SIU TUNG

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

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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/ft³
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 vaiues)	Compressive Resistance (reference values for mean diameler)	Bulk density kg/l	bulk density lbs/ft³
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(retsch-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 =>$(R^2-r^2)X\pi Xh$

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=>$D=d_G XF_G$

With $U=d_{60}/d_{10}$
$F_G=5+U$ for U<5and $F_G=10$ for U>5
Derived from uniformity coefficient(U), characteristic grain size(d_G) and filter factor(F_G)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
3½	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

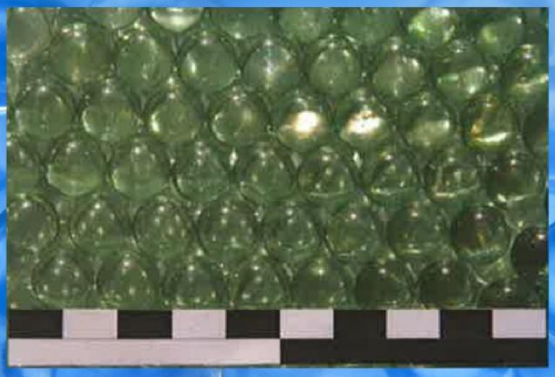
...crystal clear water

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



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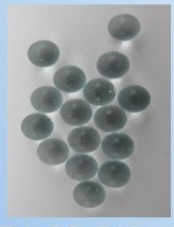
Article	Diameter mm	(approx.) Inches	Roundness (nominal vaiues)	Compressive Resistance (reference values for mean diameler)	Bulk density kg/l	bulk density lbs/lt^3
R1-CS-5158-A	3.00	0.12	0.98	1,800N	1.53	95.52
R1-CS-5159-A	4.00	0.16	0.98	2,000N	1.52	94.90
R1-CS-5160-A	5.00	0.20	0.98	2,200N	1.53	95.51
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


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

Sphedness:≥0ricity/Roun. 95

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

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π=3.14159265359
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Bead Sizing-Helpfu Formula=>$D=d_G XF_G$

With $U=d_{60}/d_{10}$
$F_G=5+U$ for U<5and $F_G=10$ for U>5
Derived from uniformity coefficient(U), characteristic grain size(d_G) and filter factor(F_G)based on reliable formation sieve analysis.

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

Screen slot / bead ration

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

SIU TUNG GLASS BEADS

Technical Glass Beads

Type P-Borosilicate

Chemical composition (main components)

SiO_2	81.20%
B_2O_3	12.40%
Na_2O	2.93%
Sb_2O	<0.01%
As_2O_3	<0.01%
others	

Special grades upon request

Chemical/Technical data

Hydrolytic class	HGB 1	DIN ISO 719
Acidic class	S 2	DIN 12116
Alcaline class	A 1	DIN 695

Specific weight 2.23kg/ltr. DIN ISO 787-10

Grades and Tolerances ANSI/AFBMA-10.1989

Grade	Deviation from Spherical form Lnmicron	Maximum surface roughness in micron
200	5	0.2
100	2.5	0.125

Some of the mainly used standard sizes

Diameter		Tolerance	Roundness	Stand Surface	Weight/1000pcs	Pieces/1000gr
1.588mm	1/16"	+/-0.02mm	≤0.02mm	polished	4.67gr.	213,867
2.500mm		+/-0.02mm	≤0.02mm	polished	18.24gr.	54.812
3.969mm	5/32"	+/-0.02mm	≤0.02mm	polished	73.00gr.	13.698
4.762mm	3/16"	+/-0.02mm	≤0.02mm	polished	126.09gr.	7.931
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 sizes available upon request,UP to 55.0mmΦ ..special tolerance+/- mm and roundness(sphericity)≤0.01 mm possible

Type P-soda Lime

Chemical composition (main components)

SiO_2	70.00%
K_2O	5.65%
Na_2O	9.48%
CaO	5.83%
BaO	3.15%
others	

Special grades upon request

Chemical/Technical data

Hydrolytic class	HGB 3	DIN ISO 719
Acidic class	S 2	DIN 12116
Alcaline class	A 2	DIN 695

Specific weight 2.58kg/ltr. DIN ISO 787-10

Grades and Tolerances ANSI/AFBMA-10.1989

Grade	Deviation from Spherical form Lnmicron	Maximum surface roughness in micron
200	5	0.2
100	2.5	0.125

Some of the mainly used standard sizes

Diameter		Tolerance	Roundness	Stand Surface	Weight/1000pcs	Pieces/1000gr
2.381mm	3/32"	+/-0.02mm	≤0.02mm	polished	17.67gr.	56.596
3.175mm	1/8"	+/-0.02mm	≤0.02mm	polished	41.90gr.	23.869
5.556mm	7/32"	+/-0.02mm	≤0.02mm	polished	224.51gr.	4.454
7.144mm	9/32"	+/-0.02mm	≤0.02mm	polished	477.27gr.	2.095
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 sizes available upon request,UP to 55.0mmΦ ..special tolerance+/- mm and roundness(sphericity)≤0.01 mm possible

Type S

Chemical composition (main components)

SiO_2	72.50%
Na_2O	13.00%
CaO1	9.06%
MaO	4.22%
Al_2O_3	0.58%
others	

Chemical/Technical data

Hydrolytic class	HGB 3	DIN ISO 719
Acidic class	S 2	DIN 12116
Alcaline class	A 2	DIN 695

Specific weight 2.45kg/ltr. DIN ISO 787-10

Available Standard Sizes

Alt No	Size Range(mm)	Bulk density(kg/lt)	Pieces/1000gr	Alt No	Size Range(mm)	Bulk density(kg/lt)	Pieces/1000gr
8501	0.20-0.40mm	1.51 kg/dm³	14,486,600	8508	1.80-2.00	1.47 kg/dm³	111,370
8502	0.40-0.60mm	1.50 kg/dm³	6,111,500	8509	2.00-2.50	1.47 kg/dm³	71,740
8503	0.60-0.80mm	1.49 kg/dm³	3,129,100	8510	2.50-3.00	1.47 kg/dm³	41,050
8504	0.80-1.00mm	1.48 kg/dm³	1,140,300	8511	3.00-3.50	1.46 kg/dm³	24,440
8505	1.00-1.20mm	1.47 kg/dm³	502,300	8512	3.50-4.00	1.46 kg/dm³	15,080
8506	1.20-1.50mm	1.47 kg/dm³	250,580	8513	4.00-5.00	1.45 kg/dm³	11,080
8507	1.50-1.80mm	1.47 kg/dm³	155,490	8514	5.00-6.00	1.45 kg/dm³	5,820

Type SL

Chemical composition (main components)

SiO_2	53.50%
CaO	20.10%
Al_2O_3	14.80%
B_2O_2	8.11%
MgO	2.33%
others	

Chemical/Technical data

Hydrolytic class	HGB 2	DIN ISO 719
Acidic class	S 3	DIN 12116
Alcaline class	A 3	DIN 695

Specific weight 2.63kg/ltr. DIN ISO 787-10

Available Standard Sizes

Alt No	Size Range(mm)	Bulk density(kg/lt)	Pieces/1000gr	Alt No	Size Range(mm)	Bulk density(kg/lt)	Pieces/1000gr
7503	0.60-0.80mm	1.55 kg/dm³	3,020,370	7509	2.00-2.50mm	1.53 kg/dm³	64,730
7504	0.80-1.00mm	1.54 kg/dm³	1,100,710	7510	2.50-3.00mm	1.53 kg/dm³	35,450
75055	1.00-1.50mm	1.53 kg/dm³	426,730	7511	2.80-3.40mm	1.52 kg/dm³	24,750
7507	1.30-1.70mm	1.53 kg/dm³	218,480	7512	3.30-3.90mm	1.51 kg/dm³	15,800
7508	1.70-2.10mm	1.53 kg/dm³	107,500	7513	3.90-4.40mm	1.50 kg/dm³	10,310

Type M

Chemical composition (main components)

SiO_2	66.70%
Na_2O	14.00%
CaO	7.59%
Al_2O_3	3.46%
B_2O_2	2.90%
others	

Chemical/Technical data

Hydrolytic class	HGB 2	DIN ISO 719
Acidic class	S 2	DIN 12116
Alcaline class	A 2	DIN 695

Specific weight 2.50kg/ltr. DIN ISO 787-10

Available Standard Sizes

Alt No	Size Range(mm)	Bulk density(kg/lt)	Pieces/1000gr	Alt No	Size Range(mm)	Bulk density(kg/lt)	Pieces/1000gr
6003	2.0mm +/- 0.2	1.50 kg/dm³	95,490	6011	7.0mm +/- 0.2	1.48 kg/dm³	2,220
6004	2.5mm +/- 0.2	1.50 kg/dm³	48,890	6012	8.0mm +/- 0.2	1.48 kg/dm³	1,490
6005	3.0mm +/- 0.2	1.50 kg/dm³	28,290	6013	9.0mm +/- 0.2	1.48 kg/dm³	1,040
6006	3.5mm +/- 0.2	1.50 kg/dm³	17,810	6014	10mm +/- 0.2	1.48 kg/dm³	769
6007	4.0mm +/- 0.2	1.50 kg/dm³	11,930	6015	11mm +/- 0.2	1.45 kg/dm³	571
6008	4.5mm +/- 0.2	1.50 kg/dm³	8,380	6016	12mm +/- 0.2	1.45 kg/dm³	434
6009	5.0mm +/- 0.2	1.50 kg/dm³	6,110	6017	14mm +/- 0.2	1.45 kg/dm³	285
6010	6.0mm +/- 0.2	1.48 kg/dm³	3,350	6018	16mm +/- 0.2	1.45 kg/dm³	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 dis-persion 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

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