



# Ceramic Packings and Balls Process Data

Product Bulletin 1001

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# Torus Saddle

Size mm	Weight kg/m <sup>3</sup>	Number pc./m <sup>3</sup>	Surface m <sup>2</sup> /m <sup>3</sup>	Free Vol. %
12	700	740.000	522	73
20	660	230.000	390	74
25	630	84.000	255	74
38	620	25.000	166	75
50	580	9.300	120	77
90	580	1.800	85	79



# Pall-Ring

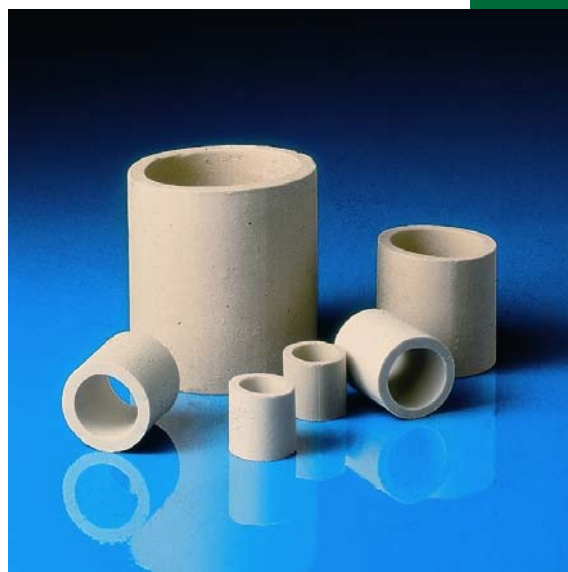
Size mm	Weight kg/m <sup>3</sup>	Number pc./m <sup>3</sup>	Surface m <sup>2</sup> /m <sup>3</sup>	Free Vol. %
25	620	39.900	220	75
35	540	16.300	165	78
50	555	5.700	120	78
80	520	1.470	80	79
100	500	750	55	81





# Raschig-Ring

Size mm	Weight kg/m <sup>3</sup>	Number pc./m <sup>3</sup>	Surface m <sup>2</sup> /m <sup>3</sup>	Free Vol. %
5	900	5.121.000	1.000	56
6	800	4.800.000	940	58
8	850	1.261.000	550	65
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	81



# Balls Ceramics

Ball-Ø inch	Ball-Ø mm	Weight kg/m <sup>3</sup>	Number pc./m <sup>3</sup>	Surface m <sup>2</sup> /m <sup>3</sup>	Free Vol. %
1/8	3 – 5	1.400	8.000.000	620	44
1/4	6 – 7	1.400	4.750.000	420	44
3/8	9 – 10	1.400	1.140.000	390	44
1/2	12 – 13	1.400	80.000	314	45
5/8	15 – 16	1.400	330.000	210	45
3/4	19 – 20	1.350	142.000	157	45
1	25 – 26	1.250	71.000	125	45
1 1/2	35 – 38	1.250	24.000	85	48
2	50 - 52	1.300	8.500	65	45





## Resistance table for ceramic and hard porcelain

The data listed in this table is based on experience gained in actual operation as well as on laboratory studies. In some cases, data from the raw clay suppliers has been incorporated in the evaluations.

The figures given refer to the maximum operating temperature. No entry means "normally, no temperature influence".

This data is reliable, but it does not represent a direct or indirect guarantee for resistance under operating conditions.

Acetic acid 5%	A 120	Monoethanolamine	A
Acetic acid 95%	A 180	Nitric acid 10%	A 100
Acetone	A	Nitric acid 70%	A
Ammonia sulfate		Oleic acid	A
Aniline	A	Phenol	A 100
Benzol	A	Phosphoric acid 10%	C 120
Bromine/water	A 100	Phosphoric acid 85%	C 150
Butanol	A	Potassium carbonate 40%	A 150
Carbon tetrachloride (dry)	D	Potassium chromate (saturated solution)	A
Carbon tetrachloride (moist)	A	Potassium hydroxide 30%	C 40
Chlorine (dry)	A	Sodium carbonate 10%	A 150
Chlorine (moist)	A	Sodium chloride 10%	A
Chlorobenzol	A	Sodium hydroxide solution 5%	B 40
Chloroform	A	Sodium hydroxide solution 10%	C 40
Chloronitrous acid	A	Sodium hydroxide solution 30%	C 40
Chrome acid (20%)	A	Sodium hypochlorite + Cl <sub>2</sub>	A 100
Citric acid	A	Sodium hypochlorite + NaOH	C 40
Diethanolamine	A	Sulfuric acid + hydrochloric acid	A 150
Ethanol	A 150	Sulfuric acid + nitric acid	A 150
Ethylene dichloride	A	Sulfuric acid 10 %	A 120
Ethylene glycol	A	Sulfuric acid 72%	A
Hydrochloric acid 10%	A 120	Sulfuric acid 98%	A
Hydrochloric acid 35%	A 120	Terpentine	A
Hydrofluoric acid 5%	D	Toluene	A
Hydrogen superoxide 30%	A	Trichloroethylene (dry)	D
Kerosine	A	Trichloroethylene (moist)	A
Methanol	A 150	Triethanolamine	A 150
Methyl ethylene ketone	A	Water	A
Monochlorobenzol	A		

A = no noticeable effect

B = slight effect

C = noticeable effect – limited service life

D = strong effect – not resistant

