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**It combines
absorption,
distillation and
purification
processes.**

PROCESS SYSTEM

This process has been specifically designed to recover VOCs (Volatile Organic Compounds) from waste gases. The main principle is the absorption of the solvent by an absorbing liquid (at ambient temperature), and then the distillation of this liquid. This system allows the recovery and purification of the solvents with a very low energetic consumption

The concentration of solvent in the air is low ($0,2-2 \text{ gr/Nm}^3$), and the absorption capacity of the liquid is very high, so we can concentrate all the solvent in a low flow of absorbing liquid. In this way the process reduces strongly the calorific consumption of the distillation.

The installation is completed with a little distillation column that recovers the solvent from the absorption liquid, and it allows separating the light and heavy fractions of the solvent.

Very low energetic consumption.

Solvent recovery.

Compliance with the emission standard RD 117/2003

The air flow with the solvents is sent to the bottom of the washing column and it rises in counter flow with the cold absorption liquid. At this point the solvents of the air solubilize in the absorption fluid. The air with a low content of solvents is aspirated by a fan and it's propelled through the evacuation chimney.

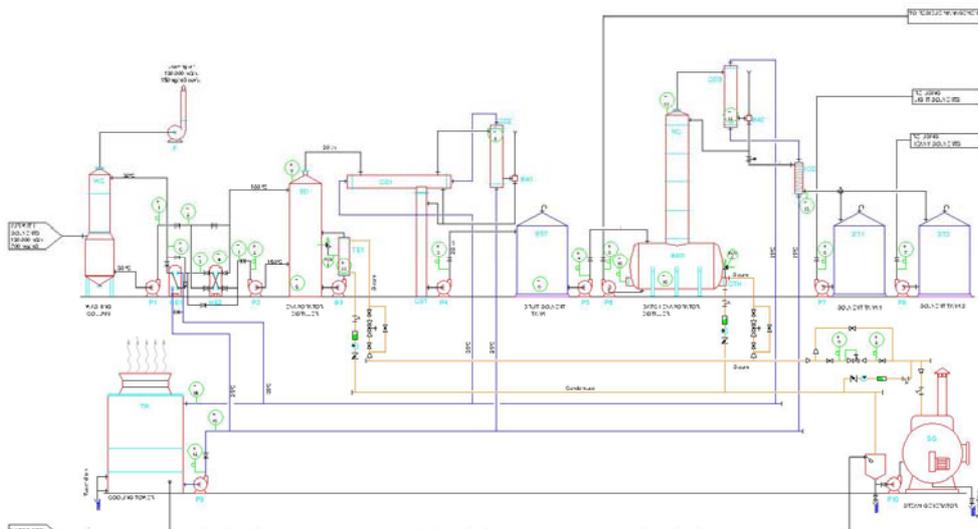
The liquid absorbs the different solvents from the air, and when it reaches the bottom of the column it contains a solvent concentration of approx. 5%. At this point the liquid is pumped to the heating recuperator where it is warmed-up through thermal exchange with the hot liquid absorber from the distillation unit. The hot liquid absorber (with the solubilized solvent) is sent to the distillation unit where it suffers a high warm-up (150°C) under vacuum, so it releases the solubilized solvents.

The absorber liquid (150°C) without solvents is sent to a heat exchanger where it recovers a cold temperature (30°C), then it's sent again to the washing column.

The solvent vapors generated in the distiller are sent to a condensation unit. The recovered solvents are stocked in a tank. The mixed solvents are sent to a batch distillation column where they are warmed-up until the distillation point, suffering a separation between light and heavy solvents.

All the process is controlled by a SCADA system.

PROCESS DIAGRAM



INSTALLATIONS EXAMPLES

VOCs DEPURATION PLANT WITH SOLVENT RECOVERY with 40.000 Nm³/h for TRELLEBORG NAVEX in Cascante (NAVARRA)

