

STRIPPING COLUMN

Solution for COD & VOCs



LIMPID ENGINEERING PVT. LTD.

“Extended Optimization”

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STRIPPING COLUMN

■ Exposing the liquid to high vacuum & high temperature to removes volatile substances.

INTRODUCTION

This precisely tuned-performance packed type stripping column is particularly designed for the removal of solvents and volatile organic compounds (VOCs) from the pharma/API industry effluent. The stripping column is a part of the Limpid Engineering COD removal concept and can also be offered as a retrofit component for other process industries.

Pharma plant effluent constituents' solvents like methanol, toluene, benzene, toluene, xylene, etc. and their removal is mandate according to pollution norms. Limpid Engineering's striping column is an intriguing solution for sustainable environment and to meet the clean environment responsibility.

HOW IT WORKS

The pre-treated, filtered, and heated effluent is pumped to the distributor installed on the top of the column. The distributor spreads the liquid evenly over the cross-section of the column which flows downwards by gravity. This liquid then trickles down the structured or random packing, flowing as a thin layer on this extended surface until it reaches the bottom of the column. It then continues to the next process step. The counter-current flow of the vapours generated from the same liquid is achieved with the application of heat applied at reboiler through a steam distributor installed in the bottom of the column or from directly steam. The trickling liquid in the column meets the stripping steam in a counter-current flow. The column is under vacuum, so exposing the liquid to the vacuum at a high temperature simultaneously removes volatile substances and the steam carries them out to the vacuum outlet at the top of the column. The height of the column is a function of the fraction of the VOCs or solvents present in the feed.



Concept

Contact/mass transfer area optimization for better efficiency.

PACKING: High Sp. Surface



Design

Number of stages/heights of the packing precisely in accordance with feed parameters.

STAGES: Optimized



Development

Option for no utility requirement i.e., heating steam and cooling water.

ZERO UTILITY: Alternative



Customization

MOC along with ancillaries like condenser, reboiler & heat pump.

MOC: Suitable

DISTINCT FEATURES

■ Distinctively innovative.

Some important features

- Combined vacuum and vapours/steam effect to distill off volatiles completely.
- Uniform distribution and re-distribution for fine liquid film formation on packing, thereby Less liquid holdup, and fast drainage.
- More specific surface of the packing for high mass transfer rate and thereby reduced the recycling and heat energy demand.
- Optimized packing height to ensure results.
- Highly flexibility for turn down.
- Accessible for assembling the packing and for maintenance.
- Multiple manholes with illuminated sight glasses with double O-rings on the flanges.

Technical Specifications

Capacity: up to 1.50MLD (Higher capacities customization available)
Operating temperature: 0.1 bara to higher pressure
Steam consumption: depend on the COD level
Material: Shell AISI 304/316L/316; Packing AISI 316L/316

Options

- With a Condenser incorporated in the top.
- Heat Pump to avoid cooling tower.
- Reboiler to avoid direct steam injection.
- PLC based indication/controlling.

ASSESSMENT WORKFLOW

Feed analysis > Design > Fabrication > Installation > Commissioning > Handover

01

Feed Parameters Analysis for VOCs

Effluent parameter study through report and further analysis is made based on the factory product & by product.

03

Designing considering feed and targets

Considering the feed parameters i.e., VOCs present in the feed, system is designed to distill of to an acceptable level.

02

Knowing the availability of the utilities

Availabilities of the utilities like steam and cooling water in campus is checked and accordingly system ancillaries proposed.

04

Supply, commissioning & handover

Fabrication and installation, followed by commissioning and finally handover.

OTHER FEATURES

Better choice to strip volatile from a liquid stream

“For the remove unwanted materials like ammonia, methanol, toluene, benzene, toluene, xylene, etc. and similar solvents from process streams/wastewater”

THE EDGE

WATER

Intriguing solution for water recovery from effluent generated.

REMOVAL OF HEAVY SOLUBLE ORGANIC Cs

VERY HIGH REMOVAL RATES

MOST ECONOMICAL

WATER RECYCLING

MINIMIZES AIR EMISSIONS

EASY SOLUTE RECOVERY

THE CUTTING EDGE

ENERGY

Cutting-edge design that put our stripping column in favorable position.

99% OF VOCS ARE REMOVAL

DISTILLATION PROCESS

SUITABLE FOR CHLORINATED HYDROCARBONS

NO STEAM (OPTIONAL)

HEAT RECOVERY THROUGH HEAT PUMP

NO HEAT SINK (OPTIONAL)