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12073

Patent(s) Issued

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Novel Materials For Use In Heterogeneous Catalysis

SUMMARY

We have discovered a simple and novel method of preparing highly active and stable catalysts, which may be advantageously used in aqueous hydroprocessing reactions. Essentially, we have discovered how to produce a metal oxide supported metal catalyst, that is itself supported on a high surface area granular carbon support.

In this case the metal oxide supported metal catalyst is applied to the carbon in an eggshell manner, thereby avoiding the severe mass transport limitations under reaction conditions. The metal oxide precursor and optionally the catalytic metal precursor are added to the carbon support as a hydrated suspension, that as a consequence of its size, only can go into the larger pores of the carbon.

With careful control of the preparative conditions, it is possible to prepare a catalyst where virtually all of the catalytic metal is associated with the metal oxide layer, which is in turn found predominately on the outside surfaces and mesopores and macropores of the carbon. The high surface area carbon surface in effect acts as a textural promoter for the metal oxide coatings and helps to maintain the surface area of the oxide coating and high dispersion of the catalytic metal.

ADVANTAGES

- * The eggshell manner of application reduces the amount of noble metal required
- * Limiting the catalytic reaction to occurring only in larger pores eliminates some undesirable side reactions
- * Helps maintain the metal in a highly dispersed state for a longer period of time, allowing longer catalyst life.

RELATED LINKS

» **Published US Patent Application 2003/0004055 A1**

<http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fmetahtml%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220030004055%22.PGNR.&OS=DN/20030004055&RS=DN/20030004055>

Patents & Intellectual Property

- » Patent #: 6,670,300
- » Patent #: 7,186,668
- » Patent #: 7,776,782

Technology Portfolio(s)

- » Chemical Processing and Catalysis

Potential Industry Applications

- » Chemicals
- » Energy & Utilities

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