

**SOLVENT RECOVERY
PLANT**

PREMISE

Alongside the reduction of VOCs, another crucial aspect of ecological management of industrial production is recovering solvents, i.e. of pollutants in gaseous emissions (VOCs).

With the development of Commerce, and the growth of industries, has become increasingly kicking the need for a careful and responsible control of polluting emissions, in great respect for nature.

In this regard, the analysis of the substances released into the atmosphere as a result of production cycles is crucial both to reduce the environmental impact and to respect the limits imposed by the regulations: in this context, the solvents contained in the gases should be filtered, and retrieved, so it can be reused in the production process without harm to the environment and saving money at the same time.



SOLVENT RECOVERY PLANT

Solvent recovery is effected through the transfer (adsorption) gas emission pollutant contained in an adsorbent material (usually carbon) from which it is removed through the use of a hot fluid (steam or nitrogen, Depending on the water solubility of the contaminant).

Some molecular diffusion processes (adsorption) determine the accumulation of pollutants in the gases (adsorbed) on particular solid surfaces (adsorbents).

Subsequently, the accumulated pollutant is removed from the adsorbent by means of a hot fluid. In this way, the final phase of the process called regeneration.

Because of their physical properties likely to foster molecular migration from the gas phase to the solid, the filters used in this process are active carbons. The efficiency ratio of this substance is to 1 kg about 2 million square meters of surface.

If solvents to be treated are not water soluble substances (eg. Toluene, hexane), mainly impigante in printing an intaglio printing, we will supply installations in which solvent regeneration takes place by means of steam.

The process of separation and solvent recovery in that case will be managed through successive stages of cooling and condensation of the vapours. On the other hand, where polluted water are present in the SOV will recovery with inert gas, typically nitrogen.

In this case, the solvent will be recovered by a process of cooling.

In order to maximise the efficiency of the systems, all recovery systems implemented have auxiliary systems to economize the use of steam and treat the solvents recovered through distillation and dehydration processes.

DESCRIPTION

The solvent is subtracted from the gas through the help of carbons. The exhaust gases of the industrial process is first filtered mechanically, and then driven to the activated carbon cells. Pretreatment and subsequent filtering, are intended to prevent the pollutants are discharged directly into the atmosphere.

The substance is then desorbed using the steam/nitrogen. Once the filter reaches a State of saturation, indicated by the fact that the purification capacity falls below a certain level, then begins the regeneration, or cleaning the filter through the steam/nitrogen. The hot fluid soaks so the solvents from the coals, and comes out.

You retrieve the solvent from water through drying of the fluid. At this point then the gas is condensed by means of a heat exchanger, and the liquid is brought to the Distiller.

The substance is distilled. The distillation process begins with a decanter, where the liquid is decanted: the result is two substances, a heavier or solvent soaked, and the other more liquid that is water saturated with solvent. The first is dried through a column of drying and is then transported to a Distiller where it is purified from imperfections and reinserted into the production cycle, the second will be sent to a reboiler where by evaporation at low temperatures and subsequent condensation, the substance will be recycled.

More specifically, active carbon solvents recovery plant mainly consists of:

- ⇒ Capturing and conveying air network
- ⇒ Filtration and gas cooling system
- ⇒ Intake and exhaust fans
- ⇒ Activated carbon adsorber
- ⇒ Regeneration system of coals
- ⇒ Raw acetate at low temperature condensing system
- ⇒ Refrigeration unit, water tower and pumping station system
- ⇒ Distillation columns for the production of acetate from the rough

ADVANTAGES

The main advantages of this system are:

- ⇒ High efficiency and acetate recovery
- ⇒ Low energy consumption and responsive
- ⇒ Constancy of performance, self-contained gas characteristics
- ⇒ Demolition of odoriferous substances
- ⇒ Operating safety without risk of fire because the gases are constantly checked in and out of the "LEL". The nitrogen regeneration in the absence of oxygen prevents any combustion and then fire.
- ⇒ High quality of recovered solvent

In this plant, hazardous substances are made basically by ethyl acetate solvent recovered content at certain circuits of the structure, in particular:

- ⇒ Condenser and raw recovery
- ⇒ Service tank of the blank
- ⇒ Distillation columns
- ⇒ Higher boiling azeotropes, service tanks, pure
- ⇒ A general system of land ensures an equipotential of the masses and a defense from atmospheric discharges.

CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

SITES S.r.l.
Via Trento, 82
22070 Fenegrò (Como) – Italia

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standards:

ISO 9001:2008

The Quality Management System is applicable to:

Engineering, manufacturing, assembly and assistance of gas, air, oil and gas treatment plants for petrochemical and energy companies.


This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval Certificate
No: LRC 6009580/QMS/UE/N

Original Approval: 2nd June 2010

Current Certificate: 14th June 2016

Certificate Expiry: 14th September 2018


Issued by: Lloyd's Register Quality Assurance Italy Srl
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CERTIFICATE SCHEDULE

SITES S.r.l.
Via Trento, 82
22070 Fenegrò (Como) – Italia

Locations

Via Trento, 82
22070 Fenegrò (Como) – Italia

Via Milano, 74 b
22070 Bregnano (Como) - Italia

Activities

Engineering, project management, manufacturing and assembly and assistance of electrical panels, control and power panels for petrochemical and energy companies. Prefabrication of steel structures.

Engineering, project management, manufacturing and assembly of gas, air, oil and gas equipment for petrochemical and energy companies. Technical assistance activities.

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