

The project was realized by the technical personnel of the NBC Establishment (mainly Maj. Costantino) and the construction of the plant was assigned to the ITALIMPIANTI company.

## 2.2. Plant description

A side section of the plant is showed in Figure 1, where it is possible to see that the products move by gravity.

The main components of the plant are:

- bunching tank,
- dephlegmators,
- pilot reactor,
- emulsifying solution tank,
- oxidation reactor,
- neutralization reactor,
- cooling towers,
- chiller,
- cooling system,
- control room.

## 2.3. Detailed plant operation (Fig. 2)

The mixture of Y/PhDA contained in three tanks, is transferred by suction into a vacuum bunching tank.

The addition of an emulsifying solution, equivalent to 25 per cent of mixture volume, and a homogenizing system by turbine agitator were included in the system to minimize the negative factors, for example connected with the presence of pitchy materials in suspension.

The mixture is transferred by gravity from the bunching tank to the oxidation reactor, where it is further emulsified by agitation after the addition of a solution of water and a surface active compound.

The oxidation reaction is started by the addition of hydrogen peroxide into the reactor, this reaction is heavily exothermic and develops a great amount of hydrochloric acid.

The extremely corrosive conditions imposed the use of an enamelled steel reactor.