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## Catalyst Support Media





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# 1 Catalyst Support Media

Our two types of catalyst support spheres:

l Ceramic Ball Media : GCBM

l Alumina Ball Media : GABM

## 1.1 Ceramic Ball Media (GCBM)

### 1.1.1 Brief introduction

GCBM-18 & GCBM-23 are specially designed for the best performance under the most demanding conditions. They are manufactured from high quality natural China-clay materials, which enables the products excellent stability, high mechanical strength and thermal shock resistance.



1. GCBM-18 & GCBM-23

### 1.1.2 Application

GCBM-18 & GCBM-23 spheres are applied in a wide range of refining, chemical and petrochemical applications:

- |                         |                       |
|-------------------------|-----------------------|
| l Air drying,           | l Hydro-dealkylation, |
| l Catalytic conversion, | l Hydrogenation,      |
| l Catalytic cracking,   | l Hydro-treating,     |
| l Catalytic reforming,  | l Isomerisation,      |
| l Condensation,         | l Polymerisation,     |
| l Dehydrogenation,      | l Sulphur recovery,   |
| l Desulphurisation,     | l Thermal cracking.   |
| l Hydro-cracking,       |                       |

1. GCBM-18 & GCBM-23 applications

### 1.1.3 Technical Parameter

<b>TYPICAL CHEMICAL ANALYSIS (wt. %)</b>	<b>GCBM-18</b>	<b>GCBM-23</b>
Alumina, Al <sub>2</sub> O <sub>3</sub>	16– 20	20– 26
Al <sub>2</sub> O <sub>3</sub> +SiO <sub>2</sub>	>90	>90
Calcium, CaO	< 1	< 1
Titania, TiO <sub>2</sub>	< 2	< 2
Alkalies, K <sub>2</sub> O + Na <sub>2</sub> O	1 – 4	1 – 4
Magnesia, MgO	< 1	< 1
Leachable Iron	< 0.1	< 0.1
Leachable Sulphur	None Detected	None Detected
Leachable Chlorides	None Detected	None Detected

#### 2. Typical chemical analysis of GCBM-18 & GCBM-23

<b>TYPICAL PHYSICAL PROPERTIES</b>	<b>GCBM-18</b>	<b>GCBM-23</b>
Shape	Spherical	Spherical
Average crush strength	Kg(KN)/particle	Kg(KN)/particle
1/8”(3mm)	>28(0.28)	>28(0.28)
1/4”(6mm)	>55(0.54)	>55(0.54)
1/2”(13mm)	>170(1.67)	>170(1.67)
3/4”(19mm)	>430(4.21)	>430(4.21)
1”(25mm)	>635(6.22)	>635(6.22)
1.5”(38mm)	>910(8.92)	>910(8.92)
2”(50mm)	>1000(9.8)	>1000(9.8)
Bulk density (MT/m <sup>3</sup> )	1.38-1.40	1.40-1.45
Specific gravity	2.35	2.4
Water Absorption,(wt. %)	< 1	< 1
Hardness, Mohs’	6.5	7-8
Acid resistance	>99.8%	>99.8%
Operation temp.(max)	982°C	1100°C

#### 3. Typical physical properties of GCBM-18 & GCBM-23

## 1.2 Alumina Ball Media (GABM)

### 1.2.1 Brief introduction

GABM-92&GABM-99 are made from high alumina, low-silica Alpha alumina powder. The high degree of purity and strength make the product ideal for high-temperature and steam applications where leached silica can coat downstream equipment of foul or poison the catalyst bed. GABM-92 are the industry standard for secondary ammonia reformers.



2. GABM -92& GABM -99

### 1.2.2 Advantage

- | Monolith structure eliminates in-service spalling and delamination, which prevents the incidence of fine chips and splinters plugging beds of catalyst.
- | Maximum resistance to erosion and low attrition minimizes the possibility of catalyst contamination
- | High thermal shock resistance

### 1.2.3 Application

- | Ammonia production: temperatures can reach 1250°C with pressure as high as 3500kpa
- | Methanol and hydrogen production: primarily reforming
- | Alkylation process using hydrogen fluoride at high temperatures
- | Naphtha reforming
- | Isomerization

#### 1.2.4 Technical Parameter

<b>TYPICAL CHEMICAL ANALYSIS (wt.%)</b>	<b>GABM-92</b>	<b>GABM-99</b>
Alumina, Al <sub>2</sub> O <sub>3</sub>	92~96.0	99.0
Silica, SiO <sub>2</sub>	0.3	0.20
Magnesia, MgO	<0.10	<0.10
Soda, Na <sub>2</sub> O	<0.20	< 0.20
Titania, TiO <sub>2</sub>	<0.1	<0.1
Leachable Iron	<0.02	<0.02

4. Typical chemical analysis of GCBM- 92 & GCBM- 99

<b>TYPICAL PHYSICAL PROPERTIES</b>	<b>GABM-92</b>	<b>GABM-99</b>
Shape	Spherical	Spherical
Avg Crush Strength	Kg(KN)/particle	Kg(KN)/particle
1/8" (3 mm)	27(0.27)	203(2)
1/4" (6 mm)	45(0.4)	459(4.5)
1/2" (13 mm)	204(2)	877(8.6)
3/4" (19 mm)	322(3.1)	1220(12)
1" (25 mm)	521(5.1)	1630(16)
1.5" (38mm)	816(8)	>2268(23)
2" (50 mm)	907(8.9)	>2268(23)
Packing Density, (kg/m <sup>3</sup> )	1850	1920
Water absorption, (wt. %)	4	4
Apparent Particle Density, (g/cc)	3.6	3.85
Max operating temp.	1600°C	1700°C
Shape	Spherical	Spherical

5. Typical physical properties of GCBM- 92 & GCBM- 99



## **2 Benefits**

### **2.1 None poisoning & Long service life**

Maximum resistance to erosion and attrition of our Catalyst Bed Media minimizes the possibility of catalyst contamination. The long service life and optimum performance of GBCM Catalyst Bed Support Media translates into lower operating costs.

### **2.2 Available in all sizes**

We produce balls in standard sizes ranging from 1/8" to 3" in diameter. Other sizes are available upon your specific request.

### **2.3 Economical packaging**

In order to provide you the most convenient and economical packaging in terms of manual handling charge on site, We will propose you the advice on the best way of packaging.

We now offer:

- I One cubic foot bags, 40~50bags per pallet.
- I One cubic foot paper boxes.
- I One cubic meter supersack.
- I 55 Gallon steel drums, four drums per pallet.
- I Other packagings are available upon your request.

### **2.4 Quick Shipment on Short Notice**

We preserve high stock levels on standard items, your request will be immediately handled by our IT department, and the order system will automatically transfer the order to our relative staff by email and SMS. You will receive our confirmation within 24 hours. Our system will work literally 24 hours a day, seven days a week. We also has a team of sophisticated shipping staff who used to work in the forwarding company and will guarantee you professional delivery schedule.

### **2.5 Technical Support**

We had been in this industry for more than 25 years. We have maintained a group of competent ceramic material experts. If our standard products don't meet your needs, our technical support will work with your company to develop the products which meet your specific application requirements.