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IEEE Standard for Power Plant De-Nitrogen Oxide ($DeNO_x$) Plate-Type Catalysts

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IEEE Standard for Power Plant De-Nitrogen Oxide ($DeNO_x$) Plate-Type Catalysts

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Abstract: Criteria for testing methods and technical parameters for geometrical features, physical and chemical properties, and de-nitrogen oxides ($DeNO_x$) technological properties of power plant $DeNO_x$ plate-type catalysts are established in this standard.

Keywords: $DeNO_x$ plate-type catalyst, geometrical features, IEEE 2404™, physical and chemical properties, technological properties, testing methods

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Introduction

This introduction is not part of IEEE Std 2404-2016, IEEE Standard for Power Plant De-Nitrogen Oxide ($DeNO_x$) Plate-Type Catalysts.

Nitrogen oxides (NO_x) are very harmful to the environment. These gases are not only major contributors to acid rain (by forming nitric acid in the atmosphere) but also active compounds to form photochemical smog and to destroy the ozone layer; they are also highly toxic and extremely harmful to human health.[1, 2] In recent years, rapid economic development has given rise to dramatic increase of NO_x emission, which has seriously damaged the ecological system. Nowadays, control of the NO_x emission has become a global environmental concern. NO_x emissions from power plants are relatively concentrated and given off in large quantities. NO_x emission limits of the power plants have been increasingly stringent.[3]

Reducing NO_x emissions from power plants can be achieved by applying NO_x control technologies, among which selective catalytic reduction (SCR) is one of the most widely used and mature technologies.[4] The key technology of the SCR process is the catalyst, which exhibits high denitration efficiency and stability, and can work at relatively low temperatures. A plate-type catalyst plays a significant role in the SCR process, and has a relatively high market share. However, currently there are no standards issued for plate-type catalysts, and this situation results in differentiation of product quality and the disagreement of testing methods. The previously mentioned disadvantages hinder the development of the SCR catalyst market, and it is necessary to establish the "standard for power plant de-nitrogen oxide ($DeNO_x$) plate-type catalysts," which could specify the testing methods and technical parameters for geometrical features, physical and chemical properties, and $DeNO_x$ technological properties of plate-type catalysts.

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[2]Buscaa, G., L. Liettib, G. Ramisa, and F. Berti, *Appl. Catal., B,* 1998, 18, 1–36.
[3]Popp, D., *J. Environ. Econ. Mnange.,* 2006, 51, 46–71.
[4]Forzatti, P., *Appl. Catal., A,* 2001, 222, 221–236.

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