# Producing Catalyst such as Methanol Synthesis Catalyst, Ziegler Natta Catalyst, Ammonia Catalyst

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## 1.Theme Description

Catalysts are substances used to speed-up chemical reactions or to selectively drive the desired reaction to promote maximum efficiency. They can be homogeneous or heterogeneous, that is they can be in the same aggregation state of one or more reagents or not. Focusing  the attention on heterogeneous solid state catalysts, which are largely the most applied, they are generally shaped bodies of various forms, as rings (being Rashig rings the most diffused, refer to Figure 1), spheres, tablets and pellets and their performance is measured according to indices as:

- **activity** (rate with which a chemical reaction proceeds towards equilibrium in the presence of the catalyst);
- **selectivity** (the ratio between the rate of the desired reaction to the rate of the secondary undesired reactions);
- **specific surface area** per cubic meter or kilogram;
- **diffusivity** which the ability to diffuse reagents and products within the catalyst structure.



*Fig. 1 – Rashig rings*

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