

GLASS BEADS

FOR ROAD MARKINGS, SWIMMING POOLS
& SAND BLASTING

SHENGLI LTD

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Establishing and
maintaining high
quality international trade
relationships between
China and
the World.





OVERVIEW

Shengli Ltd prides itself in being a global supplier of an extensive range of industrial and infrastructure equipment and materials. Our products are manufactured to the finest level through our Chinese affiliates, providing a standard of quality for a price which exceeds customer expectations.

Incorporated in November 1999, Shengli Ltd first appeared as a joint venture between Shandong Shengli (a highly reputable Chinese government owned company and a leader in many agricultural and industrial fields) and Atkin Management Ltd (a New Zealand based trade consulting company). Shengli Ltd has since flourished, providing services throughout the world and with subsidiaries of its own.

With the emergence of China as an open economy, Shandong Shengli expanded into international markets and established representation within the Western business world—New Zealand was selected as an appropriate country to base its international operations.

New Zealand has extensive international acceptance as a reputable trading country, and was the first country to officially accept China as being an open economy.

There were many other factors which influenced the decision, such as New Zealand's heavy reliance on effective international trade and the subsequent development in being the first country to form a Free Trade Agreement with China.

The decision has proven to be a good one, and has resulted in extremely effective global supply lines, both for the large China corporations linked to Shengli Ltd and also for our customers throughout the world.

Our company is proud to carry the endorsement of the Chinese Embassy in New Zealand for our endeavours in establishing and maintaining high quality trade relationships between China and New Zealand. This success quickly developed internationally to where

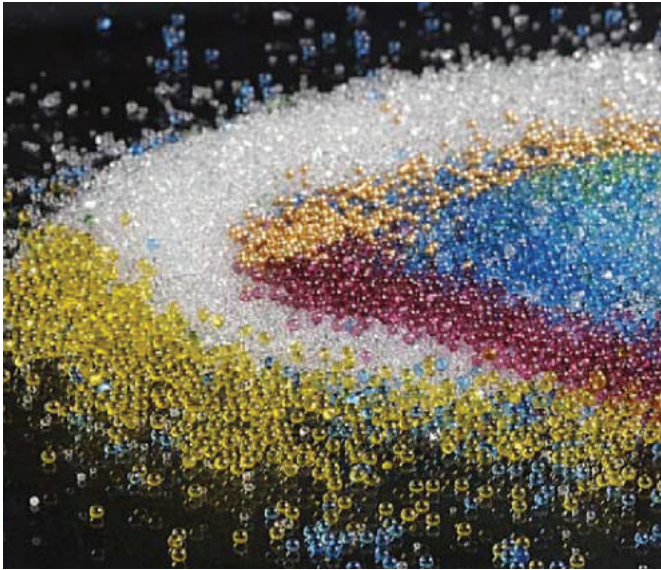
we are now—a strong company which provides an extensive range of China's quality products and services to customers throughout the world.



Shengli is proud to carry the endorsement of the Chinese Embassy in New Zealand

GLASS BEADS

FOR ROAD MARKING



Our glass beads are produced at the expert facilities of Xia Guang in China. The annual production exceeds 30,000 tons per year. All types of glass beads are available and they have been exported to more than 20 countries worldwide, including Taiwan, Singapore, Japan, South Korea, Thailand, Malaysia, USA, Spain, Cyprus, Turkey, Italy, Australia, Egypt, Ukraine, etc.

The glass beads can be either 'intermixed' or 'drop on' as required.



Road marking with glass beads - Nighttime.



Road marking with glass beads - Daytime.

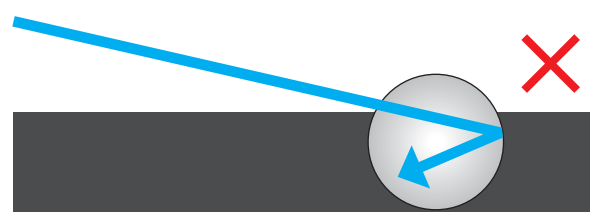
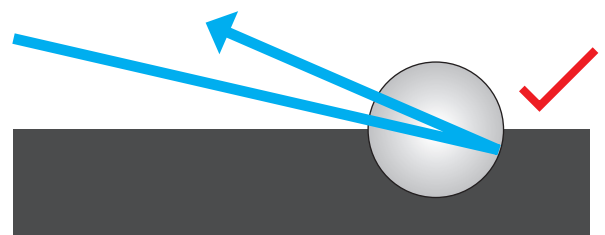


Without light reflecting glass beads.



With light reflecting glass beads.

The reflective glass beads are inserted to 50% of the diameter to ensure sufficient bonding and correct reflex.



Specification

Appearance	Clean, apparent, no obvious impurity
Reflection Index	1.5 - 1.64
Gravity	2.4-2.6g/cm ³
Composition	Sodium lime glass composition
SiO₂ content	>62%
Roundness	>80%
Hardness (Moh's)	5.5 - 7

Common Specification

STANDARD AASHTO M247 TYPE I

STANDARD AASHTO M247 TYPE II

STANDARD BS6088 CLASS A

STANDARD BS6088 CLASS B

STANDARD EN1423 125-710μm

STANDARD EN1423 125-850μm

STANDARD TS EN1423 180-850μm

STANDARD EN1424 355-1180μm

STANDARD KSL 2521 CLASS 1

STANDARD KSL 2521 CLASS 2

SANDBLASTING GLASS BEAD



PRODUCT PACKAGING

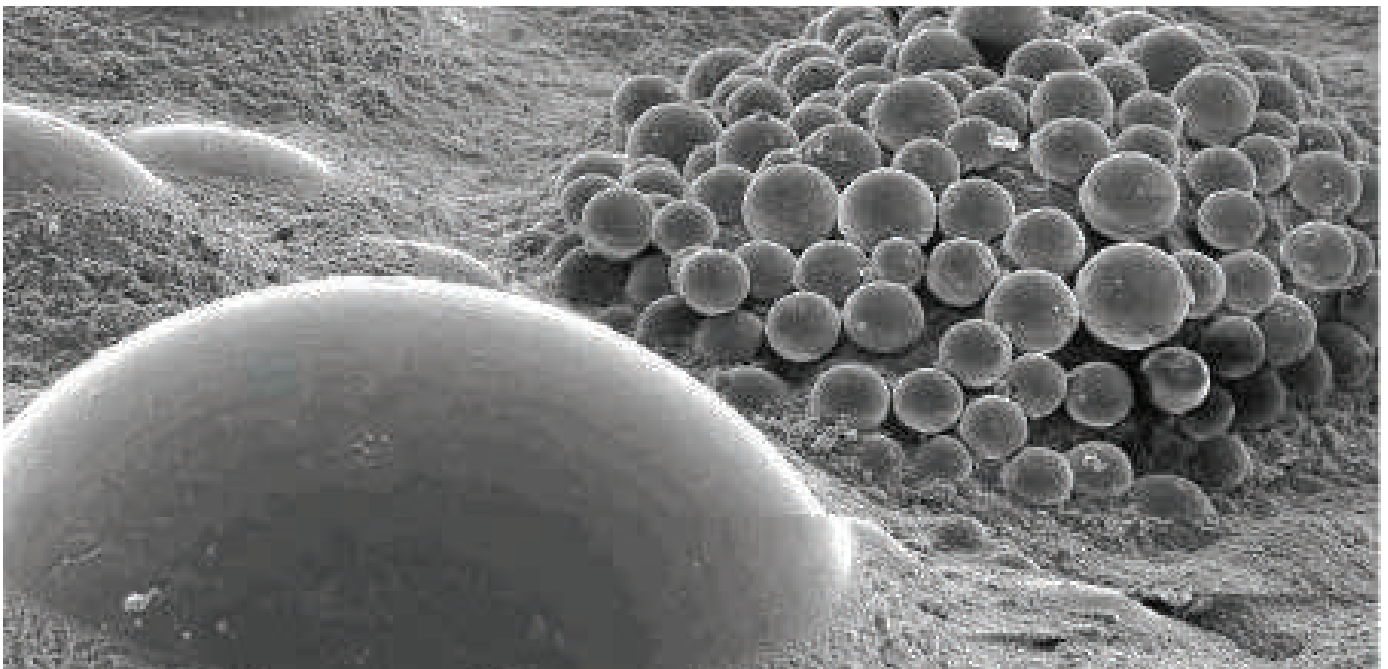
Water-proof plastic braided cloth and 600*400mm packing bag are used, with one layer of inner plastic film. Each bag is 25kg net weight, with reliable packing and safe transportation by sea.

General Packing: 25kgs net/pp woven bag, 40bags/plywood pallet, one 20FCL can load 20 tons.



ALL WEATHER BEADS

LIQUID-APPLIED MARKINGS



Amorphous glass - no microstructure. Scanning electron microscope (SEM). Photos of beads after sandblasting
Microcrystalline beads showing microcrystalline structure.

All Weather Beads are a new product designed to improve road safety. They are an upgrade of the normal reflective beads giving the most efficient optics for Liquid-applied Markings.

All-weather beads are a complete pavement marking optical system comprised of

microcrystalline beads, binder and pigments. They are easily installed by Double-drop Systems. As the first drop of a double-drop system, the all weather beads provide visibility to motorists in both wet and dry conditions. They are effective as either new marking applications or as part of a maintenance marking application.

FACTORY OPTIMISED

Bonded core elements consist of microcrystalline beads embedded on a center core to provide optimal performance in all weather conditions



Series AWW

White Line
All-Weather beads



Series AWY

Yellow Line
All-Weather beads



Yellow Element v Yellow Beads

Standard glass beads are clear, putting the entire burden for colour performance on the binder. We incorporate yellow microcrystalline beads with yellow elements to improve reflected color.

Colour Recognition Day and Night - Wet or Dry

Most pavement markings have acceptable daytime color. Conventional yellow markings use clear glass beads which often result in a washed out appearance at night. XG's yellow beads improve nighttime color, making the markings conspicuous at any time of day or night.

Optimized Index for Wet and Dry

For optimum performance under dry conditions, XG elements feature 1.9 refractive index microcrystalline beads.

XG's all-weather optics include ultra-high, 2.4 refractive index microcrystalline beads. The high refractive index results in good measurable wet reflectivity, the highest practical level achieved to date.

The 2.4 refractive index microcrystalline beads have the same microcrystalline structure and level of toughness found in lower index microcrystalline beads.

As a system, XG's all-weather optics have dry reflective beads at peak efficiency, and wet reflective beads much higher in efficiency than any other commercial beads.



NAME	SERIES	ITEM NO.	SPECS (mm)	PRODUCT PERFORMANCE
AWW Series White Line All-Weather Beads	AWWC	AWWM0610C	0.6-1.0	Reflects very well in dry and wet conditions
		AWWM0812C	0.8-1.2	
	AWWD	AWWM0610D	0.8-1.0	Reflection is higher in dry conditions
		AWWM0812D	1.0-1.2	
	AWWM	AWWM0610M	0.6-1.0	Reflection is higher in wet conditions
		AWWM0812M	0.8-1.2	
AWY Series Yellow Line All-Weather Beads	AWYC	AWY0610C	0.6-1.0	Reflects very well in dry and wet conditions
		AWY0812C	0.8-1.2	
	AWYD	AWY0610D	0.8-1.0	Reflection is higher in dry conditions
		AWY0812D	1.0-1.2	
	AWYM	AWY0610M	0.6-1.0	Reflection is higher in wet conditions
		AWY0812M	0.8-1.2	

We can produce any specifications that you may require.

COLOURED GLASS BEADS

FOR SWIMMING POOLS

Details

Coloured glass beads are a reality color product. They can be used for swimming pools, parks, alcoves, metopes, doorcase poles, gardening potted plans, screens, and other decorations.

I. Technical Data

PROGRAM	TYPICAL VALUES
Colour	Reality colour up (Red, Green, Blue, Yellow, Black, White, Purple)
Shape	Round ball or Oval species
Size	0.4-6mm (0.4-0.6, 0.6-0.8, 0.8-1.0, 1.0-1.5, 1.5-2.0, 2.0-2.5, 2.5-3.0, 3-4, 4-5, 5-6)
Refraction	Index 1.30-1.50
Specific Gravity (g/cm ³)	2.50
Contain Gravity (g/cm ³)	1.50
Micro Hardness (kg/mm ²)	≥635
Mohs Hardness	>6



II. Package:

Double deck high pressure polyethylene inside bag with dryer, plastic intertexture in outside.

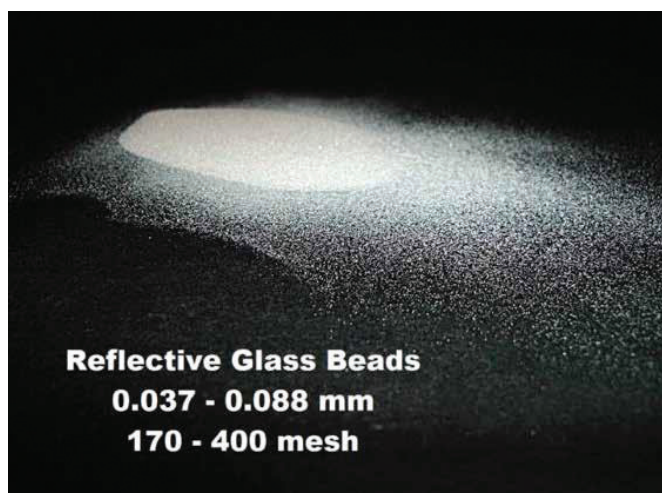
Net Weight: 25kg/bag Gross Weight: 25.5kg/bag. 40 bags in a wooden pallet with plastic film enlace.

III. Storage:

Dry and sheltered

GLASS BEADS

FOR SAND BLASTING



Details

1) Product Introduction

Glass beads for sandblasting features chemical stability, high mechanical intensity and hardness. They can be blasted onto the object surface with compressed air and can be used on compressed glass, rubber, plastic, moulds with metal casting or compressing. The jetting balls help reduce elasticity of the surface materials and increase wearing capacity.

2) Product Specification for Sandblasting

No.	DIAMETER (μm)	CORRESPONDING SIEVE SIZE
1	850-425	20-40
2	425-250	40-60
3	250-150	60-100
4	150-105	100-140
5	105-75	140-200
6	75-45	200-325

You can choose different sized glass beads between 45 μm -850 μm according to different functions.

High Strength Glass Bead (for Blasting)

With compressed air as implicit power, this product is made by sprinkling beads under high speed and pressure on the surface of workpiece for peening and polishing.

Other purposes of the products are as follows:

1. Clear diverse moulds of impact forging, forging, glass, rubber and plastic, metal casting and extrusion.
2. Eliminate tensile stress, increase fatigue life and enhance stress corrosion resistance. For example, aircraft engine turbo, vane, shaft, undercarriage, diversified springs and gears, etc.
3. Clean and remove slitter edge and burr on the circuit plate and plastic-sealed geminate transistors before stannum soldering.
4. Remove stems in the piston and cylinder and provide bright and half-lackluster surface for medical mechanical instruments and automobile parts.
5. Clear electromotor and such parts as loop, electric brush and rotor of during heavy repair.
6. Clean up and remove burr of metal tube and precisely-melten non-ferrous metal tube. Used for peening aggrandizement and polishing of textile machinery parts.

HIGH STRENGTH GLASS BEADS FOR BLASTING

Nominal Diameter (80%) XIAGUANG Metal Finishing Beads

DESIGNATION	US SIEVE	INCHES MAX	INCHES MIN	MICRONS MAX	MICRONS MIN	MIN % ROUND
A	20-30	.0331	.0231	850	600	65
AAA	25-45	.0278	.0139	710	355	65
B	30-40	.0231	.0165	600	425	65
C	40-60	.0165	.0098	425	250	75
AA	40-70	.0135	.0083	425	212	70
D	50-70	.0117	.0083	300	212	75
AB	50-80	0.117	.0070	300	180	70
AC	60-120	.0098	.0049	250	125	80
AD	70-140	.0083	.0041	212	106	80
AE	100-170	.0059	.0035	150	90	85
AG	120-270	.0019	.0021	125	53	85
AH	170-325	.0035	.0017	90	45	85

HIGH STRENGTH GLASS BEADS FOR BLASTING

Nominal Diameter MIL-PRF-9954

DESIGNATION	US SIEVE	INCHES MAX	INCHES MIN	MICRONS MAX	MICRONS MIN	MIN % ROUND
3	20-30	.0331	.0234	850	600	65
4	30-40	.0234	.0165	600	425	70
5	40-50	.0165	.0117	425	300	70
6	50-70	.0117	.0083	300	212	80
7	60-80	.0098	.0070	250	180	80
8	70-100	.0083	.0059	212	150	80
9	80-120	0.070	.0049	180	125	80
10	100-170	.0059	.0035	150	90	90
11	120-200	.0049	.0029	125	75	90
12	140-230	.0041	.0025	106	63	90
13	170-325	.0035	.0017	90	45	95

Technical references

Appearance: Clean and transparent, no visible bubbles or impurity. Density: 2.4-2.6g/cm³

Hardness: 6-7 (Moh's)

Spherical beads: ≥75%

SiO₂ content: >72%

Package

1. Using double layered packaging, the inner is polythene film and its thickness is not less than 0.5mm; the outer is plastic woven bag to prevent leakage or dampness. The net weight of each bag is 25±0.2kg.
2. Using double layered packaging, the inner is polythene film and its thickness is not less than 0.5mm, the outer is paper-plastic compound bag to leakage or dampness. The net weight of each is 25±0.2kg.
3. According to clients' specification

VIRGIN GLASS BEADS

These are regarded as the highest quality beads in the world and are made from virgin glass.

Virgin glass beads are high-performance beads ranging in size from 600µm to 2,000µm in diameter.

The special coating process complies with the highest requirements of the road marking industry. The superior quality of the virgin glass beads provides an increased level of retro-reflectivity and road safety.

Virgin glass beads offer much higher levels of reflectivity in comparison to recycled beads, due

to their larger size, higher rounds and special glass composition, which is particularly important for wet night conditions.

They possess superior adhesive properties to the various binding materials, and are widely used in different marking systems (water and solvent based paints, two component systems, alkyd and resin-based thermoplastics).

Virgin glass beads are one of the most cost-effective and long-lasting ways to increase highway safety.

Technical Data Sheet of Virgin Glass Beads

ROUNDNESS	REFRACTIVE INDEX	RETROREFLECTIVE	SPECIFIC WEIGHT	APPEARANCE
>90%	≥1.55	>600 mcd/lux/m ²	2.5g/cm ²	clear



Specification:

STANDARD AASHTO M247 TYPE III
STANDARD AASHTO M247 TYPE IV
STANDARD AASHTO M247 TYPE V
STANDARD AS/NZS 2009:2006 TYPE D
Can also be made to client's specification

Package: Double deck high pressure polyethylene inside bag with paper bag in outside.

Net Weight: 25kg/bag

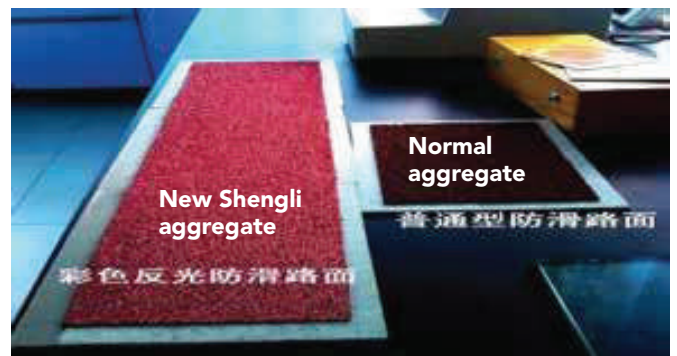
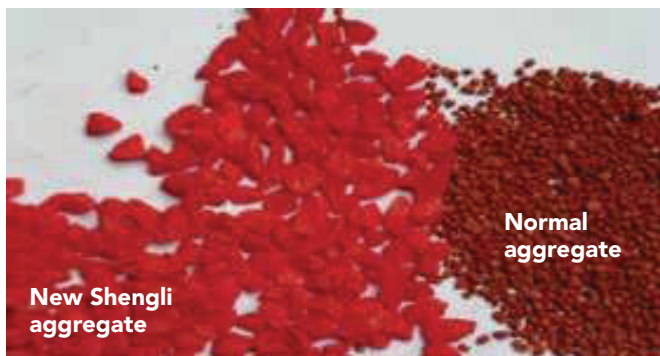
Gross Weight: 25.5kg/bag

40 bags in a wooden pallet with plastic film enlance

POLYMORPHIC ROAD COLOUR REFLECTIVE AGGREGATE

Polymorphic colour reflective aggregate is a new improved traffic safety material, being a new generation of the existing normal aggregate. It now not only retains its colour and anti-skid properties, but is also reflective at night and in wet weather.

The images below highlight the difference between our new product and normal aggregate.



Further examples below of Polymorphic Road colour reflective aggregate in situ.



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