

Pressure Distillation Experiments
(State of Research in 1942)

By Rank & Orth, Ludwigshafen, 6 January 1942

1. Apparatus.

The small apparatus (500 cm³ converter volume and 2 to 6 kg injection) was provided with a hot circulating pump. With this equipment, the velocity of flow in the coils can be adjusted to suit up to an oil velocity of 1m/sec. The hot circulating pump suction is between converter and expansion valve (Entspannungsventil) and it injects into the middle of the preheater coil.

For the thermal cracking of filtered asphaltic products to electrode coke a coke soaker was constructed for 12 atm operating pressure in place of the former provisional apparatus. The interchangeable basket (Einsatz) holds about 30-40 kg coke. When running to coke the coke soaker is installed in place of the cyclone (column).

The semi-industrial pressure distillation apparatus in Lu 558 (100-200 kg. injection) is completed except for a few minor details. In this apparatus, the preheater, consisting of vertical hair pin coils is arranged in a circle around the hair pin coils of the coil still, to avoid possible overheating of the hottest part of the coil.

2. Recent Experiments.

Filtered heavy oil from incomplete hydrogenation of Silesian coal (Kohleaufschluss) was cracked to electrode coke in the 500 cm³ small apparatus (10 liter experiment). The latest operating pressure in the coke soaker was 2 atm. It is proposed to process "aufschluss" from Stall 804 to electrode coke at 4 to 8 atm.

Rumanian petroleum from Pölitz was pressure distilled with good results to about 4% residue.

At present a topping experiment with Schlesag bituminous coal carbonization tar to briquet bitumen with a melting point of 70° C is under way. It is expected that 40% briquet binder, based on carbonization (L.T.C.) tar, will be obtained.