



Target Market:

Microelectronics

Application:

Hydrogen Peroxide Platinum Catalyst Recovery

Application Description

Platinum is used to catalyze hydrogen and oxygen into hydrogen peroxide (H₂O₂). As a catalyst, platinum acts only as an agent in the reaction and is not affected by the process. This makes it available for reuse. It is important to easily and completely recover the platinum from the solution for reuse. Filtration can be an effective methodology to accomplish this purpose.

Material: Porous Polyethylene

Types of Filters Used

Typically, pleated polypropylene meltblown cartridges or sintered metal tubular filters are used in platinum catalyst recovery applications. The pleated polypropylene cartridges are incinerated to recover the platinum while the sintered metal filters are backflushed.

Purpose of Filtration

The primary purpose of filtration is to capture and recover the platinum catalyst for reuse. The difference in the type of filter used is based on how the platinum is recovered from the filter. If incinerated, polyolefin filters are used. If backflushed, metallic filters are used.

Common Filtration-Related Problems

- Loss of catalyst caused by by-pass or bleed through
- Poor recovery from incineration or backflushing
- High backflush frequency caused by limited surface area

Sintered High-Density or Ultra-High Molecular Weight Polyethylene

FEATURE	ADVANTAGE	BENEFIT
Rigid, Omni-Directional Pore Structure		
• Absolute Ratings	• Consistent pore structure minimizes performance changes caused by differential pressure	• Reproducible performance
• Narrow Pore Size Distribution	• Highly-effective surface filtration for particles larger than the filter pore size rating	• Allows for effective cleaning, backwash and reuse
• Thermally-Bonded	• Sintered omni-directional pore structure	• No media migration, bypass or unloading from 5 to 100 microns
• Excellent Chemical and Thermal Compatibility	• High chemical resistance of HDPE and UHMWPE • Completely incineratable with a high BTU output	• No chemical degradation resulting in bypass or contamination of the process fluid • No incineration residue
Unique, Molded Radial Design		
• High Surface Area	• Low pressure drop and higher flow rate	• Increased life or fewer filters results in lower filtration costs
• Open Channels	• Easy access to filtration area	• Effective filtration and cleaning
• Single-Layer Structural Media	• Eliminates unnecessary support materials	• Improves backwash and cleanability
• Rigid, One-Piece Construction	• Multiple diameters, lengths and end configurations	• Easily adapts to existing filtration systems

PERFORMANCE COMPARISON

Rigid, Omni-Directional Pore Structure				Unique, Molded Radial Design			
POREX Radial Cartridge Filter vs	Depth Cartridges	Pleated Cartridges	Metal Cartridges	POREX Radial Cartridge Filter vs	Depth Cartridges	Pleated Cartridges	Metal Cartridges
Micron Rating	= / -	= / -	= / -	Backflushable	+	+	=
Absolute Filtration	= / +	= / +	=	Surface Area	+	-	+
Surface Retention	= / +	+	=	Molded Construction	+	+	+
Classification Filtration	= / +	+	+	Rigid Structure	= / +	+	=
Sintered Process	+	+	=	Open Pleats	+	+	+
Polyolefin Material	=	=	+	Disposal Cost	+	+	+
Chemical Compatibility	=	=	= / -	Performance Priced	+	+	+
Thermal Compatibility	=	=	= / -	Single Material	=	= / +	+
				Vessel Seal	=	=	=
				Housing Fit	=	=	= / -

Symbol Key: = Porex equivalent + Porex advantage - Porex potential limitation

