

GLOSSARY OF TOWERS AND COLUMNS

Generic terms: Mass Transfer, Gas Cleaning (Plant), Towers, Columns, Tower Internals.

ABSORBER. A tower or vessel or column in which a gas is contacted by a liquid to absorb some gaseous content. Sometimes known as a 'Scrubber'.

BED or PACKED BED. The total mass of packings in a column are termed the 'packed bed'.

BUBBLE CAP. A cap on a distillation tray through the gas phase in a column is bubbled through the liquid on the tray to enable a process of distillation or other mass transfer to occur.

CANDLE FILTER. A mist eliminator in cylindrical form, with a filter bed of fibres.

CHEVRON. An impingement type filter comprising an array of angled profile plates through which gas is passed to remove larger droplets. Also known as 'Vaness', 'Vane Packs', 'Droplet Separators', 'Demister'.

COALESCER. A mesh pad type filter made of co-knitted wire and fibre mesh. Used either as a first stage agglomerator to increase the collection efficiency of a demister, or as material for liquid/liquid separation.

DEMISTER. Usually means a filter made of layers of knitted wire mesh. It is sometimes used to mean other types of droplet or mist eliminating devices, e.g. candle filters, vane packs. Also known as 'Mesh Pad', 'Knitted Mesh', 'Crinkled Wire Mesh Pad', 'Foam Arrestor', 'Droplet Separator'.

DISTRIBUTOR. Various forms of piping or troughs that are designed with drip holes or slots to distribute the liquid entering the top of a column in as even a spread as possible.

DROPLET SEPARATORS. Alternative name for vane mist eliminators. See CHEVRONS or VANE PACKS.

INTALOX saddles. See SADDLES.

LIQUID/LIQUID COALESCING. The use of knitted wire materials, including fibrous material, separating liquids of different density when mixture is passed through.

MIST ELIMINATOR. Usually means a mist eliminator in cylindrical pad form, with a filter bed made of fibres. Occasionally used to mean other types of droplet or mist eliminating devices, e.g. demisters, vane packs. Also known as 'Candle Filter', 'Brinks', 'Fibre Beds'.

PACKING. A general term used for packing put into all types of columns and scrubbers, also called tower fill and may be termed dumped or random packing, or structured packing. Commercial names include SNOWFLAKE.

Dumped or random packing is in fact dumped randomly in the distillation tower or column. Packing takes on various descriptive or trade names including some commonly used names such as Raschig Rings, Pall Rings, or Saddles.

PALL RINGS. A well-known and popular packing, whose diameter is as large as its length & has windows in the walls to enable liquid to trickle down the column through the rings in as widely spread manner as possible. Always injection moulded. Typically, in polypropylene, but also more expensive melt processable plastics, such as PVDF. Metal and ceramics products are also available. Advance on the original RASCHIG RING, thus a second-generation packing.

PANEL FILTER. A form of fibre filter, chiefly for high velocity service, with a rectangular frame and a fibre filling. Multiple panel filters are installed in polygon or square structures.

RASCHIG RINGS. A well-known, but not so popular packing, whose diameter is as large as its length, but without windows in the walls. This ring resembles a cut piece of pipe whose length is equal to its diameter.

Low performance characteristic, but very cheap if cut from pipe. First packing ever made, thus the first-generation packing.

RINGS – see RASCHIG RINGS and PALL RINGS. Also, a generic term used for tower packings – see Tower Packings.

RE-DISTRIBUTOR. A distributor placed half way through a column to capture liquid that has flowed to the column walls and then to redistribute the liquid back into the main packing bed. It is in the form of a rosette or can be made from troughs.

SADDLES. A fairly well known and somewhat popular packing, whose shape is like a horse saddle and has windows in the saddle to enable liquid to trickle

down the column through the saddles in as widely spread manner as possible. Always injection moulded as plastic. Typically, in polypropylene, but also more expensive melt processable plastics, such as PVDF. Metal and ceramic saddles are also available. Generally, falls in the third-generation products. Also known as INTALOX saddles.

SCRUBBER OR ABSORBER. A gas cleaning equipment comprising a tower or vessel or column in which a gas is contacted by a liquid to remove gaseous, liquid, solid or odorous contaminants, often using a chemical reaction.

STRUCTURED PACKING. Usually supplied as a bed of structured packing consists of a bed support upon which the elements of structured packing are then placed. Beds of structured packing typically have lower pressure drops than beds of random packing of comparable mass transfer efficiency. Structured packing elements are composed of grids (metal or plastic) or woven mesh (metal or plastic) or of thin vertical crimped sheets (metal, plastic, or ceramic) stacked parallel to each other.

SUPPORT PLATE. A plate that holds the contents of a tower filled with packing of some type. The plates are usually perforated or with special slots cut into a corrugated form to enable upward movement of the vapours in the tower.

TOWER PACKINGS. Random dumped or structured forms of packing installed in a tower or vessel or column to assist the contact between a downward flowing liquid and an upward flowing gas. Also known as 'Column Packings'.

TRAY. Distillation tray used also as a tower internal to enhance the distillation process and thus efficiency thereof. Extended range of special designs are available in the market place. Most common and first-generation type are termed sieve-trays and are a perforated flat plate.

VANE PACKS. An impingement type filter comprising an array of angled profile plates through which gas is passed to remove larger droplets. Also known as 'Chevrans', 'Droplet Separators', 'Demister'.

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