



**Landscapus INC**  
**Products Manual**

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# Glass Beads For Road Marking Paint

*We choose virgin Glass as the raw materials, without any pollution and heavy metals.*

## Specification

Name of commodity:	Glass Bead For Road Marking
Manufacturer:	Landscapus Inc
<u>PROPERTIES</u>	
Technical details: A Outer clean and transparent, without visible bubble and impurity. B Specific density: 2.50g/cm <sup>3</sup> C Index of refraction: Nd.=1.52 D Content of SiO <sub>2</sub> : 72% E Spherical beads: >80%	
<u>USE</u>	
Reflective glass beads, these beads are especially made for use in road marking paints and thermoplastics to provide excellent night retro-reflective.	
<u>STANDARDS</u>	
GB/T24722-2009 BS 6088-1981 Class A / BS 6088-1981 Class B (British Standard) EN 1423-2012/ EN 1424-2012 (European Nations) AASHTO Type I / AAHSTO Type II / AASHTO Type 3 / AASHTO Type 4 / AASHTO Type 5 MOT Intermix / MOT Drop On (Ministry Of Traffic Of Saudi-Arabia) KSL 2521 Standard (Korean Standard) / JIS R3301 / CNS4342 / French Standard (NF standard) AS/NZS 2007 (Australia Standard/ New-Zealand Standard) Canada Standard TT-B-1325D Type 1, Type 3, Type 4 Colombia Standard NBR 6831...	
<u>PACKING</u>	
N.W.: 25kgs/PP WOVEN BAG, 25kgs/PAPER BAG, 250Kgs/Drum, 1000Kgs/Tote 1000-1200KGS/Jumbo BAG	

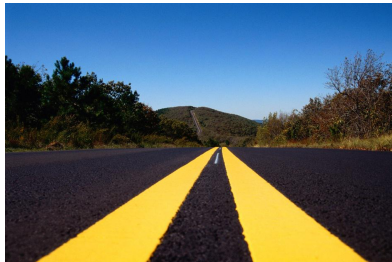


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# 1.6 Index Glass Beads

## Specification

Name of commodity:	Glass Bead For Road Marking
Manufacturer:	Landscapus Inc
<u>PROPERTIES</u>	
Technical details: A Outer clean and transparent, without visible bubble and impurity. B Specific density: 2.77g/cm <sup>3</sup> C Index of refraction: Nd.=1.6 D Content of SiO <sub>2</sub> : 58-61% E Content of BaO <sub>2</sub> : 10% F Spherical beads: >80%	
<u>USE</u>	
Reflective glass beads, these beads are especially made for use in all kinds of road marking paints to provide excellent night retro-reflective.	
<u>STANDARDS</u>	
GB/T24722-2009 BS 6088-1981 Class A / BS 6088-1981 Class B (British Standard) EN 1423-2012/ EN 1424-2012 (European Nations) AASHTO Type I / AASHTO Type II / AASHTO Type 3 / AASHTO Type 4 / AASHTO Type 5 MOT Intermix / MOT Drop On (Ministry Of Traffic Of Saudi-Arabia) KSL 2521 Standard (Korean Standard) / JIS R3301 / CNS4342 / French Standard (NF standard) AS/NZS 2007 (Australia Standard/ New-Zealand Standard) Canada Standard TT-B-1325D Type 1, Type 3, Type 4 Colombia Standard NBR 6831...	
<u>PACKING</u>	
N.W.: 25kgs/PP WOVEN BAG, 25kgs/PAPER BAG, 250Kgs/Drum, 1000Kgs/Tote 1000-1200KGS/Jumbo BAG	



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# High Refractive Glass Beads

## SPECIFICATION

Name of commodity:	High Refractive Index Glass Beads
Manufacturer:	LandsCapus Inc
<u>PROPERTIES</u>	
A) Color: white B) Round Ratio: $\geq 95\%$ C) Opacity: $\leq 5\%$ D) Specific Gravity: $4.1 \pm 0.1$ E) Refractive Index: 1.93, 2.2-2.4	
<u>USE</u>	
High Refractive index Glass beads use in Road Marking Paint, Road Board, Road Sign, Clothes & Bags, Reflective sheeting... It provides excellent night retro-reflectivity.	
<u>SIZE</u>	
<u>Index 1.93 uncoated</u> All ranges between 10-2000um (Min size:10um, Max size:2000um) Recommend: 30-50um; 50-70um;150-850um; 425-1180um;	
<u>Index 1.93 coated</u> All ranges between 10-1000um (Min Size: 10um, Max Size:1000um) Recommend: 30-50um; 50-70um;70-90um;90-300um; 150-850um;	
<u>Index 2.2</u> All sizes between 10-2000um (Min size:10um, Max size:2000um) Recommend: 10-100um;150-850um; 425-850um;	
<b>Size ranges can be produced according to your needs, eg, 10-20um, 600-1200um...</b>	
<u>PACKING</u>	
NW. : 25kgs/Iron Drum or Paper Drum, 250kgs/iron Drum, 500kgs/Wooden Carton Pallet	



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# Airport Marking Glass Beads

Airport pavement markings on runways, taxiways and ramps play an important role in preventing often serious accidents and incursions by guiding airport traffic safely between the air, runways, and parking gates.

## TTB-1325C Type I (Gradation A)

1.5 Index glass beads for drop-on applications. The sizing and quality is similar to typical traffic safety and highway markings.

## TTB-1325C Type III

1.9 Index glass beads for drop-on applications produces a narrow cone of light due to higher refractive index. Because of their relatively high costs, typically limited to marking airport runways only.

## Type IV (Gradation A & B)

Premium quality, large 1.5 Index glass beads for drop-on application. The larger gradation size, higher percentage roundness (+85%), smooth surface and hardness qualities enhance the long-term reflective performance of airport markings even under wet / night conditions.

### Gradation, percent by weight, passing

U.S. Sieve #	Microns	Type I				Type III		Type IV			
		A		B		Min	Max	A		B	
		Min	Max	Min	Max			Min	Max	Min	Max
12	1700	---	---	---	---	---	---	100	---	100	---
14	1400	---	---	---	---	---	---	95	100	---	---
16	1180	---	---	---	---	100	---	80	95	95	100
18	1000	---	---	---	---	---	---	10	40	---	---
20	850	100	---	---	---	95	100	0	5	35	70
30	600	80	100	---	---	55	75	---	---	0	5
40	425	---	---	---	---	15	35	---	---	---	---
50	300	18	35	---	---	0	5	---	---	---	---
70	212	---	---	100	---	---	---	---	---	---	---
80	180	---	---	85	100	---	---	---	---	---	---
100	150	0	10	---	---	---	---	---	---	---	---
140	106	---	---	15	55	---	---	---	---	---	---
200	75	0	2	---	---	---	---	---	---	---	---
230	63	---	---	0	10	---	---	---	---	---	---



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# All Weather High Reflective Glass Bead

## (Special Glass Beads For Raining Night Road Marking)

Normal grade glass beads like 1.5 index works well and it has good reflective result in the night time without raining. But in Wet Raining Night, it will be dark...

Landscapus Inc has a solution for this...

### Application

- (1) Hot-Melt Coating
- (2) Double Component Coating
- (3) Water Borne Paint

### Characteristics

- (1) High Reflective Index in Wet Raining Night
- (2) High Retro-reflective more than 350mcd while Durability Of Retro-reflective is more than 150mcd after 1 year
- (3) Appearance: All Colors Available: Green, Blue, Red, Yellow, Silver, White
- (4) Retro-Reflectivity is 1000mcd in dry condition and more than 600mcd in wet raining night.
- (5) Gravity: 2.4-2.5g/cm<sup>3</sup>
- (6) Road Marking Line Consumption per Square Meter: 180grams (half of 1.5 index glass beads)
- (7) Chemical Composition: TiO<sub>2</sub> BaO SiO<sub>2</sub> ZrO<sub>2</sub>
- (8) Size: 0.6-0.8mm, 0.8-1.0mm, 1.0-1.5mm
- (9) Colour index Pigment yellow 83 (21108)/Colour index. Pigment White 6 (77891)



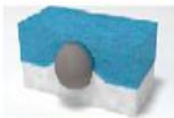
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# Combined HR Glass Beads

We can combine different kinds of small & large sizes glass beads with 1.6, 1.7, 1.93, 2.2 index perfectly. This kind of glass beads can get very good reflective result (**More than 500mcd**) in wet-night.



The effect of retroreflection works perfectly under dry conditions.



However, when it is raining at night, retroreflection with conventional glass beads is reduced to almost zero.



## Landscapus

has a solution for this problem

Micron	Passing
1700	100%
1400	95-100%
1180	80-95%
1000	10-40%
850	0-5%
710	0-2%



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# HR (High Retroreflectivity) Glass Beads

## Diret-Melt Virgin Glass Made

Item	Standard
Appearance	Outer clean and transparent, without visible bubble and impurity.
Density	2.4-2.6 g/cm <sup>3</sup>
Bulk Density	1.57g/cm <sup>3</sup>
Roundness	>90%
Refractive Index	1.5 Min.
Composition	SiO <sub>2</sub> content: 71-74%
Soften Degree	720-730 centigrade
Retroreflectivity	>500mcd/lux/m <sup>2</sup>

### AASHTO M247-13 Type 3

>1700	0
1400-1700	0-5
1180-1400	0-10
1000-1180	40-85
850-1000	5-40
<850	0-5

### AASHTO M247-13 Type 4

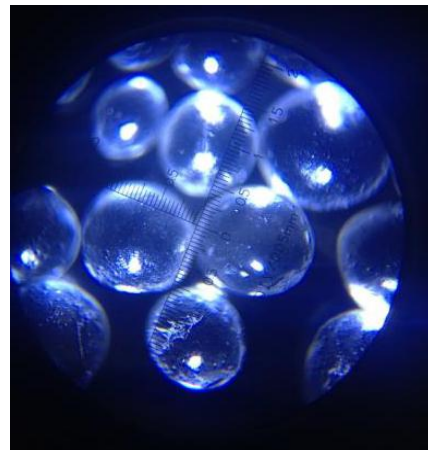
>2000	0
1700-2000	0-5
1400-1700	0-20
1180-1400	40-85
1000-1180	5-40
<1000	0-5

### AASHTO M247-13 Type 5

>2350	0
2000-2350	0-5
1700-2000	0-10
1400-1700	40-85
1180-1400	5-40
<1180	0-5

### TT-B-1325D Type IV

Micron	Type 4 A	Type 4 B
1700	100	100
1400	95-100	
1180	80-95	95-100
1000	10-40	
850	0-5	35-70
600		0-5



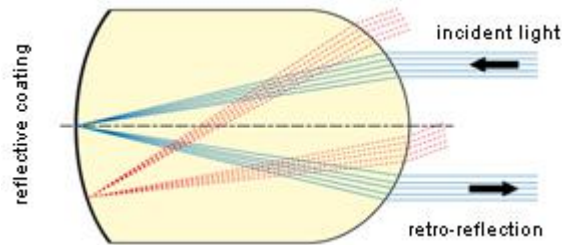
AS /NZS 2009: 2006 Glass beads: Type BHR, Type CHR, Type DHR

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# Large Size Glass Bead For Reflectors

## Introduction

Glass beads reflectors employ the principle of sphere-reflection: If a beam of light hits a retro-reflective optical system, it is reflected back to its point of origin, irrespective of the direction from which the beam strikes the reflector.



As a reflector is subjected to enormous mechanical stress from vehicles, its surface must be as resistant as possible, glass is the material for this load.

43 beads reflectors

All color beads and all color base board are available)

Size: 74.7mm\*13.9mm

Weight: 15grams/each piece

## Application



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# Sandblasting Glass beads

## Product function

Sandblasting glass bead has the features of chemical stability, high mechanical intensity and hardness. It can be jetted onto the object surface with compressed air and can be used on compress glass, rubber, plastic, molds with metal casting or compressing, engine components, printers, convey rollers, pump, compressor, satin, Matt, etc. The jetting balls would help to reduce elasticity of the surface materials and increase wearing capacity. It also can be used for special explosive application.

## Technical references

Appearance: Clean and transparent, no visible bubbles and impurity.

Density: 2.4-2.6grams / cm<sup>3</sup>

Hardness: 6-7

Spherical beads: >85%

SiO<sub>2</sub> content: >70%

## Advantages:

Silica-free

Non-toxic and inert

Manufactured from 100% post-consumer recycled bottle glass, thus benefits the environment by diverting waste from landfills

Produces a whiter, cleaner finish relative to mineral/slag abrasives

Lighter weight than many slags, allowing for increased consumption efficiency and production time - up to 30-50% less glass grit used

## Europe, Africa, Asia grades Grades

Code LSA, Size rang: 600-850microns

Code LSAAA, Size rang: 355-710microns

Code LSB, Size rang: 425-600microns

Code: LSBL, Size range: 400-800 microns

Code: LSC, Size range: 200-400 microns

Code LSAA, Size rang: 212-425microns

Code LSD, Size rang: 212-300microns

Code: LSAB, Size range: 200-300 microns

Code: L SAC, Size range: 150-250 microns

Code: LSAD, Size range: 100-200 microns

Code LSAE, Size rang: 90-150microns

Code: LSAF, Size range: 70-150 microns

Code: LSAG, Size range: 50-100 microns

Code: LSAH, Size range: 40-70 microns

Code: LSAQ, Size range: 1-50 microns

## U.S. Grades (MIL-PRF-9954D)

Type	U.S. Mesh
LS13	170-325
LS11	120-200
LS10	100-170
LS9	80-120
LS8	70-100
LS7	60-80
LS6	50-70
LS5	40-60
LS4	30-40
LS3	20-30

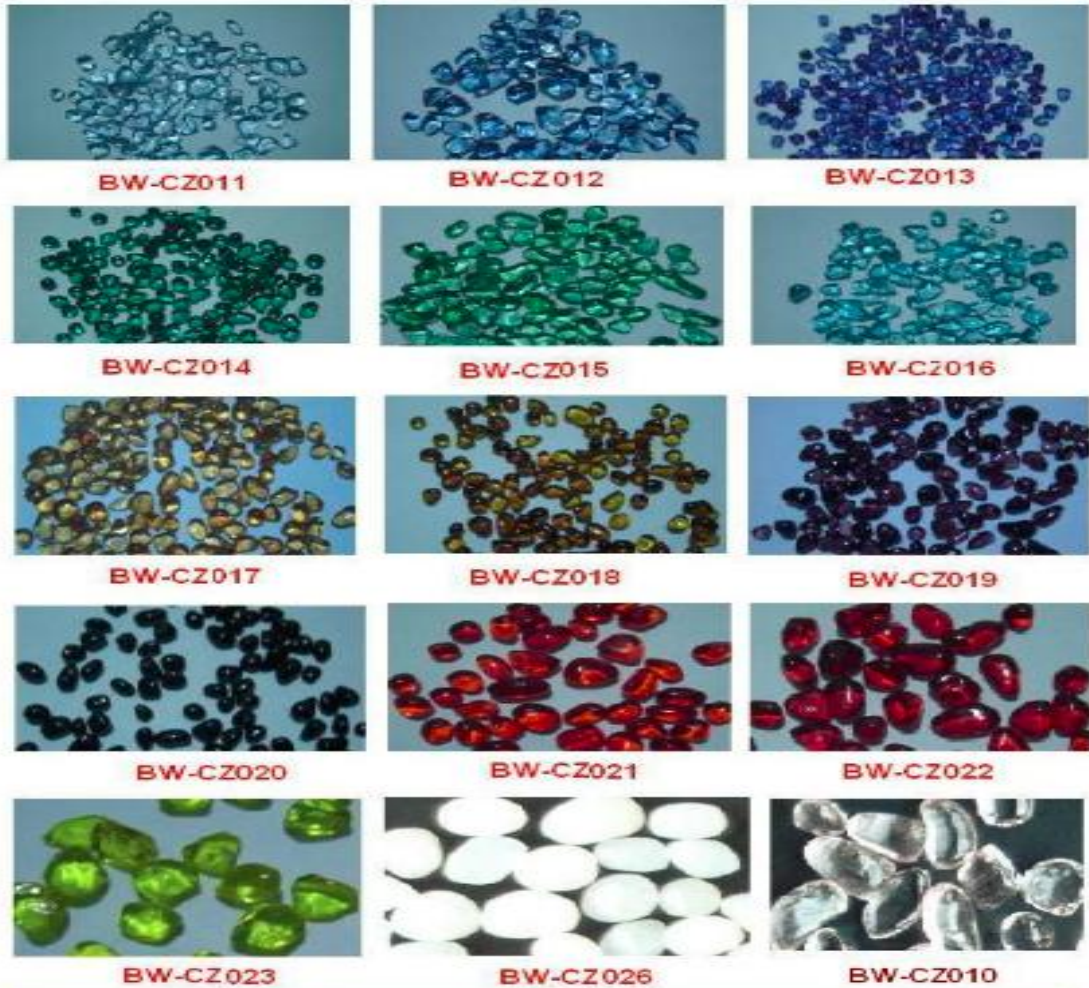


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# Color Glass For Decoration

Color glass bead /Glass Grit/Cullet/Fire glass is a new kind of material for deluxe decoration. This Kind of beads are made of glass powder in different colors. It is used in the kitchen counter-tops, Terrazzo, Landscaping, aquariums, fire pits, exterior walls decoration, courtyards, footpaths and swimming pools.It will be dazzling and resplendent when the sunlight or lamplight is shining on it. We have more than 30 kinds of colors.



## Size

1.5-3mm,2-4mm,3-6mm,6-8mm,8-10mm (We can make the size as per client's request)



## Package

10kgs/bag, 20kgs/bag and 25kgs/bag

PP Woven bags with one layer of inner plastic film.

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# Glass Grit

## (Filler/Abrasive/Sandblasting)

A silica-free, durable, chemically inert and granular particle that offers aggressive surface profiling and removal of a variety of coatings. Many customers use glass grit instead of Calcium Carbonate and Inert Filler, abrasive material and sandblasting.

### Technical Data

Hardness	6 Moh scale
Specific weight	2.5g/cm <sup>3</sup>
Bulk weight	1.3g/cm <sup>3</sup>
Loss on Ignition (400*)	0.1%
Chemical Name	Soda-lime-silica glass (no free crystalline silica)

Grade(Micron)	Performance Characteristics
Sieving Range: from 50micron to 5mm (as your request)  Recommend: 150-850micron 425-1180micron	<p><b>Blasting</b> of all non-ferrous metals, weld seams prior to inspection, decorative effects and wet blasting.</p> <p><b>Fillers</b> in rubber, plastics, industrial flooring (non-skid), brick fluxing agent, sintered mosaic tiles, tile glaze and filtration.</p> <p><b>Decorative</b> of Architectural art, creative art designers, advertising industry and special effects.</p>

Grade: C-B24, Size range: 150-300 microns

Grade: C-48, Size range: 850-425 microns

**Color glass grit CAN BE USED IN SKIDPROOF PAINT**



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# Hollow Glass Micro spheres

## (For Oil Well Drilling / Coating / Paint)

### Introduction

Hollow glass microsphere is a new type of material which has wide use and an outstanding performance. The product is made mainly from borosilicate, it is a hollow and grain size is 8-130 micron.

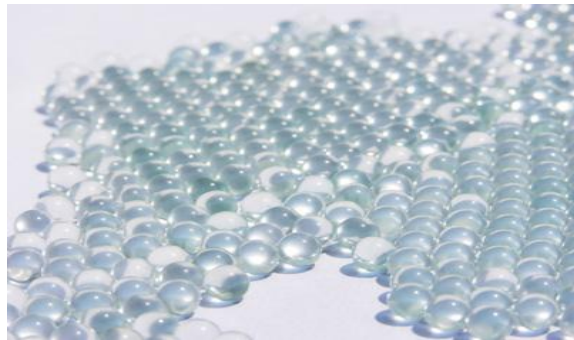
Grade	Color	Particle size (µm)	Density (g/cm <sup>3</sup> )	Anti-impact (Mpa)
BWHB15	WHITE	15-130	0.15	1.5-2
BWHB20	WHITE	15-120	0.20	3-4
BWHB25	WHITE	12-110	0.25	5-7
BWHB32	WHITE	10-90	0.32	12-15
BWHB40	WHITE	8-85	0.40	28-33
BWHB46	WHITE	8-80	0.46	38-42
BWHB60	WHITE	8-65	0.60	>60

### Application

- (1) *Painting, coating, Oil Field Oil Well Drilling*
- (2) *Improve the heat insulation*
- (3) *Improve corrosion resistance*

### Appearance and physical data

- (1) *White*
- (2) *Density: 0.25 gram/CM<sup>3</sup>*
- (3) *Crush Strength: 750/5 (psi/Mpa)*
- (4) *Melting point: 625 centigrade*
- (5) *Floating Rate: 96%*
- (6) *PH value: 8-9.5*



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# Glass Beads For Grinding

Glass beads has good chemical stability,perfect regularity,clean surface,Good fluidity,less consumption,it can be used as grinding material in the fields of chemical materials,paint,dye materials and pigments,foods,medicines and etc..

## Application

- (1) Chemical Materials Grinding
- (2) Paint, Dye, Pigments Grinding
- (3) Foods, Medicines...

## Appearance and physical data

- (1) Transparent
- (2) Density:2.5gram/CM3
- (3) Micro-rigidity $\geq 680\text{kg/mm}^2$
- (4) Melting point: 625 centigrade
- (5) Roundness Rate: 95%

## Size

0.2mm to 5mm (We can produce according to your request)



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# Ceramic Granular For Anti-skid Marking

Color ceramic granular is a new environment friendly material which is made from kaolin, feldspar, quartz and clay and can be used widely in anti-slid road marking, anti-friction, anti-correctives materials, Garden Decoration, Wall Decoration and etc..

## Application

- (1) Road Marking Material
- (2) Garden, Park, Path
- (3) Wall Decoration

## Appearance and physical data

- (1) All Colors Available
- (2) Density: 2.25-2.45gram/CM<sup>3</sup>
- (3) Water Absorption: <3%
- (4) Mohs Hardness >6

## Size

1mm to 2mm, 2mm to 4mm, 4mm to 6mm (We can produce according to your request)

## Application Steps:

- (1) Removing dusts and pollution
- (2) Checking the area to be maintained
- (3) Bottom Paint (Cement base only, other base like bitumen base-no)
- (4) Resin Spray
- (5) Putting the ceramic granular on the resins sprayed on the road.
- (6) Collection the unused granular
- (7) Beautify the surface of the road.



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# PAVEMENT MARKER TABS

## (CHIP SEAL MARKERS)

1, Types:

Type Y—yellow marker with amber reflective area on one side

Type Y-2—yellow marker with amber reflective area on both sides

Type W—white marker with white or silver reflective area on one side

Type W-2—white marker with white or silver reflective area on both sides

2, Body Size:

2.1 The body of the marker consists of a base and vertical wall made of polyurethane.

2.2 The base is 100mm (4in.) in length and from 25 mm(1 in.) in width.

2.3 A butyl rubber adhesive pad with an easily removed protective covering is affixed to the bottom of the base. The adhesive pad must be approximately 3 mm (1/8 in.) thick, 19 mm (3/4 in.) wide, and 100 mm (4 in.) long.

2.4 The vertical wall is 100mm (4in.) long with a height of 51 mm (2 in.) A reflective material is affixed o the upper portion of the vertical wall ,The reflective material is 8mm (1/3 in.) in width and 100mm in length.

2.5 The reflective material is protected with an easily removable cover of heat resistant PU capable of withstanding and protecting the reflective material from the application of 204°C (400°F) asphalt.

3, Color:

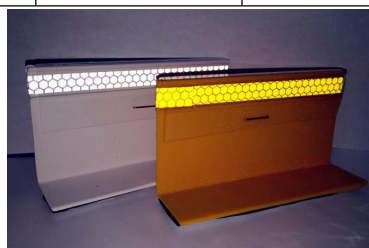
white or yellow as specified

4, Flexibility and Deformation Resistance:

The vertical wall of the tabs is sufficiently flexible to bend under normal traffic and sufficiently resistant to permanent deformation, to be conducted when air temperature is above 10°C (50°F).

5, Retro-reflective characteristic (ASTM D 4956-04 Type III):

Observation Angle	Entrance Angle	Min Coefficient Of Retroreflection (Min: Cd/lux/m²)		Specific intensity	
		White	Yellow	White	Yellow
0.2	-4	570	425	3.7	3.1
0.5	-4	400	300		
1.0	-4	120	90		
0.2	30	215	160	2.8	2.0
0.5	30	150	112		
1.0	30	45	34		



# ROAD MARKERS (ROAD STUDS)



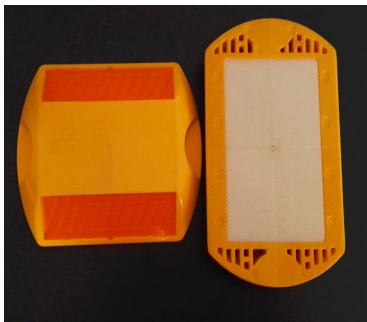
#### Overall Dimensions

10cm x 10cm x 18cm (4 in x 4 in x 0.75 in)

Slope of Reflecting Face :32 degrees to base

Area of Each Reflective Area

21 .0 square centimeters (3.25 square inches)



#### Overall Dimensions

12cm x 8.0 cm X 1.8 cm

Slope of Reflecting Face :32 degrees to base

Area of Each Reflective Area

14.5square centimeters (2.25 square inches)

4" Non-reflective Plastic Pavement Markers conform to the following:

Plastic non-reflective pavement markers shall be, at the option of the Contractor, either polypropylene or ACRYLONITRILE-BUTADIENE-STYRENE (ABS) plastic type.



Ceramic non - reflective pavement markers Type White and Yellow shall consist of a heat - fired, vitreous, ceramic base and a heat - fired, opaque, glazed surface to produce the properties required in these specifications.

The markers shall be produced from any suitable combination of intimately mixed clay, shale, talc,flints, feldspar or other inorganic material which will meet the properties herein required. The markers shall be thoroughly and evenly matured and free from defects which affect appearance or serviceability



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# Thermoplastic Road Marking Material

Confirming to AASHTO M249, BS 3262, EN 1871, JIS, AS/NZ 2009, it shall consist of light colored aggregate, pigment and extender, bound together with Hydrocarbon Resin with mineral oil/ ALKYD resin plasticized with plant oil.

AASHTO M249 standard thermoplastic intermixing Glass beads shall be in accordance with AASHTO M247 – TYPE I, BS 3262 thermoplastic intermixing with BS6088 A glass beads, EN 1871 thermoplastic intermixing with EN1424 glass beads, JIS intermixing with JIS 3301 glass beads, AS/NZ 2009 thermoplastic intermixing with AS/NZ 2009 glass beads.

ALKYD Resin (Maleic-Modified Glycerol ester of Rosin) Grades and Numbers:

White (RRW-A), Yellow(RRY-A), Red(RRR-A), Green(RRG-A), Black(RRB-A)

Hydrocarbon Resin Grades and Numbers:

White (RRW-HR), Yellow(RRY-HR), Red(RRR-HR), Green(RRG-HR), Black(RRB-HR)

Application Type: Extrude / Screed, Spray, Profile Grades

Color Available: White, Yellow, Red, Green, Black

Constituent	White	Yellow
Binder	18 Min	18 Min
Glass Beads	According To standards	According To standards
Titanium Dioxide	10 Min	Organic Yellow
Calcium Carbonate and Inert Filler	--	--
<b>Yellow Pigment</b>		<b>As Required</b>
<u>Physical Characteristics:</u>		
Softening Point °C	102 ± 9.5	102 ± 9.5
Specific Gravity gm/cm <sup>3</sup>	< 2.15	< 2.15
Flowability %	18 Max	21 Max.
Flowability – Extender Heating	28 Max	28 Max.
Drying Time	3 – 5 min @ 32°C	3 – 5 min @ 32°C
Yellow Index	Below 0.12	
Cracking Resistance	No Cracks	No Cracks
Impact Resistance (Joules)	≥ 1.13	≥ 1.13
Color Daylight Reflectance	75% min.	45% min.

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## **Landscapus Inc** **Road Safety Expert**

*Know More From Our Website*



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