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Ceramic Random Packing





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1 Ceramic Random Packing

Our seven types of catalyst support spheres:

- Ceramic Intalox Saddle : GCIS
- Ceramic Supper Saddle : GCSS
- Ceramic Raschig Ring : GCRR
- Ceramic Pall Ring : GCPR
- Ceramic Cross Partition Ring : GCCPR
- Alumina Ball Media : GABM
- Cascade Mini Ring : GCMR

1.1 Ceramic Intalox Saddle(GCIS)

1.1.1 Brief introduction

GCIS-18 (Ceramic Saddles for chemical and petrochemical) is an industry standard random packing for Chemical and Petrochemical industry. Ceramic Saddles are most frequently used high-performance packing and exhibit advantages for most applications in comparison with other shapes. Their smooth surface imparts a high chemical resistance and provides Ceramic Intalox saddle rings (GCIS-18) with a high level of stability. Due to their simple form, ceramic saddles can be produced at a relatively low cost. GCIS-18 thus becomes the best choice economically.

GCIS-23 (Ceramic saddles for RTO industry) is designed for longer life and increased performance in thermal shock conditions or continuous high-temperature environments. GCIS-23 is particularly suited for RTO's (Regenerative Thermal Oxidizers), the saddles are fired at 1200°C and exhibit greatly enhanced resistance to breakage from extreme thermal conditions. In addition, the new saddles possess higher levels of chemical resistance (even at very high temperatures), as well as superior wetting characteristics, high mechanical strength, and outstanding resistance to abrasion.



1. GCIS-18



2. GCIS-23



1.1.2 Technical Parameter

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCIS-18	GCIS-23
Alumina, Al ₂ O ₃	17– 20	20– 26
Al ₂ O ₃ +SiO ₂	>90	>90
Calcium, CaO	< 1	< 1
Titania, TiO ₂	< 2	< 2
Alkalies, K ₂ O + Na ₂ 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

1. Typical chemical analysis of GCIS-18 & GCIS-23

TYPICAL PHYSICAL PROPERTIES	GCIS-18	GCIS-23
Specific gravity	2.3	2.35
Water Absorption, wt. %	< 0.3	< 0.5
Hardness, Mohs'	6.5	7~8
Acid resistance	>99.8%	>99.8%
Operation temp.(max)	1100°C	1280-1320°C
Thermal conductivity (w/m.k)	0.9-1.0	0.9-1.0
Specific heat (j/kg°C)	850-900	850-900

Size in mm	Weight kg/m ³		Number pc. / m ³	Surface m ² / m ³	Free Vol. %
	GCIS-18	GCIS-23			
12 (1/2")	700	720	740000	620	73
19 (3/4")	660	690	230000	390	74
25 (1")	630	660	84000	255	74
38 (1 1/2")	580	630	25000	166	75
50 (2")	570	600	9300	120	77
76 (3")	560	580	2400	90	79

2. Typical physical properties of GCIS-18 & GCIS-23

Nominal	Size	Diameter of Deck (mm)	Outside Diameter (mm)	Height (mm)	Wall thickness (mm)	Width (mm)
1/2"	12mm	12±1.0	20±1.4	10±1.0	2.0±0.45	10±2.0
3/4"	19mm	19±1.5	28±2.0	14±1.0	2.5±0.5	14±2.0
1"	25mm	25±1.5	38±2.0	19±1.0	3.0±0.5	20±2.0
1.5"	38mm	38±2.0	60±3.0	30±1.5	4.0±1.0	30±2.5
2"	50mm	50±2.5	80±4.0	40±2.0	5.0±1.0	40±3.0
3"	76mm	76±4.0	114±4.0	57±3.0	9.0±1.0	57±4.0

3. Measurement Tolerance for GCIS-18 & GCIS-23

1.2 Ceramic Supper Saddle (GCSS)

1.2.1 Sample Picture



3. GCSS-18

1.2.2 Technical Parameter

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCSS-18
Alumina, Al ₂ O ₃	17– 20
Al ₂ O ₃ +SiO ₂	>90
Calcia, CaO	< 1
Titania, TiO ₂	< 2
Alkalies, K ₂ O + Na ₂ O	1 – 4
Magnesia, MgO	< 1
Leachable Iron	< 0.1
Leachable Sulphur	None Detected
Leachable Chlorides	None Detected

4. Typical chemical analysis of GCSS-18

Nominal Size	Approx.Weight		Surface Area		Void Fraction(%)	Dry Packing factor (m ⁻¹)
	lb/ft ³	Kg/m ³	ft ² /ft ³	m ² /m ³		
1"	40	645	79.5	260	77	570
1.5"	37.5	600	64	210	78	430
2"	35.6	570	42.8	140	79	277
3"	36	580	32	105	77	206

5. Geometric Properties for GCSS-18

TYPICAL PHYSICAL PROPERTIES	GCSS-18
Porosity Vol (%)	Spherical
Specific heat (KJ/Kg)	60 (27)
Crush strength (N/mm ²)	100 (45)
Specific gravity (g/cm ³)	450 (204)
Acid Resistance (%)	710 (322)
Firing temperature (°C)	1150 (521)
Softening point (°C)	1800 (816)
Water absorption (%)	>2000 (907)
Thermal Expansion (10 ⁻⁶ mm/mm°C)	1850
Hardness Mohr Scale	3.5
Comprehensive strength (N)	1600°C
Shock strength (Kgf.cm/cm ²)	Spherical

6. Typical physical properties of GCSS-18

1.3 Ceramic Raschig Ring (GCRR)

1.3.1 Sample Picture



4. GCRR-18

1.3.2 Technical Parameter

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCRR-18
Alumina, Al ₂ O ₃	17– 20
Al ₂ O ₃ +SiO ₂	>90
Calcium, CaO	< 1
Titania, TiO ₂	< 2
Alkalies, K ₂ O + Na ₂ O	1 – 4
Magnesia, MgO	< 1
Leachable Iron	< 0.1
Leachable Sulphur	None Detected
Leachable Chlorides	None Detected

7. Typical chemical analysis of GCRR-18

Size mm	Weight kg/m ³	Number pc. / m ³	Surface m ² / m ³	Free Vol. %
6	800	4.800.000	940	58
10	900	672.000	440	65
12	820	400.000	360	67
15	700	200.000	310	70
25	600	87.700	195	73
35	570	16.400	140	76
50	555	6.300	100	77
80	535	1.470	60	77
100	500	750	44	77

8. Geometric Properties for GCRR-18

1.4 Ceramic Berl Saddle (GCBS)

1.4.1 Sample Picture



5. GCBS

1.4.2 Technical Parameter

Size (inches)	Weight (Lb/ft ³)	Contact Surface (ft ² /ft ³)	Free Space (%)
1/2"	50	143	66
3/4"	47	87	70
1"	45	76	72
1.5"	41	46	73
2"	39	30	75

9. TYPICAL PHYSICAL ANALYSIS

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCBS
Alumina, Al ₂ O ₃	17- 20
Al ₂ O ₃ +SiO ₂	>90
Calcia, CaO	< 1
Titania, TiO ₂	< 2
Alkalies, K ₂ O	1 - 4
Magnesia, MgO	< 1
Leachable Iron	< 0.1
Leachable Sulphur	None Detected
Leachable Chlorides	None Detected

10. TYPICAL CHEMICAL ANALYSIS

1.5 Ceramic Pall Ring (GCPR)

1.5.1 Sample Picture



6. GCPR-18

1.5.2 Technical Parameter

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCPR-18
Alumina, Al ₂ O ₃	17– 20
Al ₂ O ₃ +SiO ₂	>90
Calcium, CaO	< 1
Titania, TiO ₂	< 2
Alkalies, K ₂ O + Na ₂ O	1 – 4
Magnesia, MgO	< 1
Leachable Iron	< 0.1
Leachable Sulphur	None Detected
Leachable Chlorides	None Detected

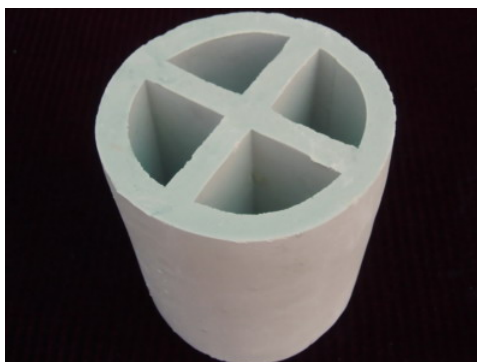
11. Typical chemical analysis of GCPR-18

Size mm	Weight kg/m ³	Number pc. / m ³	Surface m ² / m ³	Free Vol. %
25	620	39.900	220	75
35	540	16.300	165	78
50	555	5.700	120	78
80	520	1.470	80	79
100	500	750	55	81

12. Geometric Properties for GCPR-18

1.6 Ceramic Cross Partition Ring (GCCPR)

1.6.1 Sample Picture



7. GCCPR-18

1.6.2 Technical Parameter

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCCPR-18
Alumina, Al ₂ O ₃	17– 20
Al ₂ O ₃ +SiO ₂	>90
Calcia, CaO	< 1
Titania, TiO ₂	< 2
Alkalies, K ₂ O + Na ₂ O	1 – 4
Magnesia, MgO	< 1
Leachable Iron	< 0.1
Leachable Sulphur	None Detected
Leachable Chlorides	None Detected

13. Typical chemical analyse of GCCPR-18

Size mm	OD*ID*H*T (mm)	Weight kg/m ³	Number pc. / m ³	Surface m ² / m ³	Dry packing (factorm -1)
50	50*40*50*5	600	6400	145	565
80	80*64*80*8	820	1950	120	356
100	100*80*100*10	850	1000	110	252
120	120*96*120*12	860	370	75	146
150	150*120*150*15	980	295	60	101

14. Geometric Properties for GCCPR-18

1.7 Ceramic Cascade Mini Ring(GCCMR)

1.7.1 Sample Picture



8. GCCMR-18

1.7.2 Technical Parameter

TYPICAL CHEMICAL ANALYSIS (wt. %)	GCCMR-18
Alumina, Al ₂ O ₃	17– 20
Al ₂ O ₃ +SiO ₂	>90
Calcia, CaO	< 1
Titania, TiO ₂	< 2
Alkalies, K ₂ O + Na ₂ O	1 – 4
Magnesia, MgO	< 1
Leachable Iron	< 0.1
Leachable Sulphur	None Detected
Leachable Chlorides	None Detected

15. Typical chemical analysis of GCCMR-18

Size mm	OD*ID*H*T (mm)	Weight kg/m ³	Number pc. / m ³	Surface m ² / m ³	Void Volume (m ³ /m ³)
25	25*20*3	624	74000	270	0.74
50	50*30*5	516	9091	109	0.787
76	76*45*7	426	2517	63	0.795

16. Geometric Properties for GCCMR-18



2 Benefits

2.1 Outstanding Performance

Our random Packings are an inexpensive packing alternative to increase a tower's capacity and efficiency. With our designed random packings, capacity increases can be achieved without sacrificing efficiency. Our random packing is manufactured from high quality natural China-clay materials, which enables the products:

- Excellent Stability
- High Mechanical Strength
- Excellent Resistance to Thermal Shock
- Consistent Packing Factors
- Acid Resistance up to 99.8%(except for Hydrofluoric acid)

2.2 Prompt Delivery

We have maintained in stock of standard sizes for immediate shipment at competitive prices. Moreover, We are proud of having a round-clock order management system and a team of professional shipping clerk, which will ensure you prompt and guaranteed delivery.

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:

- One cubic foot bags, 40~50bags per pallet.
- One cubic foot paper boxes.
- One cubic meter supersack.
- 55 Gallon steel drums, four drums per pallet.
- 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 have 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.