Standard Oil Company
( Indiana)

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INFORMATION DIVISION TRANSLATION T46-67

API-TOM Reel 67 - Frames 1136-138

Ruhrbenzin Oberhausen Holten Oct. 17, 1939, Operation Laboratory II.

To Prof. Dr. Martin

Concerning Letters of August 7, 1939 about the Suitability of Paraffinic Residues of Fatty Acids Synthesis from the Henkel Plant as Charge Product for the Cracking Plant.

The paraffinic residue of fatty acid synthesis that has been supplied by the firm Henkel & Co. has the following analytical data: 79.35% C, 13.15% $H_2$, 7.50% $O_2$, gravity at 15° = 0.851, solidifying point 14°, neutralisation #1.66, saponification #8.56, iodine number 42.5 ash content 0.009%. The boiling curve can be seen in the attached graph. The boiling analysis above 320°C was carried out in a vacuum.

The ash content of the product is small. The high neutralisation and saponification numbers are remarkable. The summary below shows that the fatty acids or their esters are particularly found in the low fractions. On the other hand, the unsaturated characters increases in the higher fractions.

| | Neutralisation Number | Saponification Number | Iodine Number |
|---|---|---|---|
| Fraction to 300°C | 1.11 | 26.4 | 6.2 |
| " 360-380 | 0.02 | 15.5 | 25.9 |
| " 420-440 | — | 9.3 | 40.3 |
| " 500-520 | 1.01 | 10.9 | 31.3 |
| " 540-560 | 0.55 | 8.6 | 27.4 |

Since from the determined data nothing exact can be said about the suitability for cracking, a cracking experiment was carried out by residue-less distillation of the products at a normal pressure. The resulting distillate amounted to 93.5 wt.%. There remained the residue of 4.5% coke.

At sometimes there is formed 2.1 weight of gas. The analysis of the gas can be found below. The gas contains much carbon monoxide and hydrogen which was formed probably from ketones, aldehydes, and acids by cleavage.

| | |
|---|---|
| $CO_2$ | 0.6% |
| $C_nH_m$ | 7.1 |
| $C_2H_4$ | 4.1 |
| CO | 14.1 |
| $H_2$ | 56.1 |
| $C_nH_{2n}\phi 2$ | 18.0 |
| Carbon number | 2.04 |

The Henkel products will probably not behave fundamentally different in cleavage under pressure. Because of the high coke formation and the corrosive properties it cannot be considered as charge product for the cracking plant.

Translated Oct. 22, 1946 - Rochelle H. Bondy
Checked Nov. 22, 1946 - CCM