

HGR®-LH

Impregnated Activated Carbon



CALGON CARBON CORPORATION

Description

HGR®-LH is an impregnated granular activated carbon designed to remove mercury from aliphatic liquid hydrocarbons. HGR®-LH will effectively remove all forms of mercury compounds, including organic, ionic, and elemental.

The bituminous coal-based activated carbon substrate affords excellent adsorption capacity for removing organic mercury compounds. The potassium iodide impregnate removes both elemental mercury and ionic mercury compounds. The large internal surface area provided by the activated carbon increases the speed and yield of this catalytic process. HGR®-LH has been demonstrated to remove total mercury concentration to below 1 ppbw.

Design Considerations

To insure maximum performance over extended service lives, "wet" hydrocarbon streams should be free of separated water prior to treatment with HGR®-LH. The design of an activated carbon adsorption system is dependent upon the adsorbate type, flow rate, performance objective, and the chemistry of the hydrocarbon liquid. Calgon Carbon can help evaluate the suitability of HGR®-LH to satisfy specific needs and assist in the design of an adsorption system. For additional information, contact the Calgon Carbon Technical Sales Representative for your area.

The typical apparent density for HGR®-LH carbon is 0.56 g/cc (35 lbs./ft³). Properly designed treatment systems start at a minimum of 15 minutes empty bed contact time. The minimum vessel size is dependent upon the level of mercury contamination present, the effluent mercury requirements, and the desired service life. Based on Calgon Carbon's experience, superficial velocities of 1 to 5 gpm/ft² (2.4 to 12.2 m/hr) result in acceptable system performance.

Features

<i>Activated Carbon Substrate</i>	
Metallurgical grade, bituminous coal-based	
Coal is pulverized and reagglomerated with suitable binder	
Thermal activation with reducing atmosphere (steam)	
<i>Impregnation</i>	
KI impregnant	
Controlled impregnation process	

Applications

Some of the typical mercury removal applications for HGR®-LH activated carbon include:

- Liquid natural gas condensates
- Light and heavy naphtha
- Liquefied propane
- Liquefied butane
- Any aliphatic liquid hydrocarbon

Specifications

<i>Base Material</i>	
Iodine Number	1,050 mg/g (min)
Abrasion Number	75 (min)
<i>HGR®-LH</i>	
KI by weight	11–13%
Moisture, as packed by weight	2% (max)
Screen Size by weight, US Sieve Series	
On 8 mesh	15% (max)
Through 30 mesh	5% (max)

Benefits

<i>Activated Carbon Substrate</i>	
Produces the optimal pore structure to support the impregnant and physically adsorb the mercury and its reaction products.	
Creates optimal transport pathways into the reaction sites and adsorption surface for faster chemical conversion processes and adsorption.	
No residual activation chemicals remaining on the carbon to interfere with the application (steam only).	
<i>Impregnation</i>	
Removes total mercury content, including organic, ionic, and elemental mercury species, to less than 1 ppb (µg/L) concentration.	
Requires no pretreatment other than particulate and free water removal.	
Elevated weight percentage of impregnant ensures high breakthrough capacity.	
Maintains an open pore structure providing high adsorption capacity for mercury and its compounds and rapid transport of mercury to the reaction and adsorption sites.	

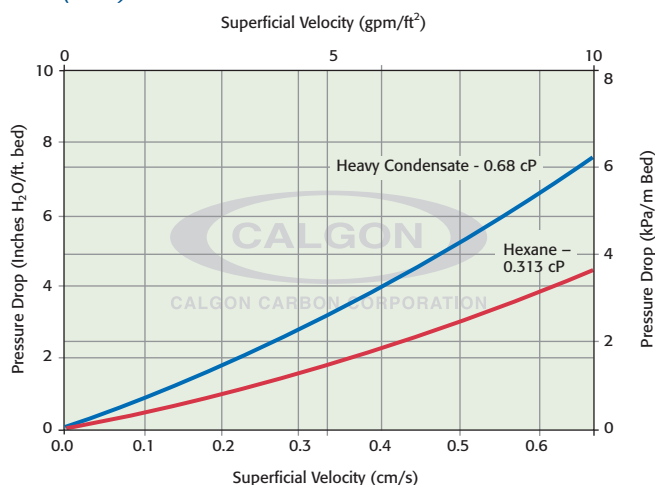
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Pressure Drop Curve

68°F (20°C)



Packaging

220 lb. (100 kg) drums

Safety Message

Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed, including all applicable Federal and State requirements.

Limitations of Liability

The Supplier's liability and the Purchaser's exclusive remedy for any cause of action arising out of this transaction, including, but not limited to, breach of warranty, negligence and/or indemnification, is expressly limited to a maximum of the purchase price of spare parts or equipment sold hereunder. All claims of whatsoever nature shall be deemed waived unless made in writing within forty-five (45) days of the occurrence giving rise to the claim. In no event shall the Supplier, for any reason or pursuant to any provision of the warranty, be liable for incidental or consequential damages or damages in excess of the purchase price, nor shall the Supplier be liable for loss of profits or fines imposed by governmental agencies.



CALGON CARBON CORPORATION

Calgon Carbon Corporation
P.O. Box 717
Pittsburgh, PA USA 15230-0717
1-800-422-7266
Tel: 412-787-6700
Fx: 412-787-6713

Making Water and Air Safer and Cleaner

Chemviron Carbon
European Operations of
Calgon Carbon Corporation
Zoning Industriel C de Feluy
B-7181 Feluy, Belgium
Tel: + 32 (0) 64 51 18 11
Fx: + 32 (0) 64 54 15 91

Calgon Carbon Asia
65 Chulia Street
#37-03 OCBC Centre
Singapore 049513
Tel: +65 6 221 3500
Fx: +65 6 221 3554

Your local representative

