Lube oil manufacturing process

HYDROFINISHING PROCESS

- Hydrofinishing Process stabilizes the undesirable oil component by Catalytic Hydrogenation.

- Components like sulphur , oxygen and nitrogen are catalytically hydrogenated to form H_2S, H_2O and NH_3 respectively.

- These components if not removed affect the corrosion, de-emulsification number, color , oxidation stability etc. of oil.

- **Process Description**

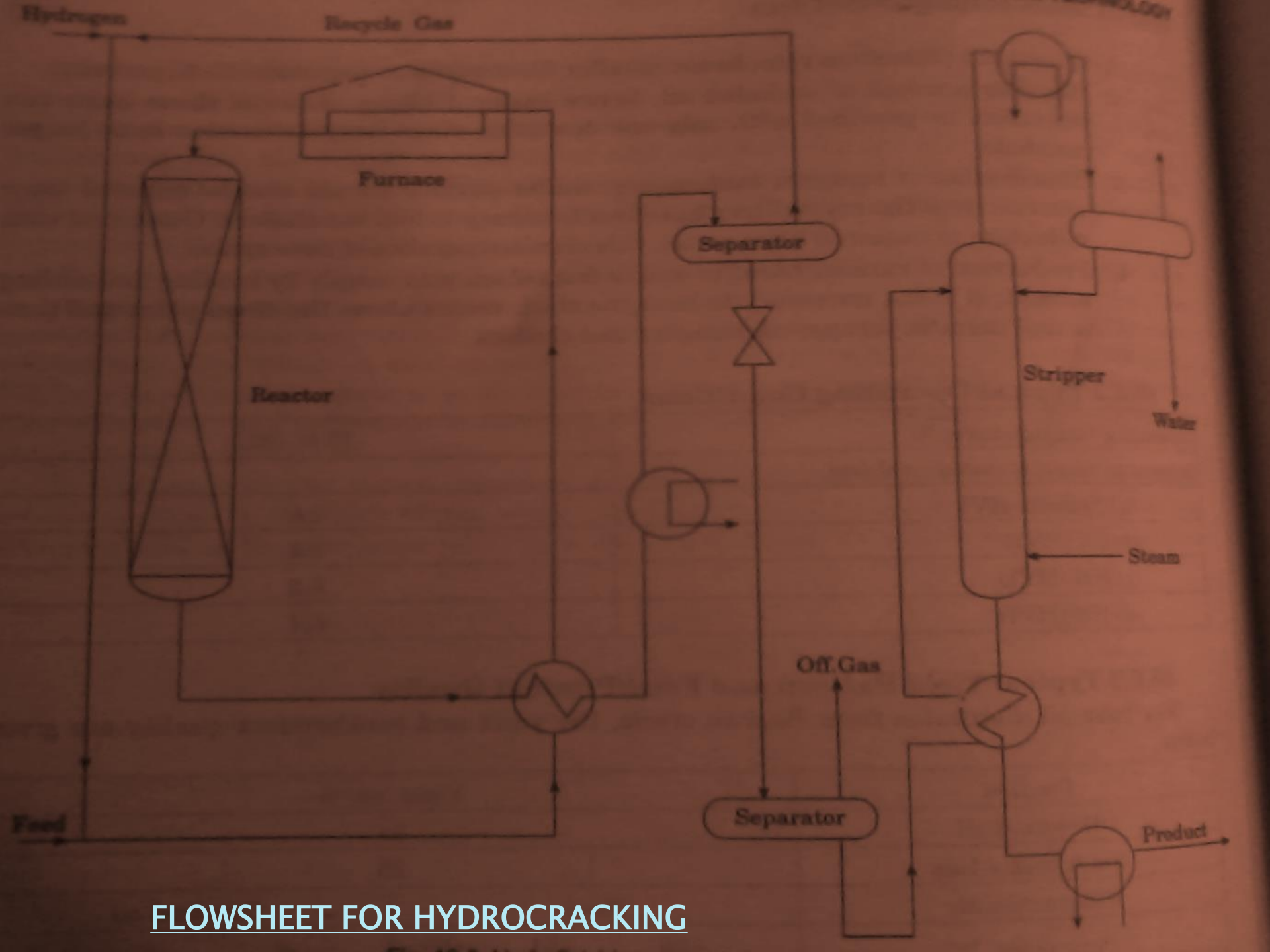
1. Feed is mixed with hydrogen rich gas and recycle gas , mixture is preheated and fed to reactor.

2. Mixture is then passed over fixed bed of catalyst in the reactor, which is composed of oxides of Co-Mo,Ni-Mo,Ni-Co-Mo supported on alumina.

3. Products are cooled and flashed in a high pressure seperator.

4. Hydrogen is recycled and liquid product is passed through low pressure separator.

5. Yield is about 98-99%



FLOWSHEET FOR HYDROCRACKING

MANUFACTURE OF PETROLEUM WAXES

- Petroleum waxes are manufactured by two processes based on the suitability.

1. Wax Sweating.

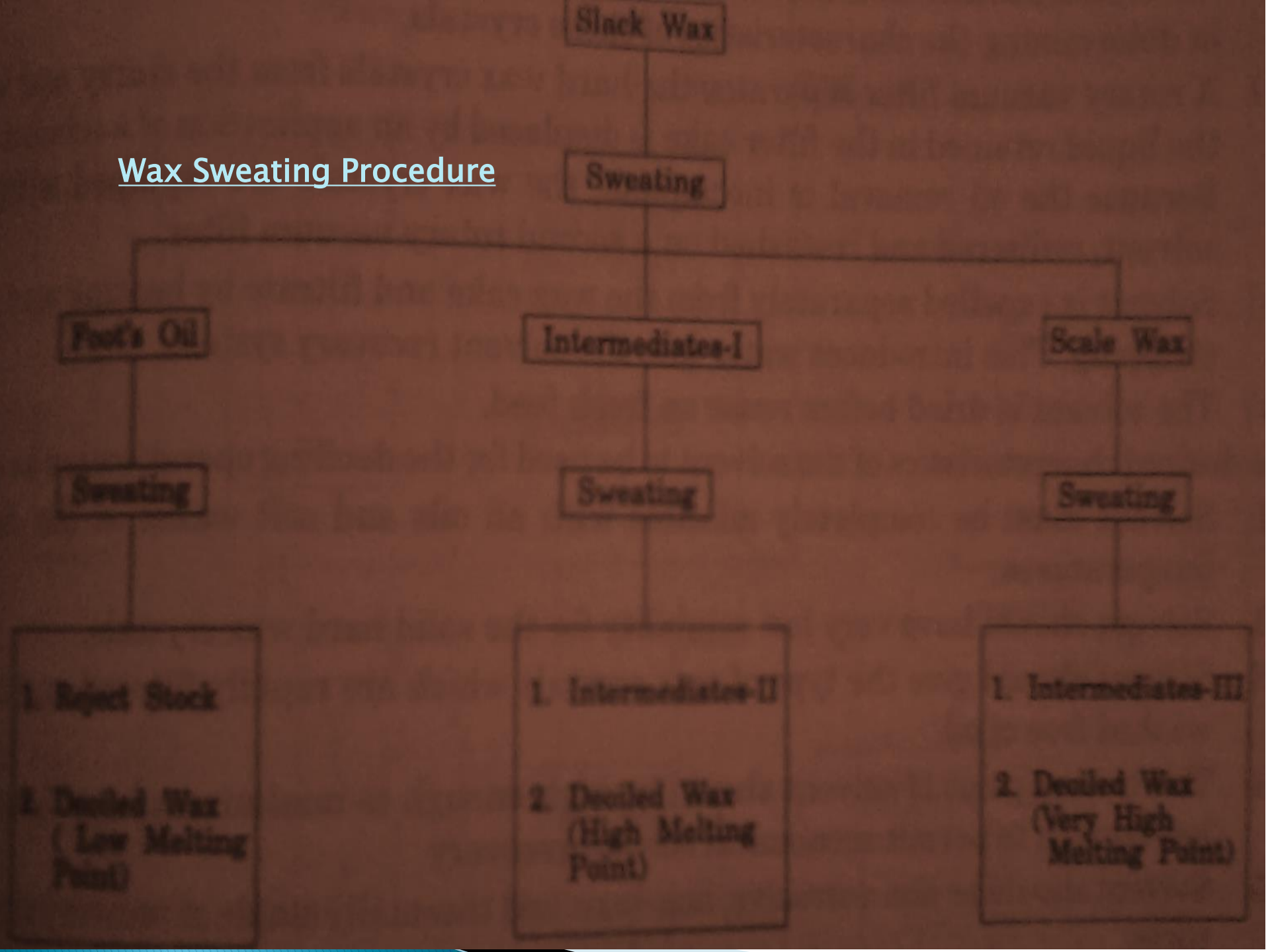
2. Solvent De-oiling.

WAX SWEATING

1. Wax Sweating has been defined as the process of drainage ,fractional fusion and solution.

2. The wax sweating is a batch process and is quite complicated by the necessity of excessive recycling and re-sweating of the cuts obtained.

Wax Sweating Procedure



SOLVENT DE-OILING

Fundamentals.

1. The waxy feed is cooled by passage through a double-pipe chiller to
   crystallize the hard wax portion.

2. A volatile solvent is added to dissolve the oil and soft wax components
   thereby maintaining a pumpable slurry of the hard wax crystals .

3. A rotary vacuum filter separates the hard wax crystals from the slurry
   and bulk of the liquid retained the filter cake is displaced by an application of solvent wash.

4. Solvent is expelled separately from the wax cake and filtrate by heating
   and steam stripping.

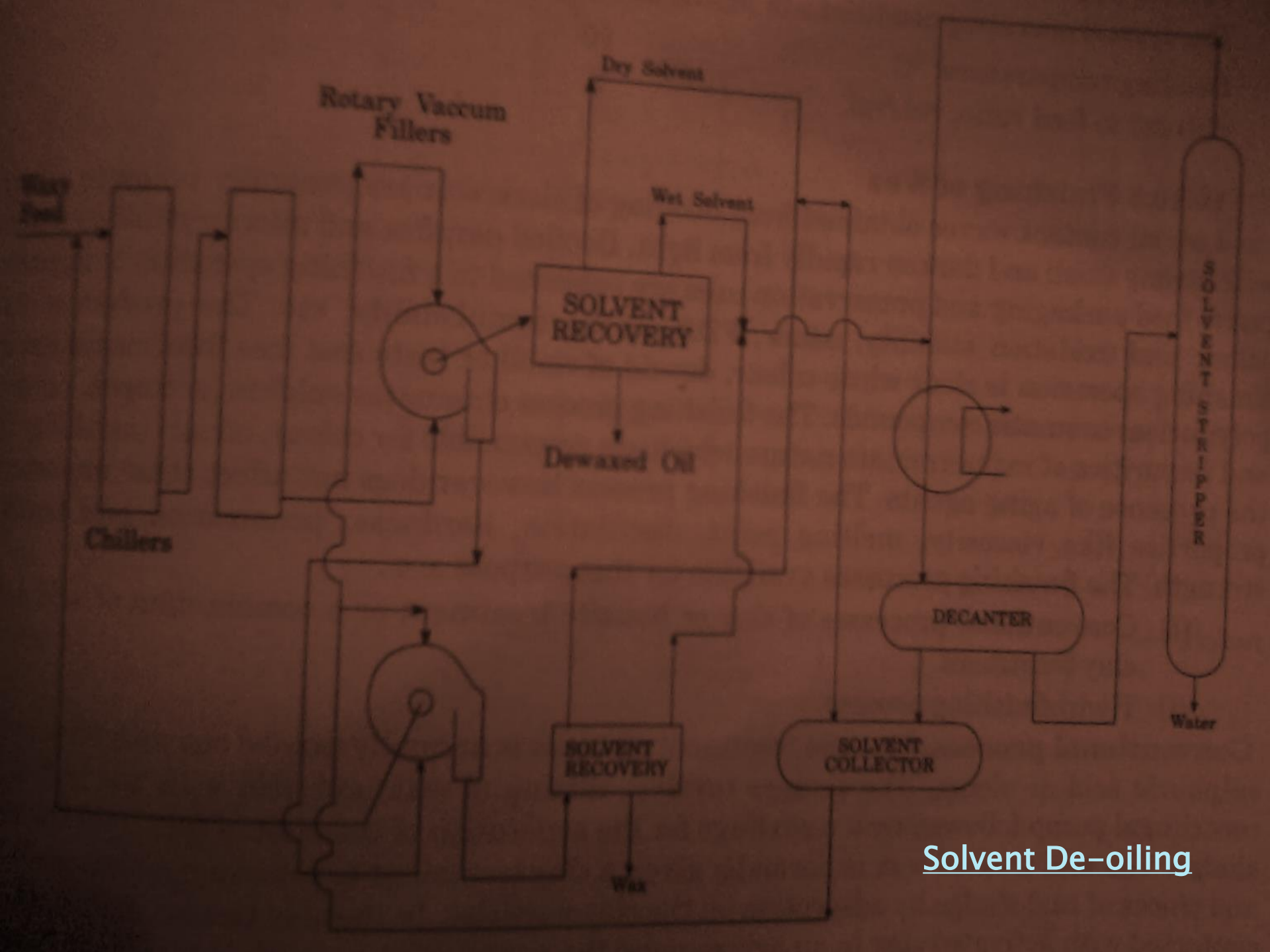
5. The solvent is dried before reusing on fresh feed.

Process Description.

There are two steps in the process employing MIBK.

1. Crystallization.
2. Re-pulping.

- Slack wax along with the recycle filterate from the re-pulp filter is chilled in chillers.
- The cake is re-pulped with fresh solvent before sending to second filter.
- Wax cake from second filter is sent to solvent recovery section.
- The water layer from with 2% MIBK is drained out.



Solvent De-oiling

Process Variable.

The choice of operating variables depends upon solvent , nature of feedstock and degree of refinement desired.

The main process variable are:

1. De-oiling temperature.

2. Solvent-to-feed ratio.

3. Filtration temperature.

Finishing of Wax.

The two processes available are :

1. Conventional process.

2. Hydrofinishing process.


THANK
YOU!