A N N E X   I V

METHOD OF ESTIMATING

HYDROGENATION PLANTS' CAPACITY, PRODUCTION

AND RELATION BETWEEN PRODUCTS AND YIELDS

RELATION BETWEEN YIELDS AND PRODUCTS IN
HYDROGENATION PLANTS

The estimation of hydrogenation plants' capacity and production has been divided into two parts. In the first part the capacity of each plant is estimated from available information, including aerial reconnaissance, whereby the equipment in each plant is evaluated on a uniform basis with respect to its ability to produce motor gasoline. The production is then evaluated by estimating from aerial photographs when new construction will get into production. This capacity for producing motor gasoline is tabulated in Table III by months for each plant.

The next step is to allocate the products that these plants are believed to produce and adjust the production with respect to motor gasoline according to the following formulae.

I. **Bituminous Coal and Bituminous Coal Raw Tar** - Show the following relation in production when making either only motor gasoline or aviation gasoline and motor gasoline.

	Motor Gasoline Only	Aviation Gasoline, etc.
Aviation Gasoline	0	50
Motor Gasoline	100	39

II. **Brown Coal and Brown Coal Tar (L.T.C. Tar)** - The comparative yields when making either motor gasoline or motor gasoline and heavier products; diesel oil and lubricants; show the following relation.

	Motor Gasoline Only	Diesel, etc.
Motor Gasoline	100	50
Diesel Oil and Lubes	0	55

III. When gas oils, diesel oils or middle oils are either converted to motor gasoline or aromatized to aviation gasoline base stock, the comparative yields are as follows:

	Motor Gasoline Only	Aviation Gasoline etc.
Aviation Gasoline	0	37.5
Motor Gasoline	100	50

The above formulae have been applied as shown in Table IV and as follows:

The bituminous coal and bituminous coal tar plants in Germany are assumed to be producing aviation gasoline according to Section I above; the French plants while operating on bituminous coal or coal tar are assumed to be producing motor gasoline only. The production from brown coal or brown coal tar is divided as follows:

The Leuna plant is assumed to be producing 150,000 tons/year of aviation base stock according to Section III, while the rest of the brown coal plants and the balance of Leuna are operating to produce motor gas oline and heavier products according to formula, Section II. No distinction is made between diesel oil and lube oil from the point of view of yields or capacity. The lube oil production is therefore arbitrarily deducted from the diesel oil production in accordance with the amount necessary to supply the synthetic lube oil shown in previous estimates for either direct production in the hydro plants (solvent extraction) or synthesis from paraffin wax extracted from hydro middle oils.

The "unknown" plants are assumed to be producing motor gasoline only.

Hydrogenation plants operating on petroleum feed stocks are considered as oil refineries and not listed herein as synthetic oil plants. These include Bari, Leghorn and part of Poelitz.

The Fischer-Tropsch plants produce a synthetic crude oil that is assumed to be worked up by conventional refinery methods (also some synthetic lube production from wax) with yields as shown in Table VII, which are about as follows:

Motor Gasoline	60%
Diesel Oil	29%
Lubricants	2%
Losses	9%