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Edeleanu Gesellschaft m. b. H.

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History of Edeleanu G. m. b. H.

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DOCUMENTS FROM

EDELEANU. GESELLSCHAFT mbH.

BERLIN

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The EDELEANU-GESELLSCHAFT m.b.H., Berlin-Schöneberg, Martin Luther Str. 61-66 started work in the year 1909. At that time it was called "Allgemeine Gesellschaft für chemische Industrie".

In the beginning its main task was the utilization of the invention of Dr. EDELEANU consisting in treating Kerosene with liquid SO_2 as solvent in order to obtain high class illuminating oil from any stock of inferior quality.

The first plant, installed in 1910 at Rouen, France, capacity about 40 tons, input per day turned out to be a big success and a series of plants was erected in quick succession in Roumania, Galicia and Balikpapan (Borneo). A short time before the war of 1914/18 also the Burmah Oil Co ordered a plant for Rangoon which could not be delivered on account of the war.

Later on a good number of plants for treating kerosene with SO_2 with capacities running up to 1000 tons per day were delivered to many Oil Companies in the United States, Great Britain, Dutch East Indies, Mexico, Trinidad, Bahrain, France, Germany, Italy and so on.

When the Company extended its work to treating lubricating oils of medium and high viscosity, also other solvents were used, i.e. SO_2 - Benzol, $\text{C}_2\text{H}_4\text{Cl}_2$, CH_2Cl_2 , Propane, Phenol and others.

In the years before the war a series of plants was delivered for combined extraction and dewaxing of lubricating oils and cylinder stock. Shortly before the war combined extraction and dewaxing of brown coal tar oil distillate was taken up and executed in a large plant at Espenhain near Leipzig which was put into operation during the war.

Beside the work on this problem the treating of residual oil was taken up, the residue being decanted first with Propane and afterwards extracted with Phenol. Construction

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work for a couple of plants on this scheme was started but had to be stopped before it was finished.

Follows a short description of the process of extraction and dewaxing of brown coal tar oil.

The wax containing tar oil distillate is introduced into the plant by a piston pump and contacted with the extract solution coming from the first mixer within a centrifugal pump. The mixture is refrigerated to about -10°C in a chiller whereby wax is crystallizing. The two phases get separated by a centrifuge. The phase containing the wax is taken by a pump and introduced into the first mixer where it is treated with SO_2 in counter-current at abt $+40^{\circ}\text{C}$. The extract solution leaving the first mixer at the bottom is mixed up with the incoming wax containing distillate, as mentioned above, whereas the raffinate solution, leaving the first mixer at the top is led to a series of evaporators. By heating with steam all the SO_2 is recovered and the intermediate raffinate leaves the extraction part of the plant free from SO_2 .

The non paraffinic tar oil distillate before being introduced into the second mixer is mixed up with the extract phase which leaves the centrifuge and does not contain any wax. In the second mixer the extract solution is extracted by petrol, most of which leaves the mixer at the top with the raffinate. In the third mixer the raffinate is once more washed by SO_2 to get rid of the last traces of creosot; the raffinate leaving the third mixer at the top is led to another series of evaporators by which the petrol as well as the SO_2 are completely recovered. The product leaving these evaporators represents a first class Diesel oil.

The extract solution coming from the bottom of the second and third mixer is put together into another series of evaporators where the petrol and SO_2 is recovered. The product leaving the last evaporator of this series is used as fuel oil.

Now we come back to the intermediate raffinate. This raffinate when entering the dewaxing division of the plant is first diluted by a few hundred percent of $C_2H_4Cl_2$ then cooled down by a chiller to about $+ 5^{\circ}C$ and led to an entirely new type of filter which has been developed by us in collaboration with a well known constructing firm. It may be called chain filter because it consists of an endless chain of small filter cells moving continuously. The wax cake leaves the filter containing merely traces of oil and is put into a series of evaporators in which the $C_2H_4Cl_2$ is completely recovered. The product leaving the last evaporator is a nearly finished hard wax.

The filtrate solution leaving the filter is put into another chain of evaporators where the $C_2H_4Cl_2$ is recovered. The product leaving the last evaporator is a second grade Diesel oil.

If wanted to, the filtrate coming from the filter can be refrigerated to $- 20^{\circ}C$ in a chiller than again dewaxed in a drum filter of well known design. By this operation a certain amount of soft wax can be gained. The remaining filtrate is a second grade Diesel oil with a low freezing point.

The hard wax has to be aftertreated with a small amount of sulphuric acid and clay to get the wanted white colour, the Diesel oil and the soft wax if there is produced any gets an aftertreatment with clay only, the fuel oil does not need any aftertreatment at all.

In the enclosed floor sheet all the features mentioned above are shown.

Another floor sheet is enclosed shows a low temperature plant for the extraction of petrol working at about $- 60^{\circ}C$. The plant has been installed by the "Concordia" at its Ploesti refinery in collaboration with our company. It does not need any explanation.

Edeleanu Gesellschaft m.b.H.

gez. P. J o d e e k

Chief Engineer