Sector of Oily Emulsions

The industrial sectors with effluents that can contain oily emulsions can be divided into two groups:

- Mechanical/automobile sector

- Petrol-chemical industry

Current environmental rules and regulations do not allow the discharge of oily fluids such as oily emulsions, exhausted oils, those from degreasing processes or thermal treatments, into the environment. They must be treated and removed as contaminated refuse with all the related costs.

The percentage of oil present in the water concentrates from an initial 2-5% to arrive at 55-60%. Although it is possible to reach a higher concentration, this does not result convenient from an economic point of view. This is due to the fact that the disposal costs for a concentration of oil at about 50% are similar to those for non concentrated emulsions. Above this limit the disposal costs result considerably higher.

Treating this effluent with a vacuum evaporator, it is possible to reduce the volume of wastewater up to 90-95%, and a distillate is obtained which can be used as washing water.

The quality of the distillate obtained in many cases has chemical-physical characteristics which are not suitable for discharging into the sewers, and it is therefore necessary to re-use it as industrial water for internal purposes in the factory.

Frequent solutions are:

- to use the distillate as a washing water for floors or for equipment

- to use the distillate to produce new emulsions to be re-introduced into the working cycle.

The working cycle is very simple: it is necessary to apply a system of decantation and a de-oiler upstream to the Evaporator, to avoid the machine sucking in the larger sediments which are sometimes present, as well as any oil which has not been mixed in.

The pre-treated solution is then sucked in by the machine which in turn produces the distillate and concentrate.