

Group 38604 IFB 23252

**Traffic Paint (Waterborne – Lead Free) &
Glass Spheres for Reflectorized
Pavement Marking (Various Types)
(Statewide)**

Attachment 9 – Specifications

Group 38604 – Traffic Paint (Waterborne – Lead-Free) & Glass Spheres for Reflectorized Pavement Marking (Various Types) (Statewide)

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SECTION 1: TRAFFIC PAINT (WATERBORNE – LEAD-FREE)

1.1 Scope: Traffic Paint (Waterborne – Lead-Free): Lot I - White & Lot II - Organic Yellow

This portion of the specification covers ready-mixed, fast drying, white and organic yellow waterborne traffic paint for use on bituminous and Portland cement concrete pavements. Waterborne traffic paint supplied under this specification shall be designed for heated application by mobile long line striping equipment.

The intent of this specification is to describe fast-setting, non-tracking pavement marking paint that is heated when used for pavement striping.

The paint shall be applied on standard types of pavement surfaces at a minimum wet film thickness of 15 mils for existing pavement and a minimum wet film thickness of 20 mils for new asphalt pavement. Wet film thickness is defined as the paint thickness (without reflective glass spheres) measured immediately after application. Specialty types of pavements with coarse aggregate or an open-graded pavement surface texture may require a wet film thickness in the 20 mil to 30 mil range. Examples of specialty type asphalt mixes are referred to as "open-graded" and "paver-placed surface treatment". Thicker applications of paint may increase the field drying time.

Organic yellow paint shall be manufactured without lead chromate type pigment or other types of pigments or filler materials containing toxic contaminants listed in Table 1 under Section 261.24 Toxicity Characteristic, Code of Federal Regulation Title 40 - Protection of Environment.

Qualified companies for the manufacturer of these paints, and required raw materials, when specified, are included within this specification.

1.2 Qualified Manufacturers List for LOTS I & II

Certain items in this bid require prequalification of manufacturer and/or item through pre-testing performed by the New York State Department of Transportation (NYSDOT) Materials Division, whereby successful tests place the manufacturer and/or item on one of more of the NYSDOT's Qualified Lists.

Traffic Paint (Waterborne – Lead-Free) LOT I: White and LOT II: Organic Yellow, are prequalified products and Manufacturers must be listed on the NYSDOT's approved lists as published prior to the time of the bid opening for this Invitation for Bids:

<https://www.dot.ny.gov/divisions/engineering/technical-services/technical-services-repository/alme/pages/650-1.html>

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1.3 Specifications for LOTS I & II

1.3.1 Standards

All standards herein are minimum standards.

1.3.2 Percentages

All percentages used are calculated by weight.

1.3.3 Service

As proper application is deemed essential to the success of this process, the manufacturer shall provide at least one technician with experience to instruct in the application of these types of materials. The technician will be familiar with the application equipment and the materials, and have successful experience in the placing of the reflective markings specified herein.

1.3.4 Quality Assurance Provisions

The contractor shall be responsible for complying with all physical and chemical test requirements as stipulated in the specifications.

1.4 Field Quality of Paint

The manufacturer shall make immediate corrective adjustments to the paint formulation if the supplied paint

- contains thick skins, lumps, or coarse particles in the shipping containers;
- exhibits severe settling or separation in the shipping containers;
- cannot be easily pumped from the shipping containers into the paint tanks on the striping equipment;
- is clogging any component of the striping truck pumping, heating, or spraying system on a regular basis;
- cannot be sprayed properly through mobile, long line striping equipment; or
- is not reaching a suitable no-track condition after field application.

All material supplied within the contract is subject to random sampling and testing for specification compliance at any time.

1.5 Shelf Life

Shelf life is the period during which the product shall be satisfactory in every respect for use and is figured from the date of delivery.

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1.6 Packaging

The paint shall be packaged in shipping containers which meet U.S. Department of Transportation Code of Federal Regulations (CFR) Title 49, Parts 173 and 178. Each container shall be properly marked and labeled in accordance with CFR, Title 49, Part 172.

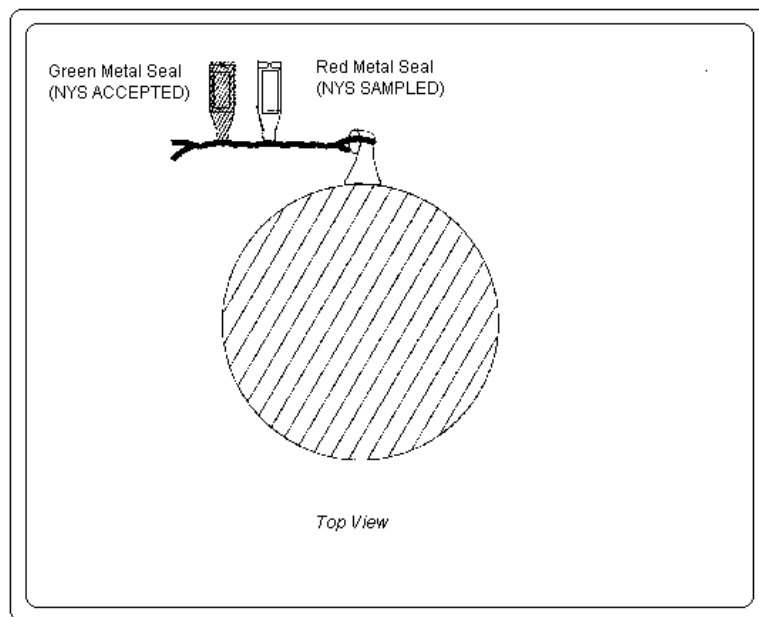
The exterior of all containers shall be clearly marked or colored in a manner to easily identify the color of the contained paint.

The paint shall be supplied in the following types of containers (only):

A. **275 Gallon High Density Polyethylene IBC Totes**

Clean and sound, high-density polyethylene IBC totes. The container sizes shall be as required by the Invitation for Bids (Revised, April 5, 2017) in Attachment 01 - *Pricing*, and shall be capable of holding 275 liquid gallons.

Totes must be able to maintain structural integrity during transport and storage and be capable of being stacked. Totes may be reused only after being thoroughly cleaned out; no contaminants are allowed to be left in the totes when refilling. Totes may be refilled only by the paint manufacturer at the point of manufacture.



High Density Polyethelyne IBC Tote

Not to Scale

Note: The wire shall be drawn securely and tightly through the eyelet. The Red and Green Metal Seals shall be certified in such a manner that the connection can not be loosend without destroying the seal.

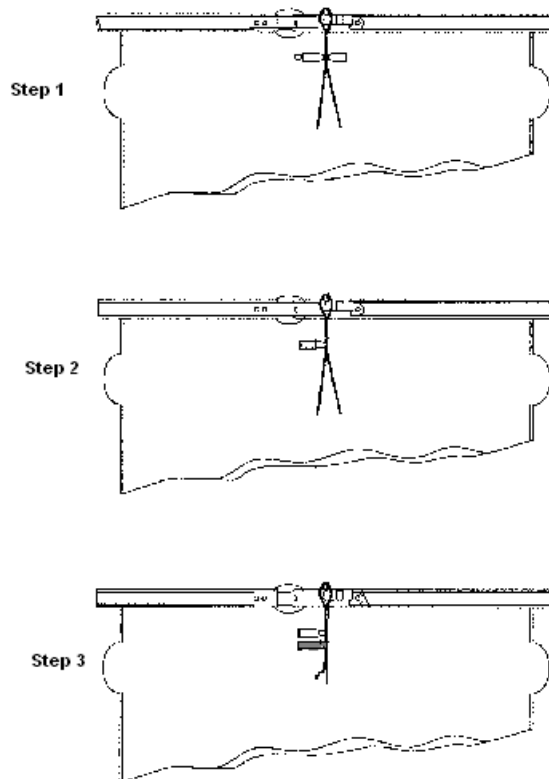
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B. 55 Gallon Removable Head Low Carbon Steel Drums

New, removable head, low carbon steel containers, which are permanently lined so as to be compatible with the type of material being delivered within. (Note: Both cover and drum must be new). The container size shall be as required by the Invitation for Bids (Revised, April 5, 2017) in Attachment 01 – *Pricing*, and shall be 55 gallons. They shall have sufficient structural integrity to be capable of being stacked.

The minimum uncoated thickness of 55-gallon containers shall be 18 gauge for the body and bottom head, and 16 gauge for the removable head. Bolted ring closures shall be 12 gauge thickness.

The container covers shall provide a tight cover seal and shall be such that they can be readily resealed after partial use of the contents.



55 Gallon Container

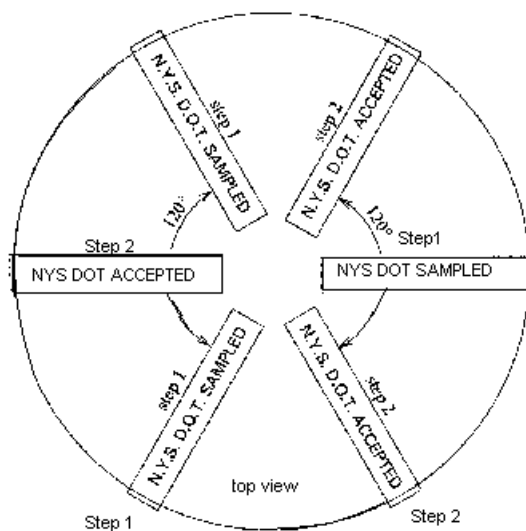
Not to Scale

Note: The wire shall be drawn securely and tightly through the eyelet. The Red & Green Seals shall be certified in such a manner that the connection can not be loosened without destroying the seal

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C. 5 Gallon Lidded High Density Polyethylene Pails

New cylindrical high-density polyethylene (HDPE) plastic pails of 11 to 12 inches in diameter and 13 to 15 inches in height capable of holding 5 liquid gallons. Pails shall be provided with a metal handle. They shall be able to withstand temperatures below freezing and up to 150°F. Wall thickness shall be equal to or greater than 90 mil. The container will be USDA, UFC, UN 1H2/Y25/30 and NMFC compliant. Pails will be topped with a UN approved snap on type lid, gasketed for positive seal. Lids equipped with screw-capped pour spouts are acceptable if supplied at no additional cost.



5 Gallon Container or
1 Pint Container

Not to Scale

Note: Three (3) Red and Green tape shall be placed at 120 degree intervals and parallel to the long axis of the container equally divided between the cover and the container side as shown above. The cover lugs shall be considered as a portion of the cover and one end of each seal shall be placed in contact with a lug..

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1.7 Return of Empty Containers:

The 275-gallon totes and 55-gallon drums will remain the property of the paint supplier. It is the responsibility of the paint supplier to remove the empty containers from the Authorized User in a timely manner after receiving notification from the Authorized User as to the readiness for return.

It is the responsibility of the Authorized User to notify the Contractor when the location has accumulated a minimum of twelve (12) empty 275-gallon totes or sixty (60) empty 55-gallon drums to be removed at no additional cost. Smaller quantities may be picked up upon mutual agreement between paint supplier and Authorized User personnel at no additional cost.

The contractor shall schedule container pick-up at the Authorized User's site. The paint supplier or truck driver shall call the Authorized User to arrange for pick-up of the empty totes. Pickup may be scheduled Tuesdays through Thursdays between the hours of 10:00 AM and 3:00 PM excluding State holidays, unless the Authorized User approves other arrangements.

It is the responsibility of the Authorized User to use agency equipment to place the fully discharged containers onto the truck as directed by the truck driver. The truck driver will be responsible for properly securing the empty totes for shipment.

Resultant contractor(s) will not be required to pick up containers having more than one inch of paint residue.

NOTE: The 55-gallon drums and 275-gallon IBC totes remain the property of the contractor and shall be promptly recovered by the contractor at the request of the Authorized User at no additional cost. The 5-gallon pails shall be the property of the Authorized User and disposed of by the using entity in accordance with existing environmental procedures.

1.8 Labeling

The containers for the pigmented binders shall be clearly labeled so that they can be easily distinguished from other paints. Each container shall bear a label including the following information:

Although Consumer Product Safety Commission (CPSC) Regulation 16 CFR 1303 may not be applicable for these industrial type coatings, in the interest of safety and use by State Agencies, each container shall bear a label including one of the following clauses in a conspicuous location on the label with attention size lettering: "FREE FROM LEAD HAZARD"

Also, the following wording or its practical equivalent shall be included on the label: "*Do not apply on toys and other children's articles, furniture or interior surfaces of any dwelling or facility, which may be occupied or used by children. Do not apply on those exterior surfaces of dwelling units, such as window sills, porches, stairs or railings to which children may be commonly exposed.*"

The label shall also include the following: "KEEP OUT OF REACH OF CHILDREN".

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The following designations shall also be required on all labels and/or packaging:

- Name and Address of Manufacturer.
- Manufacturer’s Product Name and Identifying Number.
- Kind of paint, color name, and its identifying number.
- Volatile Organic Content (VOC), expressed in pounds per gallon.
- Net volume of paint in container.
- N.Y.S. Item Number.
- Use intended and directions for application.
- Precautionary instructions in regard to hazardous properties such as lead content, toxicity, fumes, storage temperature, minimum temperature for application, etc.
- Each item that complies with NYS ENCON 6 NYCRR Part 205, shall bear on the label or container the following:

“PRODUCT COMPLIES WITH NYS ENCON Title 6 NYCRR. PART 205”.

NYS Contract Number, Production Batch Number and date of manufacture shall be clearly shown on each container (by stamping or pressure sensitive sticker or similar means).

IMPROPERLY LABELED CONTAINERS MAY BE REJECTED.

1.9 Quality Assurance Requirements: LOTS I & II

The bidder shall be aware that samples may be requested prior to each painting season throughout the duration of the contract, to ensure compliance with the detailed specifications at all times. Each delivery made may be subject to field sampling prior to its use by the Authorized User or NYSDOT. The sampling procedure shall be random for an adequate supply of paint to test in accordance with the specifications listed below in Table - *Quality Assurance Process for LOT I & II*:

Every season throughout the duration of the contract the NYSDOT may assign inspection at the paint manufacturing facility to implement the quality assurance requirements. In that case the manufacturer is required to notify assigned inspection agency of the intention to can paint for this contract at least 48 hours in advance of the canning of the initial batch of paint. Contact the Product Operations Office of the Materials Bureau at (518) 457-5642 for information on the assigned inspection agency.

The manufacturer is responsible for quality control testing and certification of each batch (lot) of paint produced for use under this contract. Once the manufacturer begins production of the contract items, the NYSDOT will sample and test for specification compliance. The NYSDOT shall test and take appropriate action on a given lot no later than 14 working days from receipt of sample(s). During this time period, no lot of paint may be shipped by the manufacturer until it has been accepted as passing.

Failure to meet this requirement may result in liquidated damages assessed to the manufacturer by the State. See Invitation for Bids, Section - Liquidated Damages for more information.

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Table - QUALITY ASSURANCE PROCESS FOR LOTS I & II

<u>STEP</u>	<u>RESPONSIBILITY</u>	<u>DESCRIPTION</u>
1.	<u>Manufacturer</u>	Plans to manufacture a batch of paint.
1A.	<u>Manufacturer</u>	<p>Assigns a batch number to the batch :</p> <p><i>(A batch shall consist of a specific color of paint which is canned at one time from a single pouring tank. This may be the combination of two or more mix tanks that have been completely blended in the pouring tank, but may never represent more than a single pouring tank, filled once)</i></p> <p>Each batch is assigned a unique batch number by the manufacturer</p>
1B.	<u>Manufacturer</u>	Person responsible for scheduling the pour shall provide the inspection agency with the weekly production schedule at a minimum of 48 hours in advance of the first day of the production week that they plan to can their first batch of paint.
1C.	<u>Manufacturer</u>	<p>Subsequent to inspection and sampling of each lot, samples shall be submitted to NYSDOT Materials Lab for testing before February 1 of the calendar year.</p> <p><i>(Note: A partially filled container shall not be filled to capacity from another lot).</i></p>
1D.	<u>Manufacturer</u>	Of the first six (6) lots of paint manufactured three shall be white & three shall be yellow.
2.	<u>Inspection Agency</u>	Schedules an inspector to be at the manufacturing plant based on Step 1b as found above.
3.	<u>Agency Inspector</u>	<p>If the manufacturer does not start to manufacture paint within two hours of the inspector's scheduled arrival, the inspector shall leave**, otherwise proceed to step 4.</p> <p>**<u>The person responsible for scheduling the pour must reschedule by contacting the inspection agency at a minimum of 48 hours in advance of the time they plan to can the batch of paint. In addition, the manufacturer shall reimburse the inspection agency for all inspection/travel costs associated with the manufacturer's inability to batch paint within two hours as described above.</u></p>
4.	<u>Agency Inspector</u>	Arrives at manufacturing plant and visually inspects the pouring tank to insure that all paint to be canned comes from that tank.
4A.	<u>Agency Inspector</u>	If the pouring tank contains paint from two or more mix tanks, verifies that the pouring tank contains mixing equipment.
4B.	<u>Agency Inspector</u>	Inspects the cleanliness of the containers that are to receive the paint to help avoid possible contamination of the material.

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Table - QUALITY ASSURANCE PROCESS FOR LOTS I & II(Cont'd)		
<u>STEP</u>	<u>RESPONSIBILITY</u>	<u>DESCRIPTION</u>
<u>4C.</u>	<u>Agency Inspector</u>	Checks the labels on the containers to ensure compliance in accordance with this Contract.
<u>4D.</u>	<u>Agency Inspector</u>	Visually determines the quantity of paint in the mixing tank.
<u>4E.</u>	<u>Agency Inspector</u>	Insures that the batch number for the batch to be canned is either already marked on the top or side of the containers, or the proper equipment is available to mark the cans as soon as they are filled
<u>5.</u>	<u>Agency Inspector</u>	A sample shall consist of a minimum of a one-pint can taken during the canning process. A total of 1 one-pint (16 liquid oz) sample of the paint shall be taken from each batch.
<u>5A.</u>	<u>Agency Inspector</u>	Two samples shall be taken from approximately the mid-point of each third of the pour for a total of six samples
<u>5B.</u>	<u>Agency Inspector</u>	Three (3) red tape seals shall be placed on the pint containers at 120 degree intervals and parallel to the long axis of the container, equally divided between the cover and the container side. See Illustration A
<u>6.</u>	<u>Agency Inspector</u>	Identifies the samples by marking the following information on the side of each can.
		<ul style="list-style-type: none"> a. Lot Number b. Batch Number c. Group/Item Number d. Manufacturer's name and location
<u>7.</u>	<u>Agency Inspector</u>	Verifies that the total quantity canned is reasonably close to the amount originally observed in the mixing tank.
<u>8.</u>	<u>Agency Inspector</u>	Prior to Certification, the inspector shall apply NYSDOT security seals as shown in Illustrations A, B and C
<u>9.</u>	<u>Agency Inspector</u>	<p>Completes the BR240a form <u>per</u> lot, See Illustration D. The Br240a shall be submitted as follows:</p> <p>Green and White copies submitted with inspector's report to Product Operations</p> <p>Pink retained by the inspector (<i>manufacturer is permitted to make a copy for their record</i>).</p> <p>Yellow and Buff go with the sample(s) to NYSDOT Materials Lab.</p>
<u>10.</u>	<u>Agency Inspector</u>	Packages samples, including Form BR-240a enclosed in a BR-241 envelope and places a red tape seal over tab of envelope to assure seal.
<u>11.</u>	<u>Manufacturer</u>	Assumes the responsibility and cost of transmitting all samples with proper forms to the NYSDOT Materials Lab for the duration of the Contract.
<u>12</u>	<u>NYSDOT Materials Lab</u>	Performs required test(s).

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Table - QUALITY ASSURANCE PROCESS FOR LOTS I & II (Cont'd)

<u>STEP</u>	<u>RESPONSIBILITY</u>	<u>DESCRIPTION</u>
<u>13.</u>	<u>Product Operations</u>	Reviews test results and takes appropriate action of Accept or Reject for a tested lot.
<u>14.</u>	<u>Product Operations</u>	Notifies the Contract Administrator at OGS, the manufacturer and the inspection agency of Acceptance or Rejection for a tested lot.
<u>15.</u>	<u>Inspection Agency</u>	Schedules to go back to manufacturer to complete inspection process based on notification of accept or reject from Product Operations (<i>this must occur within 48 hours of notification</i>).
<u>16.</u>	<u>Agency Inspector</u>	Prior to Certification, if a lot is Accepted , the inspector places appropriate acceptance seals on containers from accepted lot (See Illustrations A, B and C) and checks to see that manufacturer placed labels on accepted containers with required information.
<u>17.</u>	<u>Agency Inspector</u>	Prior to certification, if a lot is Rejected , the inspector removes all red seals on containers from rejected lot. Manufacturer is not permitted to release rejected paint to the Regions.
<u>18.</u>	<u>Manufacturer –</u>	Manufacturer is now permitted to release accepted paint as requested.
<u>19.</u>	<u>Manufacturer On Certification</u>	The manufacturer is permitted to release paint to customers without the sampled and/or accepted seals affixed to the containers. However, the manufacturer shall furnish a certificate of compliance with a shipment of certified paint.
<u>19A.</u>	<u>Manufacturer On Certification</u>	The NYSDOT will monitor the quality of the paint while the manufacturer is permitted to supply on certification. The monitor program will require the manufacturer to notify the inspection agency in accordance with Step 1b of this appendix
<u>20.</u>	<u>Agency Inspector</u>	Under <u>Certification</u> , the monitoring program shall require the inspector to take samples at a rate of 1 per 5 lots per color or as directed by the NYSDOT. (<i>The State reserves the right to sample and test every lot for Accept or Reject consideration in the event the manufacturer is unable to demonstrate acceptable quality control or is no longer permitted to supply under Certification.</i>)
<u>21.</u>	<u>Manufacturer</u>	The manufacturer shall keep all Inventory Records up to date and available upon request.

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1.10 Production Samples

All Production Samples along with Form BR240a (Green & White copies) are to be shipped to:

Materials Bureau - Chemical Testing Laboratory
 New York State Department of Transportation Laboratories
 7 Harriman Campus Road
 Albany, NY 12206
 Attn.: Harry White

BR 240a (11/74) SAMPLE AND ACCEPTANCE TRANSMITTAL NYS DOT MATERIALS BUREAU		SERIAL NO. 257232	DATE REC'D	TEST NO.
To: _____ Material Represented by the Sample Described Below Was _____				
On _____ For _____				
<small>(Action Official Only When Validated Below By The Materials Bureau)</small>				
UPPER PORTION FOR MATERIALS BUREAU ONLY — INSPECTOR TO COMPLETE ALL APPLICABLE BOXES BELOW				
15. Additional Info (See Instructions on Rear)	1. MATERIAL White or Yellow Water-Borne Traffic Paint	2. Item No. 727-06XX	3. DATE SAMPLED XX/XX/XX	4. CONTRACT NO. Group #
	5. SUPPLIER AND LOCATION NAME, CITY, STATE		6. QUANTITY IN LOT XX GALLONS	7. LOT NO. XX
Batch No.	8. MANUFACTURER & LOCATION (IF DIFFERENT THAN ABOVE) LEAVE BLANK		9. BATCH NO. XXXXXX	10. DATE OF MFG. XX/XX/XX
Quantities of Containers	11. SAMPLED AT <input type="checkbox"/> MILL <input type="checkbox"/> PLANT <input type="checkbox"/> JOB	12. TYPE <input type="checkbox"/> CONTROL SAMPLE <input type="checkbox"/> INFO. Sample <input type="checkbox"/> BPR SAMPLE <input type="checkbox"/> APPROVED LIST MATERIAL <input type="checkbox"/> CERTIFIED MAT.	13. SAMPLED FROM POUR	
6 - 1 pint samples sent in by Manufacturer	15. CONTRACTOR AND PROJECT LOCATION LEAVE BLANK		14. SAMPLED BY (INC. DIST # or AGCY) NAME, I.A. CODE	
<small>RETAIN PINK COPY FOR YOUR RECORDS FORWARD ALL OTHERS TO MATERIALS BUREAU</small>				

BR 240a (11/74) SAMPLE AND ACCEPTANCE TRANSMITTAL NYS DOT MATERIALS BUREAU		SERIAL NO. 257232	DATE REC'D	TEST NO.
To: _____ Material Represented by the Sample Described Below Was _____				
On _____ For _____				
<small>(Action Official Only When Validated Below By The Materials Bureau)</small>				
UPPER PORTION FOR MATERIALS BUREAU ONLY — INSPECTOR TO COMPLETE ALL APPLICABLE BOXES BELOW				
15. Additional Info (See Instructions on Rear)	1. MATERIAL White or Yellow Epoxy Refl. Pav. Markings	2. Item No. 727-03	3. DATE SAMPLED XX/XX/XX	4. CONTRACT NO. Group #
	5. SUPPLIER AND LOCATION NAME, CITY, STATE		6. QUANTITY IN LOT XX GALLONS	7. LOT NO. XX
Part A - White or Yellow Quantity of Part A Gallons	8. MANUFACTURER & LOCATION (IF DIFFERENT THAN ABOVE) LEAVE BLANK		9. BATCH NO. Part A XXXXX	10. DATE OF MFG. Part A XX/XX/XX
Part B - Quantity of Part B Gallons			9. BATCH NO. Part B XXXXX	10. DATE OF MFG. Part B XX/XX/XX
2 - 1 pint samples of Part A	11. SAMPLED AT <input type="checkbox"/> MILL <input type="checkbox"/> PLANT <input type="checkbox"/> JOB	12. TYPE <input type="checkbox"/> CONTROL SAMPLE <input type="checkbox"/> INFO. Sample <input type="checkbox"/> BPR SAMPLE <input type="checkbox"/> APPROVED LIST MATERIAL <input type="checkbox"/> CERTIFIED MAT.	13. SAMPLED FROM POUR	
1 - 1 pint sample of Part B Sent in by Manufacturer	15. CONTRACTOR AND PROJECT LOCATION LEAVE BLANK		14. SAMPLED BY (INC. DIST # or AGCY) NAME, I.A. CODE	
<small>RETAIN PINK COPY FOR YOUR RECORDS FORWARD ALL OTHERS TO MATERIALS BUREAU</small>				

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1.11 Composition Requirements

The composition of fast drying waterborne paint shall be at the option of the manufacturer, providing the following requirements of this specification are met:

Paint shall be manufactured to adhere to existing paint, and to all types of pavement surfaces, and the paint shall provide good daytime appearance, hiding power, nighttime color and visibility, and retro-reflectivity. It shall be manufactured to resist appreciable fading and discoloration under ultraviolet sun exposure. When viewed at night under normal driving conditions, the color of organic yellow paint shall appear similar to its daytime color.

1. Pigment (ASTM D3723):

The pigment portion shall include a combination of prime and extended pigments as required to produce either white or organic yellow traffic paint meeting the color and other requirements of the finished product as specified in this specification. The paint manufacturer shall report the types of pigment used and the total percent pigment by weight of the finished product.

NOTE: ASTM D3723 requires placing the paint sample in a muffle furnace heated at $842 \pm 45^\circ\text{F}$. Organic yellow pigment may decompose at these temperatures, thereby resulting in an erroneous laboratory test result for pigment content. The manufacturer's "certified" organic yellow pigment content shall be used to determine the final laboratory test results for total pigment (%) and for nonvolatile vehicle (%). The NYSDOT Materials Bureau reserves the right to validate the manufacturer's "certified" organic yellow pigment content through outside independent laboratory testing.

When tested in accordance with ASTM D 3335 Standard Test Method of Low Concentrations of Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy, the lead content of organic yellow paint shall be less than 600 ppm.

2. Vehicle (ASTM D3723):

The non-volatile portion of the vehicle shall be composed of a fast drying emulsion. The "Lot" of finished paint shall be manufactured using only one type (brand name) fast dry emulsion. The nonvolatile vehicle solids percent by weight of vehicle shall not be less than 43.0%.

3. Finished Paint:

The finished paint shall meet the following requirements:

- a. Pigment (ORGANIC YELLOW PAINT ONLY):
The organic yellow pigment content, by weight, shall be a minimum of 2.2%.
- b. Volatile Organic Compounds (VOC):
The volatile organic compounds (VOC) content, expressed as pounds of volatile organic compounds per gallon of coating, excluding water and any colorant added to tint bases, shall not exceed **0.85 pounds per gallon** per Invitation for Bids, Section, – *Environmental Attributes and NYS Executive Order Number 4*.
- c. Total Solids Content (ASTM D3723):
The finished paint shall be not less than 76.0% total non-volatile by weight and shall be not less than 62.0% by volume.

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- d. Weight per Gallon (ASTM D1475):
The weight per gallon of the finished paint shall not be less than 13.5 pounds for white nor less than 13.0 pounds for organic yellow when tested using the weight per gallon cup.
- e. Color:
White paint shall be an approximate visual color match to Munsell Book Notation N 9.5/0 when viewed under North Standard Daylight (ASTM D1535).
Organic Yellow paint shall be an approximate visual color match to Munsell Book Notation 10YR 8/14 when viewed under North Standard Daylight (ASTM D1535), and it shall be within the chromaticity coordinate limits as found in the Chart B.

Chromaticity coordinate testing shall be performed in accordance with ASTM E1347 using a color spectrophotometer with 45° circumferential illumination/0° viewing geometry, illuminant C, and 2° standard observer angle. The color instrument shall measure the visible spectrum from 3800 to 7200 Å with a wavelength interval and spectral band pass of 100 Å. The sample port aperture shall be 1.28 in.
The test specimens shall be prepared by applying the paint at a 15 ± 1 mil nominal wet film thickness drawdown (without glass spheres) to a Leneta Form 5C or equivalent. The paint specimens shall be allowed to dry for a minimum 24 hours prior to testing.
- f. Directional Reflectance (ASTM E1347):
The directional reflectance (represented by CIE tristimulus value Y) of white and organic yellow paint shall be a minimum 84% and 54%, respectively.

Directional reflectance testing shall be performed using a color spectrophotometer with a 45° circumferential illumination/0° viewing geometry, illuminant C, and 2° standard observer angle. The color instrument shall measure the visible spectrum from 3800 to 7200 Å with wavelength interval and spectral bandpass of 100 Å. The sample port aperture shall be 1.28 in.

The test specimens shall be prepared by applying the paint (without glass spheres) to black and white contrast panels (Leneta Form 5C or equivalent) using two perpendicular nominal 5 mil wet film thickness drawdowns (total nominal wet film thickness of 10 mils).

The paint specimens shall be allowed to dry for a minimum 24 hours prior to testing.
- g. Viscosity (ASTM D562 Procedure B):
Waterborne paint shall have a consistency of 75 to 95 Krebs Units at 77°F when tested on The Stormer Viscometer at a shearing rate of 100 revolutions per 30 sec. The test shall be run within five minutes after the paint has been thoroughly mixed by hand stirring.

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- h. **Field No-Track Time:**
Fast drying waterborne paint, applied at a wet film thickness of 15 ± 1 mil., and reflectorized with glass spheres at the rate of 6 pounds/gallon, shall reach a “no-track condition” in 3 minutes or less. This no-track time shall be met when the paint temperature at the spray gun is 140°F minimum, the pavement and ambient temperatures are above 55°F, and the relative humidity is 80% or less. A “no-track condition” occurs when a passenger car tire crosses over the painted line (without turning of the tire) at a speed of approximately 40 mph, and the paint is not deposited onto the pavement, when viewed from a distance of 50 feet.
- i. **Bleeding:**
The quality of the pigmented binder shall be such that it will cause no bleeding of the asphalt surface over which it is applied, which may impair the paint's color or visibility.
- j. **Dry Opacity (ASTM D2805):**
The paint shall have a minimum contrast ratio of 0.95 when tested in accordance to the following procedure:

A 3-1/2 inch wide wet film shall be applied to black and white contrast panels with a Bird applicator or other suitable wet film applicator designed to produce a nominal wet film thickness of 5 mils. The black/white colors of the contrast panels shall match those of Leneta Form 5C or equivalent. The wet paint shall be drawn from the white to the black portion of the panel and allowed to dry for a minimum of one hour. Forty-five degrees reflectance measurements shall be taken on the white and the black portions of the panel. The contrast ratio shall be calculated by dividing the reflectance of the black portion by the reflectance of the white portion
- k. **Abrasion Resistance (ASTM D4060):**
Four plate samples for each lot shall be prepared for testing on the Taber Abraser. The paint shall be sprayed on steel plates, or applied by other suitable means so as to insure a nominal 15 mil wet film thickness on each plate. Plates are cured at standard laboratory temperature and humidity for 2 to 24 hours. The paint abrasion plates shall be cleaned, dressed, and baked at 105°C (221°F) for 18 hours. After this time the plates are allowed to cool in a dessicator for one hour and weighed. The plates shall be abraded for 1,000 cycles on the Taber Abraser. The Taber Abraser shall be operated with 500 gram (1.10 lb) weights and CS 10 wheels on the machine.

After abrading, the samples shall be cleaned with a soft brush, placed in a dessicator for one hour and weighed again. The average weight loss for the four plates shall not exceed 50 milligrams (0.00176 oz).
- l. **Flexibility (Federal Specification TT-P-1952B, Section 4.5.4):**
The paint shall not show cracking or flaking when tested in accordance with ASTM D522 Method B. The size of the test panels shall be four inch by six inch.

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- m. Freeze-Thaw Stability (Federal Specification TT-P-1952b, Section 4.5.7):
The paint shall show no coagulation or change in consistency (ASTM D 562) greater than 15 Kreb Units.
- n. Heat Stability (Federal Specification TT-P-1952b, Section 4.5.8):
The paint shall show no coagulation, discoloration or change in consistency (ASTM D 562) greater than 15 Kreb Units when tested in an oven at $120 \pm 1^\circ\text{F}$.
- o. Dilution Test:
The paint shall be capable of dilution with water at all levels without curdling or precipitation such that the wet paint can be readily cleaned up with water only.
- p. Infrared Spectrophotometer Analysis (ASTM D3168):
The paint shall be a reasonable match to the first approved Lot of paint supplied under this contract.

Table – WATERBORNE TRAFFIC PAINT SPECIFICATION & TEST REQUIREMENTS SUMMARY

<u>THE SPECIFICATION</u>	<u>METHOD/Rule</u>	<u>COLOR</u>	<u>MIN</u>	<u>MAX</u>
1. Pigment				
Reported % by weight	ASTM D3723	ALL	Per manufacturer%	Per manufacturer
Lead Content	STM by Atomic Absorption Spectroscopy	Y	-	600 ppm
2. Vehicle				
Non Volatile Vehicle Solids	ASTM D3723	ALL	43%	
3. Finished Paint				
a. Pigment	Bid Spec	Y	Per manufacturer	
b. VOC (lbs/gal)= [grams/liter]	6NYCRR, Part 205 Architectural & US-EPA 40 CFR Part 59	ALL		(0.85)=[101.853]
c. Total Solids Content	Bid Spec			
by weight	ASTM D3723	ALL	76.0%	
by volume			62.0%	
d. Weight per Gallon	ASTM D1475	W	13.5 pounds	
		Y	13.0 Pounds	
e. Color	Munsell Book Notations and ASTM D1535 -- <i>See Chart B Below</i>			
f. Directional Reflectance	ASTM E1347	W	84%	
		Y	54%	
g. Viscosity	ASTM D562 (B)	ALL	75 Krebs Units	95 Krebs Units

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Table – WATERBORNE TRAFFIC PAINT SPECIFICATION & TEST REQUIREMENTS SUMMARY (Cont'd)

h. Field - No Track Time	Bid Spec	ALL		3 Minutes
i. Bleeding	Bid Spec	ALL	Visual Inspection showing no bleeding on asphalt test surface.	
j. Paint Opacity	ASTM D2805	ALL	0.95	
k. Abrasion Resistance	ASTM D4060	ALL		Average weight Loss : 50 milligrams or 0.00167 oz.
l. Flexibility	Fed TT-P1952B/Sec 4.5.4& ASTM D522-B	ALL	Visual Inspection showing no cracking or flaking on a 4x6" Test panel	
m. Freeze Thaw Stability	Fed TT-P1952B/Sec 4.5.7 & ASTM D562	ALL		15 Krebs Units
n. Heat Stability	Fed TT-P1952B/Sec 4.5.8& ASTM D562	ALL		15 Krebs Units
o. Dilution	Bid Spec	ALL	Capability Statement Only	
p. Infrared Spectrophotometer Analysis	ASTM D3168	ALL	Reasonable match to first approved Lot supplied per season	

**Table – WATERBORNE TRAFFIC PAINT SPECIFICATION & TEST REQUIREMENTS
Chart B**

Section 3 – Finished Paint; Part e. Color: Munsell Book Notations being viewed under North Standard Daylight per ASTM D1535		for White - use: Munsell Notation N9.5/1		for Yellow - use: Munsell Notation 10YR 8/14	
Coordinate	1	2	3	4	
x	0.485	0.517	0.492	0.468	
y	0.426	0.462	0.471	0.45	

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**SECTION 2: GLASS SPHERES FOR REFLECTORIZED PAVEMENT MARKING
(VARIOUS TYPES)**

2.1 Scope: LOT III: Glass Spheres (for use in conjunction with waterborne traffic paint)

PRODUCT CLASSIFICATION A: Glass Spheres for Reflectorized Pavement Markings for Highway, Road and Street Use.

This specification covers reflectorizing glass spheres to be used with waterborne traffic paint to provide visual traffic delineation, both day and night, for the motoring public.

The glass spheres shall meet the following requirements:

- be manufactured of recycled glass to the maximum extent practicable.
- designed to be highly resistant to traffic wear, decomposition, etching under atmospheric conditions, dilute acids, alkalis, paint film constituents, and to the effects of weathering.
- be coated with a moisture resistant coating or a dual purpose coating (moisture-resistant and adherence),
- shall not exhibit toxicity characteristics when tested in accordance with 40 CFR 261.24. Recycled cullet should contain a no more than 75 ppm of Arsenic, 100ppm of Lead, and/or 100ppm of Antimony, when determined by EPA method 6010B using EPA method 3052 for sample preparation.

2.1.1 Intended Use

Glass spheres will be used with waterborne traffic paint to provide visual traffic delineation, both day and night, for the motoring public. In order to provide the reflectivity necessary, the glass spheres must meet all the specifications included in this Invitation for Bids (Revised, April 5, 2017). Spheres are applied by a standard truck mounted machine, under pneumatic pressure, while moving at speeds of 5 - 15 mph.

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2.2 Qualified Manufacturer's List for LOT III

Certain items in this bid require prequalification of manufacturer and/or item through pre testing performed by the NYSDOT Materials Division, whereby successful tests place the manufacturer and/or item on one of more of the NYSDOT's Qualified Lists.

Manufacturers of Glass Spheres for Highway, Road and Street Use are prequalified by and must be listed on the NYSDOT's approved lists as published in this bid document or on a subsequent purchasing memorandum prior to the date of the bid opening.

<https://www.dot.ny.gov/divisions/engineering/technical-services/technical-services-repository/alme/pages/640-1.html>

2.3 Material

A Safety Data Sheet (SDS) shall be submitted in accordance with FED-STD-313 (see Section, Notes-Ordering Data).

The spheres shall conform to the following requirements:

- Composed of glass that is highly resistant to traffic wear and to the effects of weathering.
- Colorless, clean, transparent, free from milkiness or excessive air bubbles, and essentially free from surface scarring or scratching.
- Silica content (ASTM C169): 60% minimum.
- Refractive index: 1.50 when tested by the liquid immersion method at 77°F.
- Show no tendency to absorb moisture in storage and shall remain free of clusters and hard lumps.
- Flow freely from the dispensing equipment at any time when surface and atmospheric conditions are satisfactory for painting

2.3.1 Gradation:

The spheres shall meet the following gradation when tested according to ASTM D1214

U.S. STANDARD SIZE	% PASSING
#20	100%
#30	80-95%
#50	9-42%
#80	0-10%

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2.3.2 Moisture Resistant

The glass spheres shall pass the following moisture resistant test:

Place two pounds of glass spheres in a washed cotton bag having a thread count of 50 per square inch (warp and weft) and immerse the bag in a container of water for 30 seconds. Remove the bag and force excess water from the sample by squeezing the bag. Suspend and allow to drain for two hours at room temperature. Then, mix the sample in the bag by shaking thoroughly. Slowly transfer the sample to a clean, dry glass funnel (Corning 6120) having a 5" diameter, a 4" stem, stem length, a 0.43" stem inside diameter. The entire sample shall flow freely through the funnel without stoppage. If the glass spheres clog when first introduced into the funnel, it is permissible to lightly tap the funnel to initiate the flow of glass spheres.

2.3.3 Roundness.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Roundness*, Spheres shall contain not less than 80 percent by weight of true spheres.

2.3.4 Index of refraction.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Index of refraction*, the index of refraction shall be 1.50 minimum

2.3.5 Specific gravity.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Specific gravity*, the specific gravity shall be as follows:

For glass spheres 2.30 to 2.50

2.3.6 Resistance to acid.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Resistance to acid*, the spheres shall not develop any surface haze or dulling.

2.3.7 Resistance to calcium chloride.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Resistance to calcium chloride*, the spheres shall not develop any surface haze or dulling.

2.3.8 Resistance to sodium sulfide.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Resistance to sodium sulfide*, the sodium sulfide should not darken the spheres.

2.3.9 Water resistance.

When tested as specified in Section, *Quality Assurance Provisions-Testing Procedure - Water resistance*, the water shall not produce haze or dulling of the spheres, and not more than 4.5 mL of 0.1 N hydrochloric acid shall be used in the titration.

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2.4 Quality Assurance Provisions for LOT III

2.4.1 Responsibility for inspection.

Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the government. The government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

2.4.2 Quality conformance inspection.

- Lot. A lot shall consist of all glass spheres of one type offered for inspection at one time.
- Inspection of preparation for delivery. An inspection shall be made to determine that the packing and marking comply with Section, *Packaging* of this specification. The sample unit shall be one filled shipping container for each ten ordered, randomly selected from the lot.
- Sampling of the end item. Sampling shall be random in the ratio of 45 kg (100 lb) sample (in full bags) per 4,535 kg (10000 lb) shipped. Upon delivery, the material shall be reduced in a sample splitter to a size of approximately 1 kg (2.2 lb). The sample shall be submitted to the laboratory for testing.
- Certificate of compliance. When glass spheres are offered for inspection, the manufacturer shall certify that the spheres conform to the requirements of Section, *Physical Requirements: Composition*.

2.4.3 Test procedure.

The spheres shall be tested in accordance with the methods specified herein to determine compliance with the requirements of Section, *Physical Requirements* of this specification. Unless otherwise specified all tests shall be conducted at conditions specified in section 9 of FED-STD-141. All test reports shall contain the individual values used in expressing the final results. Failure to pass any tests, or noncompliance with any requirement, shall be cause for rejection of the sample.

- Appearance.
Spread thinly 10 g of sample on white bond paper and examine visually for compliance with Section, *Physical Requirements, Physical Properties-Appearance*.
- Roundness.
The roundness of the Type I shall be determined in accordance with ASTM method D 1155. Use Procedure B for Type I spheres. Evaluate for compliance with the requirements in Section, *Physical Requirements, Physical Properties - Roundness*.

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- Index of refraction.

The index of refraction shall be determined by the immersion method. A microscope capable of a minimum of 100x magnification, equipped with a light source and certified immersion oils shall be used. Place crushed spheres on a microscope slide and immerse in a refractive index immersion oil at standard conditions. (The immersion oil shall have a refractive index within 0.02 units of that of the spheres to be tested.) Cover with a microscope slide and determine the refractive index of the spheres to the nearest one-hundredth of a unit. Evaluate for compliance with the requirements of Section, *Physical Requirements, Physical Properties - Index of refraction*.
- Specific gravity.

Place 100 g of the spheres in an oven at $105^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and dry to constant weight. Remove the spheres and place in a desiccator until the sample is cool. Remove 60 g of spheres from the desiccator and weigh the sample accurately. Pour the spheres slowly into a 100 mL graduated cylinder containing 50 mL of reagent-grade xylene. Make certain that air is not entrapped among the spheres. Calculate the specific gravity as follows:

$$\text{Specific gravity} = M/V-50$$

M = Mass of sample V = total volume (xylene level after addition)

Evaluate for compliance with Section, *Physical Requirements, Physical Properties - Specific Gravity*.
- Gradation.

Determine the gradation of the spheres in accordance with ASTM method D1214 for compliance with Section, *Physical Requirements, Physical Properties - Gradation*.
- Resistance to acid.

Place 10 g of the spheres in a 100 mL beaker and cover with a 1N sulfuric acid. Let soak for 5 minutes. Rinse the spheres 3 times with distilled water. Dry, then examine the spheres under a microscope and compare with the untreated sample. Evaluate for compliance with Section, *Physical Requirements, Physical Properties - Resistance to acid*.
- Resistance to calcium chloride.

Place 10 g of the spheres in a 100 mL beaker and cover with a 1N calcium chloride solution. Let soak for 3 hours. Rinse the spheres 3 times with distilled water. Dry, then examine the spheres under a microscope and compare with the untreated sample. Evaluate for compliance with Section, *Physical Requirements, Physical Properties - Resistance to calcium chloride*.

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- Resistance to sodium sulfide.
Place 10 g of the spheres in a glass stopper bottle and cover with a solution containing by weight 50% sodium sulfide, 48% distilled water, and 2% of an anionic wetting agent. Soak the spheres for one hour and then rinse the spheres 3 times with distilled water. Dry, then examine the spheres under a microscope and compare with untreated sample. Evaluate for compliance with Section, *Physical Requirements, Physical Properties - Resistance to sodium sulfide*.
- Water resistance.
Place 10 g of the spheres in a 20 x 80 mm extraction thimble. Place the thimble in a large (No. 3) Soxhlet extractor with a 125 mL boiling flask. Add 100 mL of distilled water, and reflux for two hours. Rinse the spheres 3 times with distilled water. Remove the spheres, dry, then examine the spheres under a microscope and compare with untreated spheres. Add five drops of one percent phenolphthalein indicator to the content of the boiling flask and titrate with 0.1N hydrochloric acid to the phenolphthalein indicator end point. Evaluate for compliance with Section, *Physical Requirements, Physical Properties - Water resistance*.

2.5 Packaging

2.5.1 Preservation

The glass spheres shall be furnished in lots as specified by the purchaser and packaged in moisture-proof containers. Containers shall be in accordance with the supplier's normal commercial practice, provided that there will be no interaction chemically or physically with the contents so as to damage the containers or alter the strength, quality, or purity of the contents. Containers are to be guaranteed to furnish dry and undamaged spheres. The container shall be securely closed to prevent accidental opening or loss of the glass spheres, and sufficiently strong to prevent accidental rupture during multiple shipments, handling and storage. The shipping containers shall also comply with the National Motor Freight Classification or Uniform Freight Classification requirements.

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2.6 NOTES (Information for Guidance Only)

This section contains information of a general or explanatory nature.

Intended Use

- **Type I:**
 - Gradation A - coarse - low-index recycled glass spheres for drop-on applications are intended for marking highways and all airfield markings.

[NOTE: The increased retro-reflective values obtained from use of high index of refraction glass spheres are only apparent to the observer in cases where the observer's line of sight is in close proximity to the path of the light source used to illuminate the markings. Studies by the USAF and the Federal Aviation Administration have shown that in cases where the light source is not in close proximity to the viewer's eye position, the added benefit from the use of the higher index of refraction spheres is negligible.]

See appropriate pavement marking guide for specific recommended uses and application rates.

2.7 LOT IV: Glass Spheres with Drying Agent

2.7.1 Scope

This specification is for a compound to be used as an additive in conjunction with waterborne traffic paint and glass spheres to provide a drying agent which accelerates the no-tack time of the waterborne traffic paint a minimum of 40% faster than the same paint without the compound. In order to provide the reflectivity necessary and accelerate the no-track time, the compound must meet all the specifications included herein.

2.7.2 Application & Use

The compound should be able to be applied under pneumatic pressure by a standard truck-mounted dispensing machine moving at speeds of 5 to 15 mph.

2.8 Material

The compound shall be a mixture of glass bead and drying aid materials.

When applied at a rate of 1.9 lbs. of compound with a drop-on rate of 7 to 8 lbs. of glass spheres per 100 sq. ft. of waterborne pavement markings paint at a 15 mil wet film thickness, the compound shall reduce the no-track time of the marking by at least 40%.*

The compound shall meet the following gradation when tested according to ASTM D1214:

U.S. STANDARD SIZE	%PASSING
#16	100%
#20	90-100%
#30	65-95%
#50	10-35%
#100	0-5%

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The glass bead component of the compound shall be colorless, clean, transparent and free from milkiness or excessive air bubbles, and have a refractive index between 1.50 minimum when tested by liquid immersion method** (see footnote below) at 25°C.

The glass particles shall be spherical in shape, containing not more than 30 % of irregularly shaped particles and be the equivalent of an AASHTO Type I glass bead. The silica content of the glass spheres shall be not less than 60 % when tested in accordance with ASTM C169.

The component shall be manufactured of glass of a composition designed to be highly resistant to traffic wear, decomposition, etching under atmospheric conditions, dilute acids, alkali's, paint film constitutes, and to the effects of weathering and should to the maximum extent practicable be composed of recycled glass. They shall not exhibit toxicity characteristics when tested in accordance with 40 CFR 261.24. Recycled cullet should contain a no more than 75 ppm of Arsenic, 100 ppm of Lead, and/or 100ppm of Antimony, when determined by EPA method 6010B using EPA method 3052 for sample preparation.

- The Drying Aid Component shall be smooth, and spherically shaped, amber to white in color and of a type that promotes accelerated coalescence of the latex polymer and as such reduces waterborne paint dry to touch time by a minimum of 40%.
- The compound shall show no tendency to absorb moisture in storage and shall remain free of clusters and hard lumps. It shall flow freely from dispensing equipment at any time when applying the pavement marking.
- The compound may be evaluated by the NYSDOT Materials Bureau before being considered acceptable for purchase from any contract awarded through this Invitation for Bids.

***NOTE:** *The actual application rate of the compound will be based on the wet mil thickness of the waterborne pavement markings being applied and the manufacturer's recommendations.*

****NOTE:** *Liquid Immersion Method of determining the refractive index: The refractive index is measured by placing a small number of glass beads on a microscope slide and placing the slide under a microscope. Using certified index of refraction liquids; put a drop of liquid on the beads. Looking through the microscope, raise the microscope tube. If the ring around the beads moves towards the beads as the tube is raised, then the index of the beads is higher than the index of the liquid. Repeat using higher index of refraction liquids until the ring around the beads moves outward as the tube is raised. The index of refraction is between the index of the solution in which the ring goes in towards the beads and the index of the solution in which the ring moves away from the beads. (Certified Index of Refraction Liquids - Set RF1/2, manufactured by Cargill).*

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2.9 Quality Assurance Procedure for LOT IV

Throughout the duration of the contract, to ensure compliance with the detailed specifications at all times, each delivery made may be subject to field sampling prior to its use by the Authorized User. The sampling procedure shall be as follows:

1. The sampling shall be random.
2. Using a thief or sampling tube (commonly known as a "grain sampler"), a "spot sample" will be removed from at least three separate bags
3. All "spot samples" will be combined into one "test sample" container and deemed to constitute a representative sample of the subject truckload delivery. The "test sample" should weigh approximately five lbs. This "test sample" will be forwarded to the Authorized User's designated laboratory for analysis.
4. Alternatively, Statistical Process Control Methods following ASTM E 105 and E 1994, or ANSI/ASQ Z1.4 and Z1.9 may be used to monitor the quality of the product so that it meets the requirement of the applicable detail specification.

Any deviations from the detailed specification found in the field sample shall be sufficient justification for rejection of entire shipment and a conforming replacement shipment shall be delivered within seven (7) calendar days of date of rejection notice, as per specifications.

2.10 Packaging

The packages shall be marked with the name and address of the manufacturer and name and net weight of the material, the material name, the lot and/or batch number, and the date of manufacture (mm /yy) and be secured on disposable pallets, 40 bags to a pallet (2,000 lbs.). The pallets shall be constructed to allow use of forklifts.

Shipping shall be only by covered trailers in order to maintain product dryness.

The compound shall be packed in bags and the contractor shall be responsible for the proper delivery thereof. The containers shall not affect its contents, nor contain foreign contaminants. Bags shall be either standard cemented center seam, plastic-lined burlap bags, or plastic-lined paper bags. A bag shall contain 50 lbs. net weight.

The Authorized User shall have sufficient justification to reject bags of compound that are covered with water, supplied in improper containers, contaminated with foreign materials, or supplied on broken skids or pallets. Rejected items shall be replaced within seven (7) calendar days of the date of rejection notice.

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SECTION 3: PRODUCT SAMPLES – ALL LOTS

3.1 Samples

3.1.1 Bidder Supplied Samples

The Commissioner reserves the right to request from the Bidder/Contractor a representative sample(s) of the Product offered at any time prior to or after award of a Contract. Unless otherwise instructed, samples shall be furnished within the time specified in the request. Untimely submission of a sample may constitute grounds for rejection of the Bid or cancellation of the Contract. Samples must be submitted free of charge and be accompanied by the Bidder's name and address, any descriptive literature relating to the Product and a statement indicating how and where the sample is to be returned. Where applicable, samples must be properly labeled with the appropriate Solicitation or Contract reference.

LOT I: White & LOT II: Organic Yellow - Traffic Paint (Waterborne – Lead-Free):

The bidder shall be aware that the Office of General Services-Procurement Services may request samples to be provided within 72 hours of a written (e-mail) request by the Office of General Services. The bidder(s) must ship one (1) one-pint (16 liquid oz.) sample which are representative of the paint to be furnished under this contract. They are to be sent to the primary contact for this procurement. The samples shall be supplied in unbreakable plastic containers with tightly sealed and secured lids and shall be labeled per the Section 7.1.8 - Labeling. If sampled, no paint shall be shipped until approved. Subsequent samples may be requested prior to each painting season of the contract term.

LOT III: Glass Spheres

The bidder shall be aware that the Office of General Services-Procurement Services may request samples to be provided within 72 hours of a written (e-mail) request by the Office of General Services. The bidder(s) must ship two (2) five pound (5lb) glass sphere samples which are representative of the spheres to be furnished under this contract. They are to be sent to the primary contact for this procurement. The samples shall be supplied in unbreakable plastic containers with a tightly sealed and secured lid, and each container shall be suitably packaged in individual cartons. Damaged containers shall not be accepted for testing.

The containers and cartons shall be clearly identified with the following information:

- Name and Address of bidder and sphere manufacturer (if different);
- Identification of the bid document as follows:
 - Commodity Group 38604 – Invitation for Bids #23056 (Revised, April 5, 2017)
 - Traffic Paint (Waterborne—Lead Free) & Glass Spheres for Reflectorized Pavement Marking,
 - OGS Item Number
 - Bid Opening Date, including lot number of product submitted.
- Manufacturer's product name or product code, and sample submission date.

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LOT IV: Glass Spheres with Drying Agent

The bidder shall be aware that the Office of General Services-Procurement Services may request samples to be provided within 72 hours of a written (e-mail) request by the Office of General Services. The bidder(s) must ship two (2) five pound (5lb) glass sphere samples which are representative of the spheres to be furnished under this contract. They are to be sent to the primary contact for this procurement. The samples shall be supplied in unbreakable plastic containers with a tightly sealed and secured lid, and each container shall be suitably packaged in individual cartons. Damaged containers shall not be accepted for testing. The containers and cartons shall be clearly identified with the same information as described for labeling LOT III.

A sample may be held by the Commissioner during the entire term of the Contract and for a reasonable period thereafter for comparison with deliveries. At the conclusion of the holding period, the sample, where feasible, will be returned as instructed by the Bidder, at the Bidder's expense and risk. Where the Bidder has failed to fully instruct the Commissioner as to the return of the sample (i.e., mode and place of return, etc.) or refuses to bear the cost of its return, the sample shall become the sole property of the receiving entity at the conclusion of the holding period.

3.1.2 Enhanced Samples

When an approved sample exceeds the minimum specifications, all Product delivered must be of the same enhanced quality and identity as the sample. Thereafter, in the event of a Contractor's default, the Commissioner may procure a Product substantially equal to the enhanced sample from other sources, charging the Contractor for any additional costs incurred.

3.1.3 Conformance with Samples

Submission of a sample (whether or not such sample is tested by, or for, the Commissioner) and approval thereof shall not relieve the Contractor from full compliance with all terms and conditions, performance related and otherwise, specified in the Solicitation. If in the judgment of the Commissioner the sample or Product submitted is not in accordance with the specifications or testing requirements prescribed in the Solicitation, the Commissioner may reject the Bid. If an award has been made, the Commissioner may cancel the Contract at the expense of the Contractor.

3.1.4 Testing

All samples are subject to tests in the manner and place designated by the Commissioner, either prior to or after Contract award. Unless otherwise stated in the Solicitation, Bidder samples consumed or rendered useless by testing will not be returned to the Bidder. Testing costs for samples that fail to meet Contract requirements may be at the expense of the Contractor.

3.1.5 Requests for Samples by Authorized Users

Requests for samples by Authorized Users require the consent of the Contractor. Where Contractor refuses to furnish a sample, Authorized User may, in its sole discretion, make a determination on the performance capability of the Product or on the issue in question.