

Tellerette® Type 2R

High efficiency plastic tower packing Jan 04



ARMATEC

PRODUCT DESCRIPTION

Tellerette® Type 2R are a high efficiency plastic tower packing designed for use in wet scrubbers, cooling towers, mist eliminators, absorption columns and gas strippers. They provide a surface area equal to many other packings but with much greater liquid surface availability. There are many times more interstitial hold up points than other packings, and this has the effect of continuously generating fresh liquid surface area which is the key for high mass transfer between the gas and liquid phases. They have a non-wetting surface, and are used in vessels with a diameter of more than 400mm; for smaller diameters use Tellerette® Type 1.

BENEFITS

Better Mass Transfer

Because of the shape with many interstitial points, liquid surface area is constantly regenerated, and this has been found to be more important to mass transfer than surface area alone. The design constantly renews the liquid surface at no additional cost in energy. This promotes high gas absorption efficiencies because of this natural agglomeration/dispersion cycle, a cycle that continuously exposes fresh liquid surface area to the gas flow.

Better Particulate Collection

The unique filamentous toroidal helix shape is designed to take advantage of inertial impact to collect solid and liquid particulates. Because the open, filamentous shape eliminates orifices where solids can drop out and accumulate, Tellerette® Type 2R packings are effective with high-solid particulate loadings. Tellerette® Type 2R packings are also effective mist eliminators following a wet scrubber.

Low Pressure Drop

The open filamentous shape of Tellerette® Type 2R packing minimises restrictions to the gas flow through the packed bed thus minimising gas pressure drop and energy consumption.

Random Packed

Tellerette® Type 2R packing is placed in a vessel by random dumping thus minimising installation time.

No Liquid Redistributors Needed

Given proper initial liquid distribution such as with a full cone spray nozzle, the liquid is not channelled to the sides thus eliminating the need for liquid redistributors part way down a column.

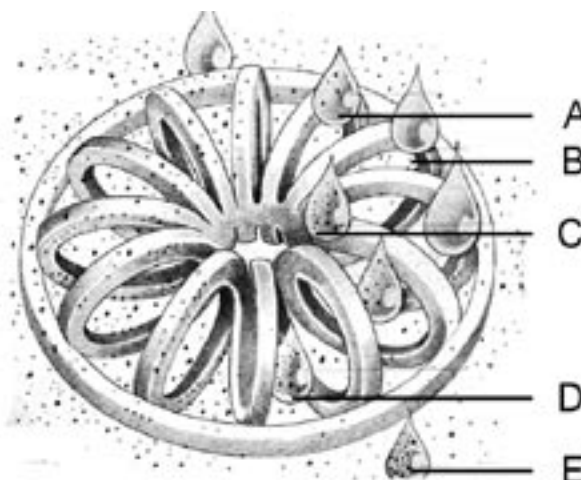
USES

- Wet scrubbers for gas absorption
- Cooling towers for heat transfer
- Mist eliminators for liquid particle removal
- Gas absorption columns
- Gas strippers
- Air washers

AVAILABILITY

Tellerette® Type 2R are available in New Zealand ex-stock for maximum convenience. They are moulded by ARMATEC Environmental Ltd. in New Zealand under licence to Ceilcote Air Pollution Control of the USA. The standard material is polypropylene, but other materials are available on request. For large orders lead times for manufacture are 4 to 8 weeks.

TELLERETTE® TYPE 2R



- A Liquid is collected by inertial impaction.
- B Droplets form at countless interstitial hold up points.
- C As each droplet falls, it strikes the next packing filament and bursts, exposing fresh surface to gas.
- D This agglomeration/dispersion cycle repeats continuously with no additional energy requirement.
- E Contaminant molecules are absorbed with unique efficiency.

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DESIGNING WITH TELLERETTE® TOWER PACKING

Design Advantages

- A. Higher gas absorption efficiencies resulting from the continuous agglomeration/dispersion characteristics which constantly expose fresh liquid surface area to the gas flow.
- B. Greater gas flow capacity permitting use of smaller diameter, lower cost columns.
- C. Non-plugging operation, even when appreciable particulates are present.
- D. No flooding.
- E. No channelling when proper initial liquid distribution is used.
- F. Tellerette® Tower Packing is the first choice for many new absorption and scrubber applications and is an ideal replacement for existing extended surface packing, especially where greater throughput and/or efficiency is desired.
- G. Tellerette® Tower Packing is available in #1, #2, and #3 sizes and in many different materials of construction: #2 are moulded in New Zealand, and #1 and #3 are imported from the USA as required.

Design Tips

- A. Tellerette® Tower Packing maintains good liquid distribution through packing depths in excess of 10 metres. Good initial liquid distribution is essential. Spray headers using full cone spray nozzles are recommended. Weir distributors are not recommended.
- B. Design of the packing supports is important. The plates or grating should have an open area of 75% to 80%. Intermediate supports must be of a design that will avoid maldistribution. Plastic packing support plates available from ARMATEC are particularly useful in this regard.
- C. A rough rule-of-thumb for calculating liquid hold-up in a Tellerette® Type 2R packed bed is to multiply the volume of packing used in the tower by 5%. This will provide the volume of liquid hold-up. To obtain weight multiply by the liquid density. For more exact liquid hold-up data, please refer to the Tellerette® performance curve entitled "Liquid Hold-up".
- D. Tellerette® Tower Packing can be operated at capacities up to the phase inversion point. Because of their open filamentous configuration, phase inversion in a Tellerette® packed column can be reversed by simply reducing either the gas or liquid flow. The tower does not have to be shut down and restarted.

Physical Properties of Range of Tellerettes®

Nominal Packing Size	Maximum Dimension OD	Loop Height	Free Volume (%)	Surface Area m ² /m ³	Avg. Packing Factor
#1R	46mm	19mm	87	180	36
#2R	70mm	25mm	93	125	18
#2K	83mm	32mm	95	92	11
#3R	95mm	38mm	92	98	16
#3K	105mm	56mm	96	72	9

Materials of Construction of Type 2R Tellerettes®

Material	P/E	P/P	PVC	CPVC	KYNAR*	TEFZEL**
Operating Temperature [‡]	82°C	93°C	54°C	93°C	135°C	149°C
Weight kg/m ³	61	61	100	109	106	132

Maximum operating temperature will vary depending on operating conditions.

* Kynar is a registered trademark of the Penwalt Corporation

** Tefzel is a registered trademark of E.I. DuPont

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