

PuriStar[®] R8-21 S3

Purification of Refinery Off-Gas Streams

PuriStar[®] R8-21 is a robust nickel catalyst used in sulfided form for the removal of O₂, NO_x and acetylene from refinery off-gas. PuriStar R8-21 is part of a group of products used for the adsorptive treatment of refinery off-gases.

BASF PuriStar R8-21 comes in extrudate form with a nominal diameter of 3 mm (approx. 1/8").

Product Application

Refinery off-gas refers to a gas mixture consisting mostly of hydrogen, methane, ethylene, ethane and a number of different impurities. This type of gas is e.g. generated in catalytic cracking units (FCC, DCC, CPP) and can be of interest for recovery of H₂ and C₂H₄.

R8-21 is used in sulfided form. The sulfiding is typically done in situ (in the reactor itself). An ex-situ sulfiding at a recommended toiler is also possible.

A detailed sulfiding procedure specific for R8-21 is provided with the purchased material.

R8-21 removes O₂, NO_x and acetylene by selective hydrogenation while minimizing olefin losses.

To avoid the formation of Ni carbonyls, R8-21 can only be used in gases with low contents of CO.

The operating temperature of R8-21 is 150 to 245°C (300 to 470°F) depending on the off-gas composition.

The composition and its properties makes R8-21 suitable for regeneration and tolerant to poisons like AsH₃, chlorine or mercury.

BASF's alternative for gases high in CO is PuriStar R3-81. Please refer to the respective data sheet for more information

Typical Properties

Chemical

Main Components	NiO / MoO ₃
-----------------	------------------------

Balance Aluminium oxide carrier

Physical

Crush Strength	Approx. 5 kg (11 lbs), side wall
----------------	----------------------------------

Bulk Density	~ 720 kg/m ³ (45 lbs/ft ³), tapped
	~ 660 kg/m ³ (41 lbs/ft ³), sock loaded

Packaging (Typical)

- 140 kg net (308.6 lbs) in 210 l steel drums

Shipping Point

- De Meern, The Netherlands

About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

BASF - We create chemistry

Americas

BASF Corporation
25 Middlesex/Essex Turnpike
Iselin, New Jersey, 08830, USA
Tel : +1-732-205-5000
Fax: +1-732-205-7725
Email: catalysts-america@basf.com

Asia Pacific

BASF (China) Company Limited
300 Jiang Xin Sha Road,
Pudong, Shanghai 200137
P.R. China
Tel: +86-21-2039 2549
Fax: +86-21-2039 4800-2549
Email: catalysts-asia@basf.com

Europe, Middle East, Africa

BASF De Meern BV Catalysts
The Netherlands
Tel: +31-30-666 9437
Email: catalysts-europe@basf.com

Puristar is a trademark of BASF.

Although all statements and information in this publication are believed to be accurate and reliable, they are presented gratis and for guidance only, and risks and liability for results obtained by use of the products or application of the suggestions described are assumed by the user. NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH. Statements or suggestions concerning possible use of the products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should not assume that toxicity data and safety measures are indicated or that other measures may not be required. © 2015 BASF