

## M<sup>®</sup> Series --Catalyst Bed Support Ceramic Media

### Catalyst support ceramic ball/Inert Alumina Ceramic Ball

#### ■ Application:

High Purity Alumina balls, also known as inert balls or catalyst support media are very important component in the catalytic process in the refinery, gas processing and petrochemical industry. It is commonly used to support catalyst and adsorbents products in the vessel or reactor. Its main function is to act as packing material and at the same time to support the catalyst bed in order to prevent breakthrough or loss of catalyst or adsorbent materials downstream of the reactor vessels due to the high pressure and temperature inside the reactor vessels during the operation. Ceramic balls come in different sizes, which include 1", 3/4", 1/2", 1/4" and 1/8". These sizes are arranged layer by layer at the top and bottom of the vessel or reactor. Typical application include:

- (1) Ammonia Production (2)Methanol and hydrogen production (primarily reforming) (3)Alkylation process using hydrogen fluoride at high temperature (4)Naphtha reforming (5)Isomerization (6)Desiccant dryer (7)Hydrocracker (8) Petrochemical reaction

#### ■ Chemical Composition and Physical Properties (TP90-TP995)

Specification \ Products	M 90 <sup>®</sup>	M 95 <sup>®</sup>	M 99 <sup>®</sup>	M 995 <sup>®</sup>
Al <sub>2</sub> O <sub>3</sub> (%)	≥90	≥95	≥99	≥99.5
SiO <sub>2</sub> (%)	≤6	≤2	≤0.2	≤0.15
Fe <sub>2</sub> O <sub>3</sub> (%)	≤0.3	≤0.15	≤0.12	≤0.1
Compressive Strength N/∅ 13	≥2000	≥2000	≥5000	≥6000
Water Absorption (%)	≤3	≤3	2-4	2-4
Bulk Density (g/cm <sup>3</sup> )	≥2.8	≥3.1	3.2-3.5	3.2-3.7
Packing Density (g/cm <sup>3</sup> )	≥1.7	≥1.9	1.9-2.0	1.9-2.2
Crushing Strength	Excellent	Excellent	Excellent	Excellent
Color	White	White	White	White

**Remark:** Low and medium alumina inert ceramic ball also are available upon requests as attached specification below.

#### ■ Regular Size (mm):

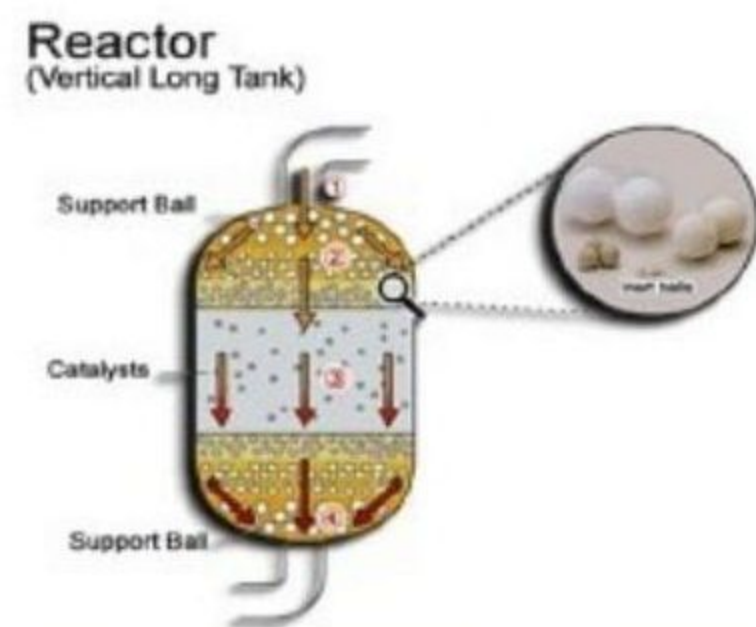
Available Size offer range: from 3mm up to 100mm, forming method can be by rolling or by press.

#### ■ Advantages:

- (1)Excellent impact resistance.
- (2)Excellent Temperature resistance
- (3)Excellent acid-alkali corrosion resistance.
- (4)Excellent thermal shock resistance.

#### ■ Packaging:

By standard woven bag, other package like steel drum, jumbo-bag etc are available upon requests.



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**Specification of Inert Alumina Ceramic Ball**

**( M 20<sup>®</sup> - M 70<sup>®</sup> )**

Products	M 20 <sup>®</sup>	M 30 <sup>®</sup>	M 40 <sup>®</sup>	M 70 <sup>®</sup>
AL2O3%	20-30	30-45	45-70	70-90
Water Absorption%	≤3	≤3	≤3	≤3
Acid Resistance%	≥98	≥98	≥98	≥98
Alkali Resistance%	≥80	≥82	≥85	≥90
Thermal Shock Resistance (from 800°C-20°C)	No broken for more than 3 times	No broken for more than 3 times	No broken for more than 3 times	No broken for more than 3 times
Compressive Strength KN/pc	Φ3	≥0.12	≥0.14	≥0.15
	Φ6	≥0.40	≥0.42	≥0.44
	Φ8	≥0.48	≥0.52	≥0.60
	Φ10	≥0.60	≥0.70	≥0.80
	Φ12	≥1.00	≥1.10	≥1.30
	Φ16	≥1.50	≥1.60	≥1.80
	Φ20	≥1.80	≥2.00	≥2.30
	Φ25	≥2.50	≥2.80	≥3.20
	Φ30	≥3.00	≥3.20	≥3.50
	Φ50	≥6.00	≥6.50	≥7.00
Packing Density (kg/m <sup>3</sup> )	1.3~1.4	1.4~1.5	1.5~1.6	1.6~1.8

