

MacroTrap® Guard Bed Media

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Technology that Extends Catalyst Life

Saint-Gobain NorPro develops and manufactures the widest range of catalyst carriers, bed support and guard bed media in the world. Our MacroTrap® guard bed media technology is the most advanced catalyst protection for refiners.

Processing a variety of feedstocks presents unique challenges, and maintaining desired unit cycle length is critical. As a result, the catalyst must be protected from contaminants to ensure catalyst productivity.

How does it work?

MacroTrap® guard bed media are highly macroporous ceramic materials that protect the catalyst bed from premature fouling due to unwanted particulates accumulating on the catalyst, thus reducing its activity. Reduced catalyst activity could lead to undesirable return on investment on the main catalyst bed. MacroTrap media “traps” contaminants in the ceramic media.



Enlarged example of MacroTrap® media with carbon particles.

Typical Properties Comparison

	Units	MacroTrap 1.5 Target Properties	MacroTrap XPore 80 Target Properties
Surface Area	m ² /gm	> 1.50	0.25 max
Water Absorption	%	> 40	> 45
Packing Density	kg/m ³	721 max	513 max
Pore Volume Pores > 10µm	(Hg) cc/gm	> 0.15	> 0.40
Crush Strength	Kgs		
6mm		2.3 min	2.0 min
8mm		4.5 min	4.5 min
10mm		6.8 min	6.0 min

Saint-Gobain NorPro MacroTrap® Guard Bed



MacroTrap® XPore 80 Guard Bed Media -- Maximizing catalyst protection with increased macroporosity benefits

MacroTrap® XPore 80 is the next level of protection. The “XPore 80” name indicates that macropores account for ~80% of total pore volume. This is significant as it permits filtering an extended range of particulate contaminant sizes to ensure catalyst productivity.

- Macropores trap larger particulate matter
- Micropores trap smaller particulates
- Tortuous path improves trapping performance of contaminants



See our animated **videos** for further explanation and demonstration on the effectiveness of MacroTrap® guard bed media.

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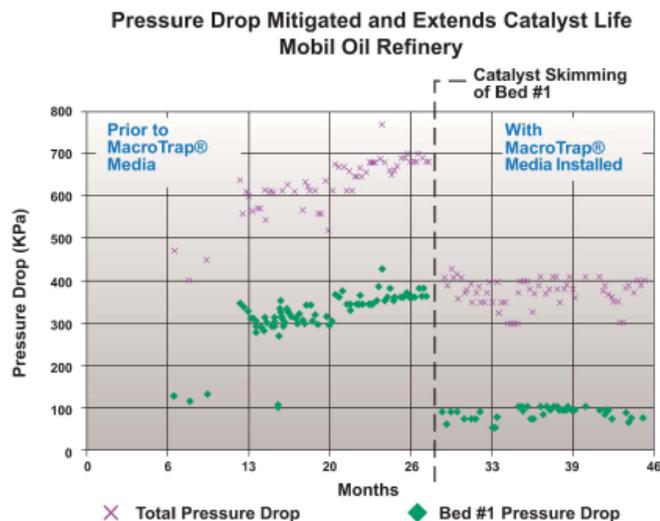
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Naphtha Hydrotreater Case Study

MacroTrap® guard bed media more than doubles Naphtha Hydrotreater production time between skimming.

Problem:	Pressure drop increase in a Mobil Oil Naphtha Hydrotreater required the refiner to shut down the reactor routinely to skim the catalyst bed. Pressure drop doubled after seven months in operation and tripled after 20 months.
Solution:	Mobil installed a 270mm layer of MacroTrap® media on top of the first of the reactor's three catalyst beds.
Results:	After 18 months operation with the MacroTrap® media, the unit experienced no detectable pressure drop increase. The refiner proceeded to apply MacroTrap guard bed media to other units in the refinery.
Application Details:	<p>Feed: Persian Gulf Crude 288 - 413°C (550 - 775°F) 33 bar (500 psig)</p> <p>Guard Bed: 270mm layer of 13mm (1/2 in.) MacroTrap® 1.5 media on top of two layers of Raschig rings which lie on top of the catalyst.</p> <p>Catalyst: Commercial hydrodesulfurization catalyst 1.5mm (1/16 in.) polylobed extrudate.</p> <p>Run Time: After 18 months' operation with the MacroTrap® spheres, the unit experienced no detectable pressure drop increase. The refiner proceeded to apply MacroTrap media to other units in the refinery.</p> <p>Feed Composition: C/H molar ratio 0.6 0.1 - 0.2% particulate</p>



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