

# Lecture - 14

# PATROLEUM WAX



## About the Wax-

- Petroleum wax is ultimately derived from crude oil.
- Solid at ambient temperature but become liquid at 40-90°C.
- These are consist of normal and iso-paraffin and alkylate naphthene in rang  $C_{18}-C_{70}$ .
- Thermoplastic in nature.
- Combustible.
- Insoluble in water.

# Classification of wax

Paraffin wax

Microcrystalline wax

Petrolatum(Vaseline)

## Paraffin wax-

- It produced from waxy distillate of paraffin-base or mixed base crudes of high pour point.
- It consist mainly of normal and slightly branched paraffin's and has a relatively pronounced crystal structure.
- Three different type of paraffin's wax in India

Type 1- Extra refined wax.

It contains very low oil(0.25%)

Used in cosmetic preparation

Type 2- Refined wax.

It contains oil(0.5%).

Candle manufacture ,coating of  
paper , polish and hardboard  
preparing.

Type3- Semi refined paraffin wax.

contains 3.5% oil.

Used mainly in the impregnation of match sticks.

Digboi refinery produces.

- The important specification of wax are melting point , blocking point colour , order, oil content penetration ,viscosity, etc.

## Microcrystalline wax-

- It contains considerable quantity of branched-chain hydrocarbons through some straight line hydrocarbon are also present.
- it differs from paraffin waxes in both size and shape of wax crystal.
- There are 3 grade microcrystalline waxes in India.



Grade I- Refined microcrystalline waxes.

oil content is about 4% & melting point is 165°F.

Mostly used in laminations , sealing compounds.

Grade II- extra refined waxes.

oil content is about 3%.

used in applications similar to grade I.

grade III-It is hard. melting pt is 190 °F.

oil content is about 1.5%.

used in polishes, printing ink carbon paper , paper coating etc.

- Petroleum wax is ultimately derived from crude oil.
- It is mixture of normal, iso-paraffins and alkylated naphthenes in the range of  $C_{18}$ - $C_{70}$ .
- It replaces the bee waxes and availability of these cheap waxes immediate brought down the price of candles.

## Properties of petroleum wax-

- PARAFFINE waxes are snow-white solid crystalline material
- tasteless
- Odorless
- Chemical stable
- MICROCRYSTALLINE waxes may have any colour depending upon the degree of refining.

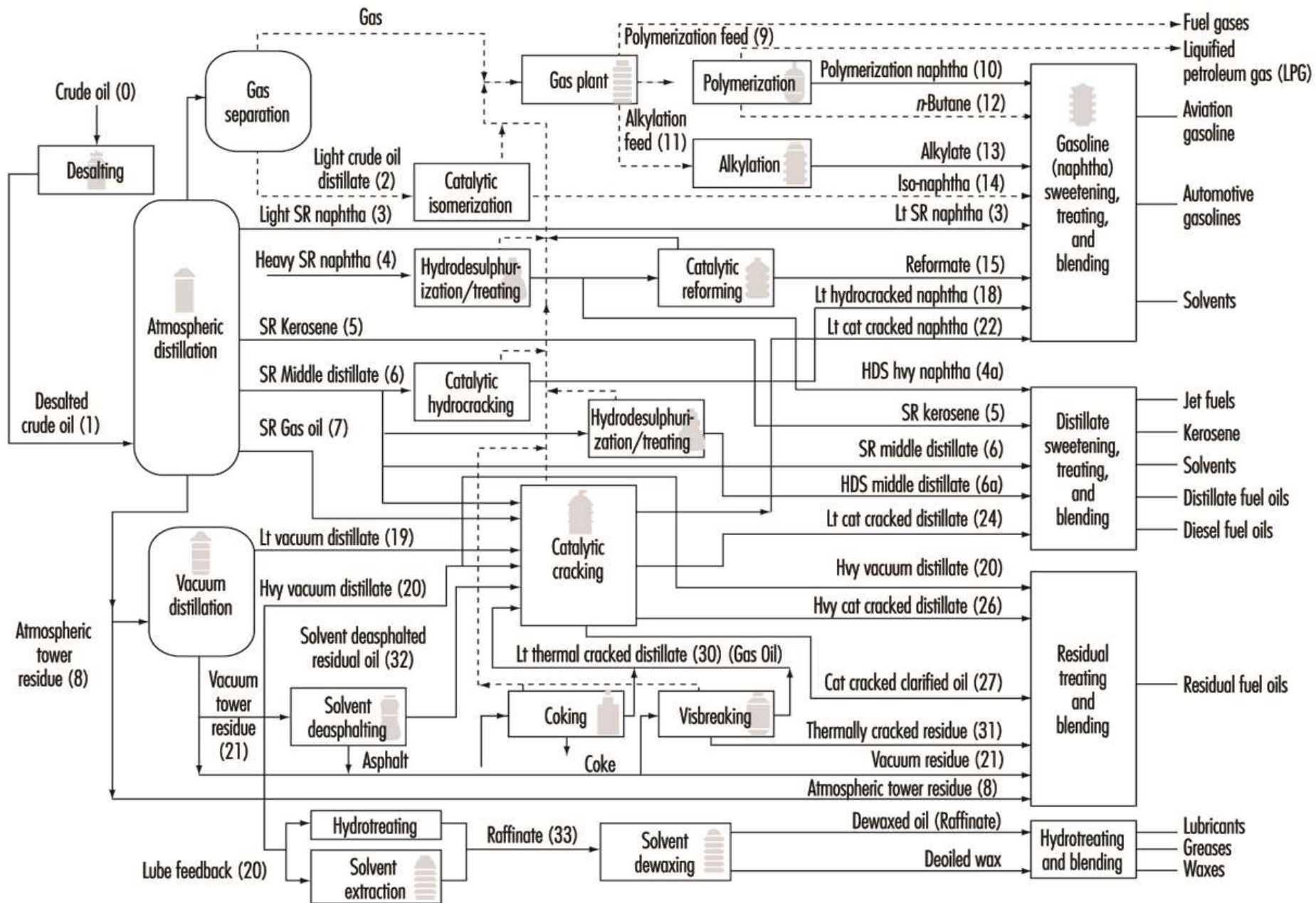
## Manufacture of petroleum waxes-

There are two methods for formation of waxes now.

1-waxes sweating

2-solvent deoiling process.

In India production of waxes is started with waxes sweating process in Digboi. but now production of paraffin waxes by solvent deoiling process in MRL, Madras and IOCL started.



Note: Numbers in parentheses refer to typical product process flow routes.

Source: OSHA 1996.

Liquids ————— Gases - - - - -

## Use of Petroleum Waxes-

- Match Industry-paraffin waxes specifies Type 3 suitable.
- Candle manufacture-Type 2 refined paraffin waxes is suitable. For this need more oil content 0.5%.
- tarpaulin.
- Paper waxing.
- Explosives.
- Chemical products.
- Rubber industry.
- Hard board.

## Conclusion-

the old age use of waxes for making candles as major outlet for product but now more new uses have come over. this cheap waxes replace bee waxes which is more costly. and today petroleum waxes have many industrial applications.

THANK YOU