



Guang Dong Siu Tung
Glass&Plastic Universal Co.,Limited

*Focus on industry twenty years
of excellence, meticulous!*



SIU TUNG GLASS BEADS

...crystal clear water

PRESENTED IN PERFECTION
INTELLIGENT MANUFACTURING IN CHINA
A BRAND THAT YOU ARE WORTHY OF TRUST



SIU TUNG GLASS BEADS

...crystal clear water

Micro biologically and chemically pure

Very high crushing strength and
abrasion resistance

Precisely spheric and uniform

Large variety of narrow size tolerances

Pure and smooth surface-minimizing
biofilm build-up

Maximum permeability and effective porosity

Maximum well capacity

Significant Savings for pumping energy
and well cleaning

Article	Diameter μm	(approx.) Mesh Sizes	Roundness (nominal values)	Compressive Strength	Compressive Resistance (reference values for mean diameter)	Micro Rigidity	Mohs' Hardness	Specific Gravity	Bulk density kg/l	bulk density lbs/lt³
CAS-R-1808	≤44	≤325	0.95	59,640.00	28N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CAS1809	44-53	280	0.95	63,900.00	30N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CAS1810	62-74	220	0.95	85,200.00	40N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CAS1811	74-88	180	0.95	63,900.00	60N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CSRH1819	420-590	30	0.95	84,231.82	87N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CSRH1820	590-840	20	0.95	95,850.00	126N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CSRH1821	590-841	20	0.95	121,143.75	182N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27
CSRH1822	841-1190	20	0.95	160,054.29	263N	≥635kg/mm²	6	2.45g/cm³	1.51	94.27

Other diameters and tolerances available upon request

Article	Diameter mm	(approx.) Mesh Sizes	Roundness (nominal values)	Compressive Resistance (reference values for mean diameter)	Bulk density kg/l	bulk density lbs/lt³
CSRH-1822	1.0-1.5	12-16	0.95	265N	1.51	94.27
CSRH-1823	1.5-2.0	10-12	0.95	390N	1.51	94.90
CSRH-1824	2.0-2.5	8-10	0.95	660N	1.52	95.51
CSRH-1825	2.5-3.0	7-8	0.95	725N	1.53	95.52
CSRH-1826	3.0-3.5	6-7	0.95	1150N	1.53	95.54

Other diameters and tolerances available upon request

Sphedness: ≥0ricity/Roun. 95

(simultaneous measurement of roundness through digital image processing(retsche-camsizer,value b/13))

Free of Silanes/Glycol/Epoxy

We hereby confirm that Silanes, Glycol or Epoxy anr not used during the production and packaging process.

Approximate Metric and Imperial Conversion Data

1 Cubic Feet=1,728 Cubic Inchen=28.32liters 1Kg=2.2046 lbs. or 1 lb.=0.454 kgs
1Cubic Yard= 27 Cubic Feet=0.76Cubic meters 1 liter=0.035 Cubic Feet
1 US Liquid Gallon=3.785 liters 1 Cubic Meter=1,000 liters=35.315 Cubic Feet

Calculating Annular Volume =>(R²-r²)XπXh

R²= Outer Cylinder Radius or Borehole Radius

r²= Inner Cylinder Radius or Casing

π=3.14159265359

h= Height of filling

Bead Sizing-Helpfu Formula=>D=d_cXF_c

With U=d₆₀/d₁₀

F_c=5+U for U<5and F_c=10 for U>5

Derived from uniformity coefficient(U), characteristic grain size(d_c) and filter factor(F_c)based on reliable formation sieve analysis.

Screen slot / bead ration

Maximum screen slot aperture recommended for all types of screens=75% of thesmallest bead diameter of the respective gradation.

Particle Size Conversion

Mesh	mm
325	0.044
270	0.053
230	0.062
200	0.074
170	0.088
140	0.105
120	0.125
100	0.149
80	0.177
70	0.210
60	0.250
50	0.297
45	0.354
35	0.500
30	0.595
25	0.707
20	0.841
18	1.00
16	1.19
14	1.41
12	1.68
10	2.00
8	2.38
7	2.83
6	3.36
5	4.00
4	4.76
3 1/2	5.66



CAS-R-1808
≤44 μm



CAS1809
44-53 μm



CSRH1820
0.59-0.84mm



CSRH-1822
1.0-1.5mm



CSRH-1824
2.0-2.5mm



SIU TUNG GLASS BEADS

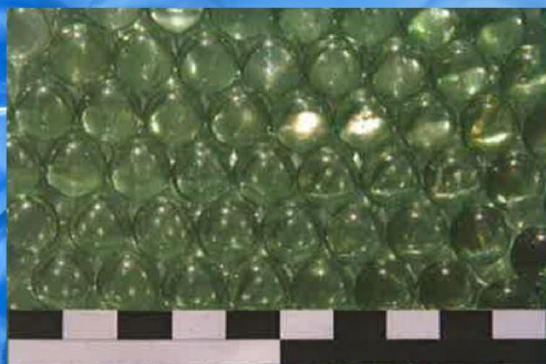
...crystal clear water

Comparative Lifecycle Costs

Comparative Lifecycle Costs, Water well,alluvial formation,depth 25 m (80ft.)natural gravel vs. glass beads as filtermaterial				
		25years		40years
Capital expenditure	glass beads	gravel	glass beads	gravel
	EURO	EURO	EURO	EURO
construction site set up	15,000	15,000	15,000	15,000
well drilling	7,800	7,800	7,800	7,800
installations(well screens,etc)	72,000	72,000	72,000	72,000
gravel	50	1,800	50	1,800
glass beads	6,000	0	6,000	0
pumping test	14,650	14,650	14,650	14,650
clean out pumping	400	2400	400	2400
sand removal pumping	150	600	150	600
Total capital expenditure	116,050	114,250	116,050	114,250
Differences	1,800		1,800	
percentage total	102%		102%	
Operating costs				
Energy	44,794	59,725	71,670	95,560
Well rehabilitation(à 10,000)	25,000	50,000	50,000	100,000
Total operating costs	69,794	109,725	121,670	195,560
Total costs during lifecycle	185,844	223,975	237,720	309,810
percentage total	83%		77%	
Cost saving	38,131		72,090	
percent	17%		23%	

Comparative Lifecycle Costs, Water well,alluvial formation,depth 50 m (165ft.)natural gravel vs. glass beads as filtermaterial				
		25years		40years
Capital expenditure	glass beads	gravel	glass beads	gravel
	EURO	EURO	EURO	EURO
construction site set up	20,000	20,000	20,000	20,000
well drilling	15,000	15,000	15,000	15,000
installations(well screens,etc)	101,750	107,750	101,750	101,750
gravel	1,250	2,500	1,250	2,500
glass beads	8,000	0	8,000	0
sand removal pumping	600	1,300	600	1,300
clean out pumping	225	450	225	450
Total capital expenditure	146,825	141,000	146,825	141,000
Differences	5,825		5,825	
percentage total	104%		104%	
Operating costs				
Energy	62,370	86,625	99,792	139,600
Well rehabilitation(à 10,000)	30,000	60,000	50,000	100,000
Total operating costs	92,370	146,625	149,792	238,600
Total costs during lifecycle	239,195	287,625	296,617	379,600
percentage total	83%		78%	
Cost saving	48,430		82,983	
percent	17%		22%	

Relation between glass beads and standard filter



Article	Diameter mm	(approx.) Inches	Roundness (nominal values)	Compressive Resistance (reference values for mean diameter)	Bulk density kg/l	bulk density lbs/lt ³
R1-CS-5158-A	3.00	0.12	0.98	1,800N	1.53	95.52
R1-CS-5159-A	4.00	0.16	0.98	2,000N	1.52	94.90
R1-CS-5160-A	5.00	0.20	0.98	2,200N	1.53	95.51
R1-CS-5161-A	6.00	0.24	0.98	2,500N	1.51	94.56
R1-CS-5162-A	7.00	0.28	0.98	3,000N	1.51	94.27
R1-CS-5163-A	8.00	0.31	0.98	3,850N	1.49	93.90
R1-CS-5164-B	9.00	0.35	0.98	4,800N	1.49	93.02
R1-CS-5165-B	10.00	0.39	0.98	6,000N	1.45	90.52
R1-CS-5166-B	11.00	0.43	0.98	7,500N	1.45	90.52
R1-CS-5167-B	12.00	0.47	0.98	10,500N	1.45	90.52
R1-CS-5168-B	14.00	0.55	0.95	13,200N	1.43	90.52
R1-CS-5169-C	16.00	0.63	0.95	16,500N	1.43	89.27
R1-CS-5170-C	18.00	0.71	0.98	20,500N	1.39	88.46
R1-CS-5171-C	19.00	0.75	0.95	25,000N	1.39	88.46
R1-CS-5172-A	22.00	0.87	0.98	33,000N	1.39	86.75
R1-CS-5173-A	25.00	0.98	0.98	40,500N	1.39	85.54

Other diameters and tolerances available upon request

Sphedness: ≥ 0.95 (simultaneous measurement of roundness through digital image processing(retsche-camsizer,value b/13))

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Approximate Metric and Imperial Conversion Data

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1 US Liquid Gallon=3.785 liters 1 Cubic Meter=1,000 liters=35.315 Cubic Feet

Calculating Annular Volume $\Rightarrow (R^2 - r^2) \times \pi \times h$

R^2 = Outer Cylinder Radius or Borehole Radius

r^2 = Inner Cylinder Radius or Casing

π =3.14159265359

h= Height of filling

Bead Sizing-Helpfu Formula $\Rightarrow D = d_c \times F_c$

With $U = d_{60}/d_{10}$

$F_c = 5 + U$ for $U < 5$ and $F_c = 10$ for $U > 5$

Derived from uniformity coefficient(U), characteristic grain size(d_c) and filter factor(F_c)based on reliable formation sieve analysis.

Screen slot / bead ration

Maximum screen slot aperture recommended for all types of screens=75% of thesmallest bead diameter of the respective gradation.

Particle Size Conversion	
Inches	mm
1/4	6.35
0.265	6.73
5/16	8.00
3/8	9.51
7/16	11.2
1/2	12.7
0.53	13.5
5/8	16.0
3/4	19
7/8	22.6
1.0	25.4



R1-CS-5158-A
Φ3mm



R1-CS-5161-A
Φ6mm



R1-CS-5164-B
Φ9mm



R1-CS-5167-B
Φ12mm



R1-CS-5169-C
Φ16mm



SIU TUNG GLASS BEADS

Technical Glass Beads

Type P-Borosilicate	Chemical composition (main components)		Chemical/Technical data			Some of the mainly used standard sizes					
	SiO ₂	81.20%	Hydrolytic class	HGB 1	DIN ISO 719	Diameter	Tolerance	Roundness	Stand Surface	Weight/1000pcs	Pieces/1000gr
	B ₂ O ₃	12.40%	Acidic class	S 2	DIN 12116	1.588mm 1/16"	+/-0.02mm	≤0.02mm	polished	4.67gr.	213,867
	Na ₂ O	2.93%	Alcaline class	A 1	DIN 695	2.500mm	+/-0.02mm	≤0.02mm	polished	18.24gr.	54,812
	Sb ₂ O	<0.01%	Specific weight 2.23kg/ltr. DIN ISO 787-10			3.969mm 5/32"	+/-0.02mm	≤0.02mm	polished	73.00gr.	13,698
	As ₂ O ₃	<0.01%	Grades and Tolerances ANSI/AFBMA-10.1989			4.762mm 3/16"	+/-0.02mm	≤0.02mm	polished	126.09gr.	7,931
	others		Grade	Deviation from Spherical form Lmmicron	Maximum surface roughness in micron	6.350mm 1/4"	+/-0.02mm	≤0.02mm	polished	298.97gr.	3,345
						7.938mm 5/16"	+/-0.02mm	≤0.02mm	polished	584.03gr.	1,712
						12.700mm 1/2"	+/-0.02mm	≤0.02mm	matt	2,391.75gr.	418
						19.050mm 3/4"	+/-0.02mm	≤0.02mm	matt	8,072.15gr.	124
					31.750mm 1 1/4"	+/-0.02mm	≤0.02mm	matt	37,371.08gt.	27	
	Special grades upon request	200	5	0.2	*special sizes available upon request,UP to 55.0mmΦ						
		100	2.5	0.125	.special tolerance+/- mm and roundness/sphericity)50.01 mm possible						

Type P-soda Lime	Chemical composition (main components)		Chemical/Technical data			Some of the mainly used standard sizes						
	SiO ₂	70.00%	Hydrolytic class	HGB 3	DIN ISO 719	Diameter	Tolerance	Roundness	Stand Surface	Weight/1000pcs	Pieces/1000gr	
	K ₂ O	5.65%	Acidic class	S 2	DIN 12116	2.381mm	3/32"	+/-0.02mm	≤0.02mm	polished	17.67gr.	56.596
	Na ₂ O	9.48%	Alcaline class	A 2	DIN 695	3.175mm	1/8"	+/-0.02mm	≤0.02mm	polished	41.90gr.	23.869
	CaO	5.83%	Specific weight 2.58kg/ltr. DIN ISO 787-10			5.556mm	7/32"	+/-0.02mm	≤0.02mm	polished	224.51gr.	4.454
	BaO	3.15%	Grades and Tolerances ANSI/AFBMA-10.1989			7.144mm	9/32"	+/-0.02mm	≤0.02mm	polished	477.27gr.	2.095
	others		Grade	Deviation from Spherical form Lmmicron	Maximum surface roughness in micron	9.525mm	3/8"	+/-0.02mm	≤0.02mm	matt	1,131.19gr.	884
						13.494mm	17/32"	+/-0.02mm	≤0.02mm	matt	3,216.34gr.	311
						15.081mm	19/32"	+/-0.02mm	≤0.02mm	matt	4,489.83gr.	223
						15.875mm	5/8"	+/-0.02mm	≤0.02mm	matt	5,236.98gr.	191
					25.400mm	1"	+/-0.02mm	≤0.02mm	matt	21,450.67gt.	47	
	Special grades upon request		200	5	0.2	*special sizes available upon request,UP to 55.0mmΦ						
			100	2.5	0.125	.special tolerance+/- mm and roundness(sphericity)50.01 mm possible						

Type S	Chemical composition (main components)		Chemical/Technical data			Available Standard Sizes							
	SiO ₂	72.50%	Hydrolytic class	HGB 3	DIN ISO 719	Alt No	Size Range(mm)	Bulk density(kg/dm ³)	Pieces/1000gr	Alt No	Size Range(mm)	Bulk density(kg/dm ³)	Pieces/1000gr
	Na ₂ O	13.00%	Acidic class	S 2	DIN 12116	8501	0.20-0.40mm	1.51 kg/dm ³	14,486,600	8508	1.80-2.00	1.47 kg/dm ³	111,370
	CaO	9.06%	Alcaline class	A 2	DIN 695	8502	0.40-0.60mm	1.50 kg/dm ³	6,111,500	8509	2.00-2.50	1.47 kg/dm ³	71,740
	MaO	4.22%	Specific weight 2.45kg/ltr. DIN ISO 787-10			8503	0.60-0.80mm	1.49 kg/dm ³	3,129,100	8510	2.50-3.00	1.47 kg/dm ³	41,050
						8504	0.80-1.00mm	1.48 kg/dm ³	1,140,300	8511	3.00-3.50	1.48 kg/dm ³	24,440
						8505	1.00-1.20mm	1.47 kg/dm ³	502,300	8512	3.50-4.00	1.46 kg/dm ³	15,080
						8506	1.20-1.50mm	1.47 kg/dm ³	250,580	8513	4.00-5.00	1.45 kg/dm ³	11,080
	Al ₂ O ₃	0.58%				8507	1.50-1.80mm	1.47 kg/dm ³	155,490	8514	5.00-6.00	1.45 kg/dm ³	5,820
others													

Type SL	Chemical composition (main components)		Chemical/Technical data			Available Standard Sizes							
	SiO ₂	53.50%	Hydrolytic class	HGB 2	DIN ISO 719	Alt No	Size Range(mm)	Bulk density(kg/dm ³)	Pieces/1000gr	Alt No	Size Range(mm)	Bulk density(kg/dm ³)	Pieces/1000gr
	CaO	20.10%	Acidic class	S 3	DIN 12116	7503	0.60-0.80mm	1.55 kg/dm ³	3,020,370	7509	2.00-2.50mm	1.53 kg/dm ³	64,730
						7504	0.80-1.00mm	1.54 kg/dm ³	1,100,710	7510	2.50-3.00mm	1.53 kg/dm ³	35,450
	Al ₂ O ₃	14.80%	Alcaline class	A 3	DIN 695	75055	1.00-1.50mm	1.53 kg/dm ³	426,730	7511	2.80-3.40mm	1.52 kg/dm ³	24,750
						7507	1.30-1.70mm	1.53 kg/dm ³	218,480	7512	3.30-3.90mm	1.51 kg/dm ³	15,800
	B ₂ O ₂	8.11%	Specific weight 2.63kg/ltr. DIN ISO 787-10			7508	1.70-2.10mm	1.53 kg/dm ³	107,500	7513	3.90-4.40mm	1.50 kg/dm ³	10,310
	MgO	2.33%											
	others												

Type M	Chemical composition (main components)		Chemical/Technical data			Available Standard Sizes							
	SiO ₂	66.70%	Hydrolytic class	HGB 2	DIN ISO 719	Alt No	Size Range(mm)	Bulk density(kg/dm ³)	Pieces/1000gr	Alt No	Size Range(mm)	Bulk density(kg/dm ³)	Pieces/1000gr
	Na ₂ O	14.00%	Acidic class	S 2	DIN 12116	6003	2.0mm +/- 0.2	1.50 kg/dm ³	95,490	6011	7.0mm +/- 0.2	1.48 kg/dm ³	2,220
	CaO	7.59%	Alcaline class	A 2	DIN 695	6004	2.5mm +/- 0.2	1.50 kg/dm ³	48,890	6012	8.0mm +/- 0.2	1.48 kg/dm ³	1,490
						6005	3.0mm +/- 0.2	1.50 kg/dm ³	28,290	6013	9.0mm +/- 0.2	1.48 kg/dm ³	1,040
	Al ₂ O ₃	3.46%	Specific weight 2.50kg/ltr. DIN ISO 787-10	6006	3.5mm +/- 0.2	1.50 kg/dm ³	17,810	6014	10mm +/- 0.2	1.48 kg/dm ³	769		
				6007	4.0mm +/- 0.2	1.50 kg/dm ³	11,930	6015	11mm +/- 0.2	1.45 kg/dm ³	571		
	B ₂ O ₃	2.90%	6008	4.5mm +/- 0.2	1.50 kg/dm ³	8,380	6016	12mm +/- 0.2	1.45 kg/dm ³	434			
			6009	5.0mm +/- 0.2	1.50 kg/dm ³	6,110	6017	14mm +/- 0.2	1.45 kg/dm ³	285			
	others			6010	6.0mm +/- 0.2	1.48 kg/dm ³	3,350	6018	16mm +/- 0.2	1.45 kg/dm ³	181		



SIU TUNG GLASS BEADS

Recommendations for applications

Type P-Borosilicate

mixing balls in the pharmaceutical industry



high precision beads for dispensers



Type P-Soda Lime

valves of dosage pumps



closing valve for Ink cartridges



high precision beads for ball bearings



Type S

beads for water filtration waterwells



reflection beads > 0.4 mm for the road marking



Type S L

grinding and dispersion media for paints pigments, agro chemicals etc



for grinding of pH-sensitive suspensions



Type M

Mixing beads in Aerosol sprays



Impact material For mechanical Surface coatings



Valves for bottle closures

