45 or 140
14	CLOPEN A-60 - a chlorinated hydrocarbon used in Torpedo oils and made by I.G. (Has been described as CHLORPHENE A)	B	5		RHENANIA REFINERIES	155, 45, 140

LIST OF SAMPLES REQUIRED.

C. AVIATION AND MOTOR GASOLINE COMPONENTS.

Item No.	Description	Priority	Quantity Required Imperial Gallons	Suggested Locations for Samples		CAFT Report Reference
				Target No.	Title	
15	ZVI INHIBITOR (Sometimes known as HELASTOFF ZVI)	C	5		WIFOS	136, 57, 154, 51
16	KIBOL (Sometimes known as VT.303) (Diethylbenzene)	A	10		WIFOS	136, 57, 154, 51
17	GASOLINE. COMPONENTS VT200, VT330, VT348, VT702, VT705, VT708, VT810, VT707, VT303, VT706b, CL200, CL100, DHD, CV2b, VT341 etc.	A	5 of each Grade		WIFOS	136, 57, 154, 51
18	ALKYLATES, ISO-OCTANE, &c. ET.110 ET.120	C	5		WIFOS	136, 57, 154, 51
		C	5			
19	AROMATISED GASOLINE CV2b DHD Gasoline	A	5		WIFOS	136, 57, 154, 51
		A	5		"	do.
20	R. 300 (Diglycol Diethyl Ether) (used as Reference Diesel Oil etc.)	A	10		WIFOS	136, 57, 154, 51
21	BLUE ETHYL FLUID	C	1		WIFO-HITZACKER	136
22	GREEN ETHYL FLUID	C	1		WIFO-HITZACKER	136

LIST OF SAMPLES REQUIRED.

D. LUBRICATING OIL COMPONENTS.

Item No.	Description	Priority	Quantity Required Imperial Gallons	Suggested Location for Samples		CAFT Report Reference
				Target No.	Title	
23	OPPANOL (V.I. Improver) - known as OPPANOL GEMISCH B.15	A	10		RHENANIA-GRASBROOK DEURAG/NERAG	45 8
24	ZSI INHIBITOR	C	5		WIFO-HITZACKER or NIEBURG WIFO-NIEBURG or RHENANIA	136, 57 57
25	POLYISOBUTYLENE (if different from Oppanol)	A	10		RHENANIA-GRASBROOK	45
26	PARAFLOW	A	10		RHENANIA-GRASBROOK	45
27	SYNTHETIC LUBE OIL FROM F.T. WAX (Total reaction product)	A	40			?
28	and corresponding F.T. Wax FEED STOCK	A	4			?
29	and corresponding POLYMERISATION FEED STOCK	A	40			?
30	SYNTHETIC LUBE OIL FROM PETROLEUM WAX (Total Reaction Product)	A	40		RHENANIA-HARBURG	37
31	and corresponding Wax Feed Stock	A	40		do.	37
32	and corresponding Polymerisation Feed Stock	A	40		do.	37
32a	Components of ASM and Rotring 100 Oils. These are believed to be: VOLTOL, ENDVOLTOL & HALBVOLTOL Edeleanu Treated Oils, etc. Duocol Treated Oils, etc. and known reference numbers are: SS607, SS707, SS807, SS407, SS1103, SS1006	A	5			
33	SS1006 - EUROTANK, HAMBURG <i>See Lube Oil</i>	A	5			
34	SS607 - RHENANIA <i>See Lube Oil</i>	A	5		RHENANIA-GRASBROOK	
35	SS707 - DEUTSCHE VACUUM-BREMEN	A	5		OVAG - near Bremen	136, 57, 45
36	SS807 - NERAG	A	5		NERAG - Hanover	
37	SS407	A	5		WIFO - HITZACKER	
38	SS1103 - FOLITZ <i>See Lube Oil</i>	A	5		WIFO - NIEBURG	
39	MOTORENOL DER WEHRMACHT Summer Grade	B	5		WIFO-HITZACKER or EICHELOH	136, 51
40	MOTORENOL DER WEHRMACHT Winter Grade	B	5		WIFO-HITZACKER or EICHELOH	136, 51
41	SYNTHETIC LUBE SS1103 ex FOLITZ	A	10		WIFO-HITZACKER or EICHELOH	136, 51
42	SYNTHETIC LUBE SS1006 ex RUHR CHEMIE	A	10		WIFO-HITZACKER or EICHELOH	136, 51
43	SYNTHETIC LUBE SS3500 ex RUHR CHEMIE	A	10		WIFO - HITZACKER	136
44	ETROL (dope for Gear Oils)	B	5		DEUTSCHE VACUUM	51, 50, 96
45	HEXATHION (dope for Gear and cutting oils)	B	5		do.	96

LIST OF SAMPLES REQUIRED.

E. GREASES.

Item No.	Description	Priority	Quantity Required Imperial Gallons	Suggested Location for Samples		CAPT Report Reference
				Target No.	Title	
46	R-R AXLE GREASE	A	5		DEURAG-NERAG REFINERY AT MISBURG	8
47	COMPONENTS OF R-R AXLE GREASE	A	5 of ea.		do.	
48	EINHEITSFETT for Wehrmacht	A	5		RHENANIA-GRASBROOK	45
49	AEROFETT BLAU	A	5		do. do.	45
50	THICKENED OIL CONTAINING SILICAGEL (K.3) 2 Grades	A	5 of ea.		do. do.	45
51	SILICAGEL USED IN K.3	A	10 lb.		do. do.	45
52	SILICAGEL - OIL GREASE	A	5		do. do. WEDEL	45
53	MISCELLANEOUS CALCIUM, SODIUM AND LITHIUM GREASES. (Low and High Temp.) CUTTING & SOLUBLE OILS & EMULSION OILS	A	2 x 5 of each		DVAG - SCHULAU near WEDEL or OSLEBSHAUSEN MINERALÖLWERKE HARMSEN, KIEL	61, 50, 98 118
54	INTAVA INSTRUMENT GREASE	A	5		DVAG	61, 50
55	SCHUTZOIL 54 (Rhenania)	A	5		RHENANIA	
56	METALSCHUTZ-ÖL Specn. TL.6013	A	5		RHENANIA	45, 37, 44, 49, 145, 140
57	WAFFENSCHMIERÖL " TL.6021	A	5		do.	do.
58	STOSSDAMPFERÖL " TL.6027	A	5		do.	do.
59	BREMSÖL " TL.6026	A	5		do.	do.
60	WAFFENSCHMIERÖL FROSTSICHER Specn. TL.6028B	A	5		do.	do.
61	SCHUTZFETT 40 " TL.6017	A	5		do.	do.
62	WAFFENFETT " TL.6006	A	5		do.	do.
63	INSTRUMENTFETT " TL.6009	A	5		do.	do.
64	ABSCHMIERFETT " TL.6035	A	5		do.	do.
65	KÜHLSTOFFPUMPENFETT " TL.147-745	A	5		do.	do.
66	SCHUTZOIL 39 " TL.147-900 (Rhenania)	A	5		do.	do.
67	SCHUTZFETT 40L " TL.147-770 (Rhenania)	A	5		do.	do.
68	SCHUTZFETT 40H " (Rhenania)	A	5		do.	do.
69	COLD RESISTING INSTRUMENT GREASES e.g. ZEISS GREASES E10, E75, E400	A	2 x 5 of each			
70	CALYPSOL GREASES K, 129, 285, etc.	A	5 of ea.		KRIEGSMARINENWERFT, ACHIM	71
71	CLOCK & INSTRUMENT OILS & SPECIALITY GREASES	A	2 x 5 of each		do. do.	71
72	INTAVA 1416 BLAU	A	5		INTAVA	77, 88
73	INVAROL GREASES (Sometimes referred to as POLYOL Greases)	A	5 of ea.		MINERALÖLWERKE-HARMSEN at KIEL/HASSE	155, 45
	MELTING POINT of 87, 100, 110, 150 and 180°C.				RHENANIA	45, 37, 44, 49, 145, 140

Item No.	Description	Priority	Quantity Required Imperial Gallons	Suggested Location for Samples		CAFT Report Reference
				Target No.	Title	
74	TOTAL PRODUCT from Atmospheric Pressure Fischer Tropsch Synthesis (If total reaction product is not available samples of separate products should be obtained, i.e. gasoline, gas oil and wax)	A	2 x 50		?	
75	TOTAL PRODUCT from 10-15 atm. Fischer Tropsch Synthesis. (See note above)	A	2 x 50		?	
76	LUBRICATING OIL EXTRACTS Rhenania supplied the rubber Companies with 2000-3000 tons per month of lubricating oil extracts as plasticizers. Extracts were also used in paints and plastics, etc. Samples of the products actually marketed for these uses are required with full details of manufacture and finishing treatments	A	10 galls of each Grade		RHENANIA, GRASSBROOK AND HAMBURG	45, 37, 44, 49, 145, 140
77	REITBROOK CRUDE OIL	C	40		DVAG - SCHULAU near WEDEL	61, 96
78	HEIDE CRUDE OIL	C	40		DEAG - HEMMINGSTEDT, near HEIDE, SCHLESWIG-HOLSTEIN	89
79	SHELL SPECIAL OIL 54 (Anti Corrosion Oil for Cooling Systems)	A	2 x 5		RHENANIA	45, 37, 44, 49, 145, 140
80	OPTAN 35	B	5		WIFO-HITZACKER	136
81	ROXYL G	B	5		do.	136
82	OPHYL 70	B	5		do.	136
83	OPTURAN 60	B	5		do.	136
84	TURBINE, TRANSFORMER AND WHITE PARAFFIN OILS CUTTING OILS	A			OELWERKE JULIUS SCHINDLER HAMBURG	79
					also WILHELM SCHINDLER OELWERKE, HAMBURG and MINERALÖLWERKE ALBRECHT and INTAVA and RHENANIA	124, 133, 135
85	ANTI-CORROSION PRODUCTS	A	2 x 5 gallons of each Grade		ERNST SCHLIMANN	77, 96, 45, 37, 44, 49, 145
86	ASPHALT EMULSIONS, EUPHALT, EMAS and VAT	A			OELWERKE, HAMBURG VEREINIGTE ASPHALT u. TEER PRODUKTION FABRIKEN HAMBURG	124, 133 134
87	WAFENÖL BLAU 44 - made by I.G. LEUNA	B	5		WIFOS	136, 57, 154, 51
88	ESTER 3023 do.	B	5		"	do.
89	TORPEDO OIL T.1 or LTK.12 do.	B	5		"	do.
90	ESTER E.515	B	5		"	do.
91	V WEAPON OIL SS.1631 do.	B	5		"	do.
92	HYDRAULIC OIL D.2000 do.	B	5		"	do.
93	LUBRICATING OIL LK.2000 do.	B	5		"	do.
94	LUBRICATING OIL LK.3012 do.	B	5		"	do.
95	LUBRICATING OIL LK.3049 do. (LK.2000, 3012 and 3049 are water soluble poly glycol ethers)	B	5		"	do.
96	MOTOR OIL K.10 - made by I.G. LEUNA	B	5		"	do.
97	MOTOR OIL K.19 do.	B	5		"	do.
98	BREMSSCHLICKKEIT BRAUN Recoil fluids	B	5		"	do.
99	BREMSSCHLICKKEIT ARK made by I.G.	B	5		"	do.
100	BREMSSCHLICKKEIT BRAUN-ARK LEVERKUSEN	B	5		"	do.
101	BOHRMITTEL-F3 - made by I.G. HOECHST	B	5		" or RHENANIA	136, 57, 154, 51, 45, 37, 44, 140, 49 and 145
102	HYDRAULIC OIL FL - made by RHENANIA	B	5		RHENANIA	45, 37, 44, 49, 145, 140
103	SHELL OIL AB11 Green Rhenania	B	5		"	do.
104	do. AB11 (not green) Rhenania	B	5		"	do.

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Item No.	Description	Priority	Quantity Required Imperial Gallons	Suggested Location for Samples		CAFT Report Reference
				Target No.	Title	
105	SHELL OIL 1499 - used for Lens Polishing	B	5		RUSSIA	45, 37, 44, 49, 145, 140
106	SHELL PRODUCT MZ - Cutting Oil	B	5		"	do.
107	PETROLEUM ASPHALTS	"	5 galls. of each Grade		1000	See West
108	PARAFFIN WAXES	A			"	"
109	PETROLEUM NAPHTHENIC ACIDS	B			"	"
110	PETROLEUM RESINS	B			"	"