



Magma has developed the Magcat range of reforming catalysts specifically designed for the Midrex® type reformers. Nickel oxide and promoters are impregnated onto high strength catalyst carriers to provide a range of low, medium and high activity catalysts suitable for a wide range of natural gas compositions.

Magcat 700 series is Magma's conventional catalyst with the active phase impregnated on a sintered alpha alumina carrier of

excellent strength and thermal shock resistance. Alpha alumina is the most stable alumina phase and guarantees a long term physical integrity at the elevated processing temperatures.

The alpha alumina carrier is pre-formed by Magma's specially adapted ceramic forming technologies including extrusion, gel casting, and pressing. The carrier is fired to temperatures at which a very strong inter-grain bond between alumina particles forms.

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Magcat DRI Catalysts

continued

Optimised pore size and pore size distribution promote easy access to the inner pore structure which enhances the overall activity of the catalysts. The optimised shape design offers high geometric surface area, high mechanical strength, and low pressure drop.

Magnesia based or magnesia co-impregnated catalysts are also available for the reforming of natural gas feedstocks containing significant levels of heavier hydrocarbons. These catalyst

carriers are especially suitable for the inert, low and medium activity catalysts. The harmful carbon formation reactions are suppressed by reducing the catalyst surface acidity.

As an active component lanthanum oxide promoter has also been incorporated into the composition (Magcat 800 series). Lanthanum oxide has strong basic properties thereby reducing any acid promoted carbon forming reactions. It is also able to hydrogenate carbon polymer

precursors already formed on the catalyst surface, further reducing the frequency of carbon burnout.

Lanthanum oxide has a further beneficial property: it stabilises the active phase composition resulting in higher activity than unpromoted catalysts.

For an even higher carbon forming resistance an option is available of lanthanum oxide promoted active phase combined with a basic magnesia carrier.

Magcat range of DRI catalysts

	Active phases/carrier material	Ni wt%	La, wt%	Activity
Magcat700	Alumina heat transfer medium	–	–	Inert
Magcat702	Nickel/Alumina	≥1.0	–	Low
Magcat750	Nickel/Alumina	≥4.5	–	Medium
Magcat710	Nickel/Alumina	≥9.5	–	Medium/high
Magcat802	Nickel, Lanthanum/Alumina	≥9.5	≥2.0	High

Options available: magnesia based or magnesia co-impregnated carriers. Carrier sizes: standard fluted rings (mm) 38x38x14 (diameter x height x central hole diameter), smaller dimension (25x25x8) also available. Other shapes and activities available on request.

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