

ATTACHMENT B - PRODUCT SPECIFICATIONS**SPECIFICATION NUMBER ONE:**

DESCRIPTION: LOW VOC SOLVENT BASED TRAFFIC MARKING PAINT IN WHITE, YELLOW, BLACK, BLUE, AND RED

SPECIFICATION: All paint provided under this specification must meet the requirements of Federal Specification AA-2886B, Type II, and be formulated with a minimum of 70% Acrylic Copolymer resins.

SOLVENT PAINT TESTING REQUIREMENTS: The following solvent paint testing requirements shall apply to all paint delivered under Specification Number One.

- The contractor shall submit with the bid testing results for Federal Specification AA-2886B, Type II tests on solvent paint formulated within the two years preceding the Invitation to Bid (ITB) issuance date.
- The contractor shall submit with the bid, test results for the reduced suite of tests as seen in Table 1 for paint formulated within the 180 days prior to the bid opening date.

All costs associated with independent laboratory testing are the sole responsibility of the bidder awarded the contract, including the cost of Quality Assurance “Fingerprint” testing on two samples of the paint randomly selected from the Alaska order by the Alaska DOT&PF’s Quality Assurance Consultant.

Alaska DOT&PF will pay for the consultant, acting as DOT&PF’s Agent, to randomly select two bulk paint containers for sampling, witness the sampling by the paint manufacturer, secure the sample(s) and ensure delivery to a qualified independent paint testing laboratory, for the performance of the following three selected test procedures:

QUALITY ASSURANCE TESTING FOR SOLVENT PAINT: The following tests must be performed.

1. ASTM D562 Consistency (Viscosity)
2. ASTM E1347 (or E1349) Directional Reflectance of white and yellow paint with 45:0 or 0:45 Geometry
3. ASTM D2369 (or D2832) Total Solids, % by Weight

Test results shall be reported by email to the following DOT&PF Staff:

Procurement Specialist

Tom Mayer

tom.mayer@alaska.gov

Statewide Materials

Richard Giessel

richard.giessel@alaska.gov

COMPOSITIONAL REQUIREMENTS:

- A. **Pigment Composition:** Pigments shall be first quality paint grade pigments. The inert or filler pigments must be of a type and quality generally recognized as first quality paint grade products, and shall not contribute to settling of the paint in storage or be so hard as to cause excessive wear of the spray application equipment.
- B. **Vehicle or Resinous Binder Composition:** The vehicle may be any combination of natural or synthetic resinous materials that are not prohibited per this specification. All resins used must be permanently capable of re-dissolving in the solvent combination used in the paint. Paint and binder combinations shall minimize build-up of the paint on the sides of tanks, paint lines, and clogging of spray equipment from un-dissolvable skins.

TABLE 1 SOLVENT PAINT PRIMARY QUANTITATIVE REQUIREMENTS

CHARACTERISTIC	MINIMUM	MAXIMUM	TEST METHOD
Viscosity @ 77°F (25°C), Krebs units	75	90	ASTM D562
Weight (lb) per Gallon at 77°F (25°C)	11.0		ASTM D1475
Fineness of Grind, Hegman	2		ASTM D1210
Drying time for no-pick-up, Minutes	---	5	ASTM D711
Contrast Ratio @ 5 mils DFT, White and Colors (Black)	0.95 (1.0)	---	See "H" below
Colors: Yellow 33538; White: 37925; Blue 35180; Red 31136; Black 37038 or approved equals	Pass		FED-STD-595C
Directional reflectance of white paint applied at 15 mils wet film, percent (Measured with 45°:0° or 0°:45° geometry)	85	---	ASTM E1347
Directional reflectance of yellow paint applied at 15 mils wet film, percent (Measured with 45°:0° or 0°:45° geometry)	45	---	ASTM E1347
Volatile Organic Compounds (VOC), grams/liter (lbs./gallon)		150 (1.25)	EPA 40, CFR Part 59, ASTM D3960
Total Solids, % by Weight	70		ASTM D2369
Total Solids, % by Volume	43		ASTM D2697

- C. **Prohibited Materials:** The manufacturer must submit documentation certifying the product does not contain mercury, lead, hexavalent chromium, halogenated solvents (such as Methylene Chloride), or any carcinogen, as defined in 29 CFR 1910.1200.
- D. **Application and Storage:** Follow Manufacturer's recommended equipment, temperatures, humidity and any other limits for safe and proper application, use, as well as storage of these materials and containers.

E. **Condition in Container:** For a minimum of one year from the date of manufacture, the paint must meet each of the following conditions:

- (1) Not show excessive settling in a freshly opened full can
- (2) Show no curdling, livering, caking, lumps, skins, or color separation
- (3) Be easily re-dispersed when mixed with a paddle
- (4) Be easily re-dispersed after 5 minutes of mechanical shaking using a standard commercial paint shaker
- (5) Water Resistance: Guaranteed water resistant when applied properly.

F. **Weathering:** Guaranteed against cracking and weathering under extreme conditions when applied properly.

G. **Storage Stability:**

- (1) The material must not show evidence of heavy caking or settling which requires mechanical means to return the product to usable condition for a period of one year from the date received by the State of Alaska.
- (2) There must be no viscosity increase of 5 Krebs Units over the originally reported viscosity after aging in the container or decomposition of the product. Field examination of previously unopened containers must not disclose evidence of undissolvable gelatinous vehicle separation, heavy skin formation, or corrosion of the container of batches in storage one year or less. Containers stored under adverse conditions such as uncovered areas unprotected from the elements must show no evidence of the above conditions over a period of 6 months from date of shipment from manufacturer.

H. **Application Temperature:** The manufacturer's recommended minimum application temperature (air, surface and material) must be 40° Fahrenheit or lower.

I. **Dry opacity for both Solvent and Waterborne Paints:** (Note: This procedure is derived from Section 4121 of Federal Standard 141.) On a black/white Leneta chart, Form 2A Opacity, draw down a film of the sample covering both black and white portions of the chart. Use an appropriate gap draw-down blade that will produce a 5 mil Dry Film Thickness (DFT).

Dry the specimen 24 hours at 25°C. Use a suitably calibrated filter photometer, conforming to ASTM Designation: E 1347, to measure alternately the 45°/0° daylight luminous directional reflectance (Y) of the specimen over the white and black portions of the chart. Calculate dry opacity as follows:

Dry Opacity = Reflectance over black / Reflectance over white. (Example: Dry Opacity = 82% ÷ 85% = 0.965).

ASTM D2805 is an acceptable alternative for the specified Dry Opacity test in Section H. When ASTM D2805 is used the Contrast Ratio required must be a minimum of 0.95 for White and Yellow. The thickness requirement is changed to 5 mils Dry Film thickness (DFT).

SOLVENT BASE PAINT PACKAGING: Solvent based paint shall be shipped in containers constructed of Carbon Steel or Stainless Steel. Where specified, solvent based materials shall be supplied in either:

1. 55-GALLON NON-RETURNABLE AND DISPOSABLE STEEL DRUM

When specified on the bid schedule, the Solvent Based Paint shall be supplied in new or reconditioned 55-gallon, pressure-tested, removable-lid carbon steel drums that conform to all applicable DOT, EPA OSHA or other Federal requirements. The following applies:

1. All paint furnished shall be shipped in clean, open head drums. One end of the drum shall have a completely detachable head. "Clean" is defined as drums that are free of any debris or paint remnants from previous shipments.
2. The heads shall be of uniform size and type, so that the recessed part of the head will make contact with the top edge of drum over the entire circumference.
3. The head shall be securely fastened to the top of the drum by means of a lever ring lock or by ring lock with bolt fastener.
4. The hardware shall be galvanized or of non-corrosive metal. The assembly shall be coated with a lubricant to further protect from corrosion and facilitate easy removal.
5. Drums must have new gaskets to ensure an airtight seal.
6. The head and a portion on the side of each drum shall be painted the same color as the traffic paint contained therein.
7. Each barrel shall be filled to four inches from the top edge of the barrel rim.

Drums of paint are to be shipped single tier only on open bed trailers (enclosed containers to Unalaska only).

2. 250 or 345 GALLON STEEL REUSABLE AND RETURNABLE BULK CONTAINER

When specified on the bid schedule, the Solvent Based Paint shall be supplied in new or clean reconditioned, 250 or 345-gallon reusable and returnable bulk carbon steel containers that comply with all applicable DOT, EPA OSHA or other Federal and State requirements. The following applies:

1. All paint furnished shall be shipped in containers that are clean and free of debris. "Clean" is defined as containers that are free of any debris or paint remnants from previous shipments.
2. The containers shall be sized to safely contain for transport and use in Alaska, 250 or 345 gallons of solvent-based paint.
3. The containers shall be provided with 2" male cam-lock fittings on top and bottom and a top opening with a new gasket of at least 16 inches in diameter.
4. The container shall have vents designed to prevent rain-water from entering the vents and seeping inside the containers.
5. The bottom of the containers shall be fitted for forklift pickup from all four sides.

Any paint or container received with debris or obvious contamination will be returned to the contractor for replacement. The contractor's failure to provide replacement containers in the time specified will result in forfeiture of the contractor's bond.

In order to ensure the containers' fit existing DOT&PF equipment, the contractor must supply the specific sized reusable and returnable steel containers as noted in the Bid Schedule.

3. **345-GALLON STEEL ROUND REUSABLE AND RETURNABLE BULK CONTAINER WITH A 48" X 48" SQUARE PALLET BASE**

When specified on the bid schedule, the Solvent Based Paint shall be supplied in new or clean reconditioned, 345-gallon round reusable and returnable bulk steel containers with a 48" x 48" square pallet that comply with all applicable DOT, EPA OSHA or other Federal and State requirements. The following applies:

1. All paint furnished shall be shipped in containers that clean and free of debris. "Clean" is defined as containers that are free of any debris or paint remnants from previous shipments.
2. The containers shall be sized to safely contain for transport and use in Alaska 345 gallons of solvent-based paint.
3. The containers shall be provided with 2" male cam-lock fittings on top and bottom and a top opening with a new gasket of at least 16 inches in diameter.
4. A liquid capacity of 355 gallons
5. Lifting lugs that are attached to the container may extend no more than 1 inch beyond the actual diameter of the tank.
6. The container shall have vents designed to prevent rain-water from entering the vents and seeping inside the containers.
7. The bottom of the containers shall be fitted for forklift pickup from all four sides.
8. The bottom of the shipping pallet shall measure a minimum of 44 inches by 47 inches and a maximum 48 inches by 48 inches.
9. The combined height of the tote feet and the forklift holes shall be a minimum of 6 inches and a maximum of 7.75 inches.

Any paint or container received with debris or obvious contamination will be returned to the contractor for replacement. The contractor's failure to provide replacement containers in the time specified will result in forfeiture of the contractor's bond.

In order to ensure the container fits existing DOT&PF equipment, the contractor must supply the specific sized and shape of returnable steel containers as noted in the Bid Schedule. Specific requirements include a specific sized round shaped container with a square bottom pallet dimension in compliance with item 8 above.

4. **345-GALLON STEEL SQUARE REUSABLE AND RETURNABLE BULK CONTAINER**

When specified on the bid schedule, the Solvent Based Paint shall be supplied in new or clean reconditioned, 345-gallon square bulk steel containers that comply with all applicable DOT, EPA OSHA or other Federal and State requirements. The following applies:

1. All paint furnished shall be shipped in containers that clean and free of debris. "Clean" is defined as containers that are free of any debris or paint remnants from previous shipments.
2. The containers shall be sized to safely contain for transport and use in Alaska 345 gallons of paint.
3. The containers shall be provided with 2" male cam-lock fittings on top and bottom and a top opening with a new gasket of at least 16 inches in diameter.

4. The container shall have vents designed to prevent rain-water from entering the vents and seeping inside the containers.
5. The bottom of the containers shall be fitted for forklift pickup from all four sides.

Any paint or container received with debris or obvious contamination will be returned to the contractor for replacement. The contractor's failure to provide replacement containers in the time specified will result in forfeiture of the contractor's bond.

In order to ensure the container fits existing DOT&PF equipment, the contractor will supply the specific sized returnable steel containers as noted in the Bid Schedule. Specific requirements include a specific sized square shaped container.

SOLVENT BASE PAINT PACKAGE MARKING: Each container shall be labeled or stenciled to show the following information (abbreviations may be used):

1. Specification Number One
2. Color (letters minimum 3" high on 55 gallon and larger containers)
3. Batch Number
4. Date of Manufacture
5. Quantity in Container
6. Container ID number (letters minimum 3" high on 55 gallon and larger containers)
7. Manufacturer's Name and Address
8. Information and Warnings as may be required by Federal and State Laws
9. Tare Weight of Empty Container

In addition to the above, each container or barrel must be labeled or stenciled to clearly identify the contents and have a paint patch on the side of each barrel. **Example:** SOLVENT BASED PAINT

RETURN OF SOLVENT BASE PAINT BULK CONTAINERS: The bid price submitted must include the cost to return the "returnable" solvent-based paint containers from the final destination. The following applies:

1. The State will ship returnable containers, freight collect, per instructions provided by the contractor.
2. Partial to full containers may be held by the State for up to 27 months with no additional cost to the State.
3. The State reserves the right to relocate the bulk containers for use at other regional destinations. However, any additional charges related to relocation shall be the State's responsibility.
4. The State may request a container be shipped from a location other than the containers original destination only after the State has negotiated additional shipping costs, if any, with the contractor.
5. If a container is lost or damaged beyond repair while in the possession of the State, the State shall reimburse the contractor the replacement cost.

Bidders shall indicate on **Attachment D, Bidder Questionnaire** the State's cost to replace lost or damaged containers. A Bidders failure to identify the replacement cost on **Attachment D, Bidder Questionnaire**, will be construed by the State as there is "no cost" to the state for the replacement

container.

COMPLIANCE TO SPECIFICATIONS NUMBER ONE:

To ensure compliance for Specification Number One, Bidders must submit the following documentation with their bid in order to be considered responsive:

For ease of review, the following should be provided in a single standalone set of documents.

- (1) Cover sheet indicating the Bidder, ITB number, and the Specification Number;
- (2) Testing results for Federal Specification AA-2886B, Type II tests on solvent paint formulated within the two years preceding the Invitation to Bid (ITB) issuance date.
- (3) Certified test reports for all colors of solvent-based paint from an independent laboratory. Testing must have been performed within 180 days prior to the bid opening date and must confirm compliance with bid specifications as seen in Table 1;
- (4) Manufacturer's recommended coating for solvent-based marking paint adhesion to glass beads;
- (5) Material Safety Data Sheets for each formulation;
- (6) Notarized Affidavits of Compliance signed by the authorized representative of both the manufacturer and the bidder, indicating all paint product(s) submitted for bid are compliant with these specifications.
- (7) Notarized Affidavits of Compliance signed by the authorized representative of both the manufacturer and the bidder, indicating all drums and containers submitted for bid are compliant with these specifications.
- (8) Manufacturer's recommended equipment, temperatures, humidity and any other limits for safe and proper application, use, as well as storage of these materials and containers.
- (9) Product Support Contact: name, address, email and telephone number(s).

END OF SPECIFICATION ONE

SPECIFICATION NUMBER TWO**DESCRIPTION: TRAFFIC PAINT SOLVENT**

SPECIFICATION: All Traffic Paint Solvent shall be the traffic paint manufacturers recommended solvent for use in cleaning State painting equipment to ensure total compatibility between the solvent and paint and shall provide total paint performance per the paint specifications.

TRAFFIC PAINT SOLVENT PACKAGING: All solvent packaging must be suitable for the contents and must meet all applicable safety and transportation requirements. **When specified on the bid schedule,** solvent materials shall be supplied in either:

1. **5-GALLON NON-RETURNABLE AND DISPOSABLE DRUM**

When specified on the bid schedule, the product must be supplied in 5-gallon sealed drums with an integrated handle.

2. **55-GALLON NON-RETURNABLE AND DISPOSABLE STEEL DRUM**

When specified on the bid schedule, the solvent shall be supplied in new or reconditioned 55-gallon, pressure-tested, removable-lid steel drums that conform to all applicable DOT, EPA OSHA or other Federal requirements. The following applies:

1. All paint furnished shall be shipped in clean, open head drums. One end of the drum shall have a completely detachable head. "Clean" is defined as drums that are free of any debris or paint remnants from previous shipments.
2. The heads shall be of uniform size and type, so that the recessed part of the head will make contact with the top edge of drum over the entire circumference.
3. The head shall be securely fastened to the top of the drum by means of a lever ring lock or by ring lock with bolt fastener.
4. The hardware shall be galvanized or of non-corrosive metal. The assembly shall be coated with a lubricant to further protect from corrosion and facilitate easy removal.
5. Drums must have new gaskets to ensure an airtight seal.
6. The head and a portion on the side of each drum shall be painted the same color as the traffic paint contained therein.
7. Each barrel shall be filled to four inches from the top edge of the barrel rim.

Drums of paint are to be shipped single tier only on open bed trailers (enclose trailers to Unalaska only).

TRAFFIC PAINT SOLVENT PACKAGE MARKING: Each container shall be labeled or stenciled to show the following information (abbreviations may be used):

1. Specification Number Two
2. Color (letters minimum 3" high on 55-gallon drums)
3. Batch Number
4. Date of Manufacture
5. Quantity in Container
6. Container ID number (letters minimum 3" high on 55 gallon and larger containers)

7. Manufacturer's Name and Address
8. Information and Warnings as may be required by Federal and State Laws
9. Tare Weight of Empty Container

In addition to the above, each container must be labeled or stenciled to clearly identify the contents and have a paint patch on the side of each barrel. **Example:** PAINT SOLVENT

PROHIBITED MATERIALS: The manufacturer must certify that the Traffic Paint Solvent does not contain mercury, lead, hexavalent chromium, halogenated solvents (such as Methylene Chloride), or any carcinogen, as defined in 29 CFR 1910.1200.

END OF SPECIFICATION TWO

SPECIFICATION NUMBER THREE**DESCRIPTION: LOW VOC ACRYLIC WATERBORNE TRAFFIC MARKING PAINT IN WHITE, BLACK, YELLOW, AND RED**

SPECIFICATION: All paint provided under this specification must meet the requirements of Federal Specification TT-P1952F, Type II.

WATERBORNE PAINT TESTING REQUIREMENT: The following waterborne paint testing procedures shall apply to all paint delivered under Specification Number Three.

- The contractor shall submit Federal Specification TT-P-1952F, Type III tests on waterborne paint formulated within the two years preceding the Invitation to Bid (ITB).
- The contractor shall submit with the bid, test results for the reduced suite of tests as seen in Table 2 for paint formulated within the 180 days prior to the bid opening date.

All costs associated with laboratory testing are the sole responsibility of the supplier awarded the contract, including the cost of Quality Assurance “Fingerprint” testing on two samples of the paint randomly selected from the Alaska order by Alaska DOT&PF’s Quality Assurance Consultant.

Alaska DOT&PF will pay for the consultant, acting as DOT&PF’s Agent, to randomly select two bulk paint containers for sampling, witness the sampling by the paint manufacturer, secure the sample(s) and ensure delivery to a qualified independent paint testing laboratory, for the performance of the following selected test procedures:

QUALITY ASSURANCE TESTING FOR WATERBORNE PAINT:

1. ASTM D562 Consistency (Viscosity)
2. ASTM E1347 or E1349 Directional Reflectance of white or yellow paint with 45:0 or 0:45 Geometry
3. ASTM D711 Drying time for no-pick-up
4. ASTM D522 Cold Flexibility (Section F, below)
5. ASTM D2621 Infrared Identification (Section G, below)

Test results shall be reported by email to the following DOT&PF Staff:

Procurement Specialist

Tom Mayer

tom.mayer@alaska.gov

Statewide Materials

Rich Giessel

richard.giessel@alaska.gov

COMPOSITIONAL REQUIREMENTS:

- A. **Low VOC:** Paint offered must be a low VOC, ready-mixed, one-component 100% acrylic waterborne airfield and traffic marking paint, of either polymer grade FASTRACK 5408A or FASTRACK HD21A, meeting the requirements of Federal Specification TT-P-1952F, Type II made for fast drying, and Federal Specification TT-P-1952F, Table 1 tests except that Dry Opacity required for White and colors must meet or exceed 0.95 when tested as specified in section H under Table 2 “Waterborne Paint Primary Quantitative Requirements” (below). These paints must have a no-pick-up time of no more than 10 minutes when tested in accordance with ASTM D711. The product must not promote asphalt cracking. Product must have the ability to be applied hot or cold with waterborne compatible striping equipment. Product must be available in bulk containers of no less than 250 gallons or 55 gallon drums or, where specified, 5 gallon

containers.

TABLE 2 WATERBORNE PAINT PRIMARY QUANTITATIVE REQUIREMENTS

CHARACTERISTIC	MINIMUM	MAXIMUM	TEST METHOD
Consistency (Krebs units)	80	90	ASTM D562
Freeze-Thaw Stability (3 cycles, <10KU increase in consistency)	Pass		ASTM D2243
Solids by volume			ASTM D2697
Yellow or white	60	---	
Other Colors	58	---	
Pigment, percent by weight	60	62	ASTM D3723
Dry opacity - White and colors	0.95	---	See "H" below
Black	1.00		
Colors: Yellow 33538; White: 37925; Blue 35180; Red 31136; Black 37038 or approved equals	Pass		FED-STD-595C
Directional reflectance of white paint applied at 13 mils wet film, percent (Measured with 45°:0° or 0°:45° geometry)	85	---	ASTM E1347
Directional reflectance of yellow paint applied at 13 mils wet film, percent (Measured with 45°:0° or 0°:45° geometry)	45	---	ASTM E1347
Drying time for no-pick-up, Minutes	---	10	ASTM D711
Mandrel Bend Test, Method B, Pass 1/2" diameter mandrel bend at 40°F	Pass		ASTM D522
Fineness of dispersion, Hegman	3.0	---	ASTM D1210
Accelerated Package Stability (<5KU increase)		5 KU	ASTM D1849
Heat-shear stability, consistency, KU ¹	68	105	TT-P-1952F
FTIR	Match		See "G"

¹ Mandrel bend at 40°F and fluorescent marker test are not required when polymer grade is FASTRACK HD21A.

² TT-P-1952F, Section 4.3.13 Heat-shear stability. One pint of the paint is sheared in a kitchen blender at high speed to 65°C. The blender should have a tight-fitting lid and taped to minimize volatile loss. When the paint reaches 65°C, stop the blender, immediately can and apply a cover. Let cool a minimum of 12 hours and examine for gelling or other signs of instability. Evaluate for compliance with 3.2.8.

3.2.8 Heat-shear stability. When tested as specified in 4.3.13, the sample must not show signs of gelling or other instability. The consistency must comply with Table 2.

B. **Colors:** Per Federal Standard 595C: White - 37925; Black – 37038; Yellow - 33538 and; Red – 31136.

- C. **Application Temperature:** The manufacturer's recommended minimum application temperature (air, surface and material) must be 40° Fahrenheit or lower.
- D. **Water Resistant:** Guaranteed water resistant and resistant to weathering or cracking under extreme conditions, when applied properly.
- E. **Prohibited Materials:** The manufacturer must certify that the product does not contain mercury, lead, hexavalent chromium, toluene, chlorinated solvents, hydrolysable chlorine derivatives, ethylene-based glycol ethers and their acetates, or any carcinogen, as defined in 29 CFR 1910.1200. Test for lead and chromium to show that the paint meets the requirements of Federal Specification TT-P-1952F.
- F. **Cold Flexibility:** Apply the paint to an aluminum Q panel at a wet film thickness of 15 mils and allow to dry at room temperature (65-80F) and ambient humidity (40-70% RH) for 24 hours. Place a cylindrical mandrel apparatus (per ASTM D522 method B) in a 40 F refrigerator when the paint is drawn down. After 24 hours, put the aluminum panel with dry paint in the 40 F refrigerator with the mandrel apparatus for 2 hours. After 2 hours remove the panel and test apparatus and immediately test according to ASTM D522 to evaluate cold flexibility. Paint must show no evidence of cracking, chipping or flaking when bent 180 degrees over a 12.7mm (0.5 inch) mandrel. It is important that neither the paint nor apparatus warm up, owing to handling or exposure to warm air, any more than necessary.
- G. **Polymer Identity:** Use 100% of either FASTRACK 5408A or FASTRACK HD21A as the sole binder material. Polymer identity must also be confirmed by Fourier Transform Infrared Spectroscopy (FTIR) match in the polymeric fingerprint region to a known reference polymer sample. A variation of ASTM D2372 may be followed to extract the resin and a variation of ASTM D2621 may be followed in running the FTIR scan. FASTRACK 5408A (only) must also be confirmed using the fluorescent marker test provided by the polymer manufacturer.
- H. **Dry opacity for both Solvent and Waterborne Paints:** (Note: This procedure is derived from Section 4121 of Federal Standard 141.) On a black/white Leneta chart, Form 2A Opacity, draw down a film of the sample covering both black and white portions of the chart. Use an appropriate gap draw-down blade that will produce a 5 mil Dry Film Thickness (DFT). Dry the specimen 24 hours at 25°C. Use a suitably calibrated filter photometer, conforming to ASTM Designation: E 1347, to measure alternately the 45°/0° daylight luminous directional reflectance (Y) of the specimen over the white and black portions of the chart. Calculate dry opacity as follows: Dry Opacity = Reflectance over black / Reflectance over white. (Example: Dry Opacity = $82\% \div 85\% = 0.965$).
- ASTM D2805 is an acceptable alternative for the specified Dry Opacity test in Section H. When ASTM D2805 is used the Contrast Ratio required must be a minimum of 0.95 for White and Yellow. The thickness requirement is changed to 5 mils Dry Film thickness (DFT).

ACRYLIC WATERBORNE TRAFFIC PAINT PACKAGING: When specified on the bid schedule, acrylic waterborne materials shall be supplied in either:

1. **55-GALLON POLYMER COATED INTERIOR NON-RETURNABLE AND DISPOSABLE DRUM**

When specified on the bid schedule, the Acrylic Waterborne Paint shall be supplied in new or reconditioned 55-gallon, polymer coated interior, pressure-tested, removable-lid steel drums that conform to all applicable DOT, EPA OSHA or other Federal requirements. The following applies:

1. All paint furnished shall be shipped in clean, open head drums. One end of the drum shall have a completely detachable head. “Clean” is defined as drums that are free of any debris or paint remnants from previous shipments.
2. The heads shall be of uniform size and type, so that the recessed part of the head will make contact with the top edge of drum over the entire circumference.
3. The head shall be securely fastened to the top of the drum by means of a lever ring lock or by ring lock with bolt fastener.
4. The hardware shall be galvanized or of non-corrosive metal. The assembly shall be coated with a lubricant to further protect from corrosion and facilitate easy removal.
5. Drums must have new gaskets to ensure an airtight seal.
6. The head and a portion on the side of each drum shall be painted the same color as the traffic paint contained therein.
7. Each barrel shall be filled to four inches from the top edge of the barrel rim.

Drums of paint are to be shipped single tier only on open bed trailers (enclosed containers to Unalaska only).

2. 250-GALLON STAINLESS STEEL REUSABLE AND RETURNABLE BULK CONTAINER

When specified on the bid schedule, the Acrylic Waterborne Paint shall be supplied in new or clean reconditioned, reusable and returnable bulk stainless steel containers that comply with all applicable DOT, EPA OSHA or other Federal and State requirements. The following applies:

1. All paint furnished shall be shipped in containers that are clean and free of debris. “Clean” is defined as containers that are free of any debris or paint remnants from previous shipments.
2. The containers shall be sized to safely contain for transport and use in Alaska 250 gallons of Acrylic Waterborne Paint.
3. The containers shall be provided with 2” male cam-lock fittings on top and bottom and a top opening with new gasket of at least 16 inches in diameter.
4. The container shall have vents that prevent rain water entering the vents and seeping inside.
5. The bottom of containers shall be fitted for forklift pickup from all four sides.

Any paint or container received with debris or obvious contamination will be returned to the contractor for replacement. The contractor’s failure to provide replacement containers in the time specified will result in forfeiture of the contractor’s bond.

In order to ensure containers to fit existing DOT&PF equipment, the contractor must supply the specific sized reusable and returnable containers as noted in the Bid Schedule.

3. 250-GALLON POLY NON-RETURNABLE AND DISPOSABLE BULK CONTAINER

When specified on the bid schedule, the Acrylic Waterborne paint shall be supplied in non-returnable, new or clean recycled intermediate bulk containers that comply with all applicable DOT, EPA OSHA or other Federal and State requirements. The following applies:

1. Containers shall be built to safely contain acrylic waterborne traffic paints for transport and use in Alaska.
2. The bottom of containers shall be fitted for forklift pickup from all four sides and will have a 2" male cam-lock fitting on top and bottom.
3. The **Outer Container** construction shall consist of a rectangular grid box made of tubular steel material for protection of the polyethylene inner tank.
4. The **Inner Container** construction shall consist of a rectangular blow molded tank of high-density polyethylene (HDPE) with filling opening in the middle of the top section.
5. The discharge opening shall be at the bottom of the front side.

Example:



ACRYLIC WATERBORNE TRAFFIC PAINT CONTAINER MARKING: Each container shall be labeled or stenciled to show the following (abbreviations may be used):

1. Name: Paint, Traffic and Airfield Marking, Waterborne
2. Specification Number Three and TT-P-1952F, Type II
3. Color (letters minimum 3" high on 55 gallon and larger containers)
4. Batch Number
5. Date of Manufacture
6. Quantity Paint in Container
7. Container ID number (letters minimum 3" high on 55 gallon and larger containers)
8. Information and Warnings as may be required by Federal and State Laws
9. Manufacturer's Name and Address
10. Tare weight of empty container

In addition, a paint patch on the side of each paint container or barrel is required to facilitate identification of contents. **Example:** WATERBORNE TRAFFIC PAINT

RETURN OF ACRYLIC WATERBORNE PAINT BULK CONTAINERS:

The bid price submitted must include the cost to return the "returnable" solvent-based paint containers from the final destination. The following applies:

1. The State will ship returnable containers, freight collect, per instructions provided by the contractor.
2. Partial to full containers may be held by the State for up to 27 months with no additional cost to the State.
3. The State reserves the right to relocate the bulk containers for use at other regional destinations. However, any additional charges related to relocation shall be the State's responsibility.

4. The State may request a container be shipped from a location other than the containers original destination only after the State has negotiated additional shipping costs, if any, with the contractor.
5. If a container is lost or damaged beyond repair while in the possession of the State, the State shall reimburse the contractor the replacement cost.

Bidders shall indicate on the **Attachment C, Bidder Questionnaire** the State's cost to replace lost or damaged containers. A Bidders failure to identify the replacement cost on **Attachment C, Bidder Questionnaire** will be construed by the State as there is "no cost" to the state for the replacement container.

COMPLIANCE TO SPECIFICATION NUMBER THREE:

To ensure compliance for Specification Number Three, Bidders must submit the following documentation with their bid in order to be considered responsive:

For ease of review, the following should be provided as a single standalone set of documents.

1. Cover sheet indicating the bidder, ITB number, and the Specification Number;
2. Testing results for Federal Specification TT-P-1952F, Type III tests on waterborne paint formulated within the two years preceding the Invitation to Bid (ITB).
3. Certified test reports of all colors of waterborne paint from an independent laboratory. Testing must have been performed within 180 days prior to the bid opening date and must confirm compliance with bid specifications as seen in Table 2;
4. Manufacturer's recommended coating for waterborne paint adhesion to glass beads
5. Material Safety Data Sheets for each formulation
6. Notarized Affidavits of Compliance signed by the authorized representative of both the manufacturer and the bidder, indicating all product(s) submitted for bid are compliant with these specifications.
7. Notarized Affidavits of Compliance signed by the authorized representative of both the manufacturer and the bidder, indicating all drums and containers submitted for bid are compliant with these specifications.
8. Manufacturer's recommended equipment, temperatures, humidity and any other limits for safe and proper application, use, as well as storage of these materials and containers.
9. Product Support Contact name, address, email and telephone number(s).

END OF SPECIFICATION THREE

SPECIFICATION NUMBER FOUR**DESCRIPTION: REFLECTIVE GLASS BEADS FOR HIGHWAYS OR AIRPORTS**

SPECIFICATION: This specification covers glass beads to be dropped or sprayed upon pavement markings so as to produce a reflectorized pavement marking. Use glass bead coatings that provide a moisture resistant coating to prevent clumping. Glass beads shall also be treated with adhesion promoting and/or flotation coatings for each bead and paint combination as specified by the manufacturer of the paint. Ensure that beads conform to the heavy metal toxicity limits of EPA 40 CFR 261.24.

A. HIGHWAY BEADS: Meet AASHTO M 247, Type I

B. AIRPORT BEADS: Meet Federal Specification TT-B-1325D, Type I, Gradation A

REFLECTIVE GLASS BEAD FOR HIGHWAYS OR AIRPORT PACKAGING: When specified on the bid schedule, beads reflective glass beads shall be supplied in either:

1. FULL PALLET-48, 50LB BAGS

When specified on the bid schedule, airport or highway reflective glass beads shall be supplied in moisture resistant, clean, leak proof multi-wall bags of pinch bottom construction (glued top and bottom, not stitched) suitable for the extreme circumstances presented during transportation to remote areas of Alaska. The following applies:

1. The State will order full pallets only;
2. A full pallet is defined as 48, 50-pound bags;
3. Bag construction shall consist of four, 50 lb. natural kraft layers and one, 8 mil HDPE layer.
4. Bags shall be palletized and shrink wrapped with plastic of minimum thickness of 5 mils to prevent water seepage and bursting during shipment;
5. All 50 lb. bags supplied by this contract must be new and delivered dry and undamaged;
6. Open, torn or ripped bags shall be rejected; and,
7. Rejected bags and replacement product shall be at the contractor's expense.

All bags shall be non-returnable and become the property of the State upon receipt and acceptance at the final destination.

All orders placed by the **Anchorage or Fairbanks International Airports** shall be delivered on a plastic pallet, sample below:



2. BULK CONTAINER BAGS 2400 LBS

When specified on the bid schedule, airport or highway reflective glass beads will be shipped in new or reconditioned 34" x 34" x 36" "chase type polypropylene bags. The following applies:

1. The bags shall be made of 6 oz. weave material;
2. The bags shall have a fully opening closure skirt on top;
3. The bags shall have a 20" discharge chute on bottom with block on spout – 2 cm wide with a PolyPropylene woven tie;
4. The bags shall have 4 top-lift loops of adequate length to allow lifting by a control hook when the bags are full;
5. The bags must have a 40" X 40" X 88" – 2.5 mil. polyethylene inner liner assembled to prevent the liner from slipping and clogging the discharge chute during discharge;
6. The bags shall be secured to standard wooden 42" x 42" non-returnable type pallets; full coverage with pallet jack accessible bottom
7. The pallets must a 2" maximum gap and be of appropriate strength to prevent bags from sagging through the top deck;
8. After loading, the pallets shall be shrink wrapped with plastic of minimum thickness of 5 mils for protection and to prevent water seepage; and,
9. At time of delivery, all pallet loads must be straight and stable, suitable for reshipping without further adjustments.

All bulk 2,400 lb. bags supplied by this contract must be new and be delivered dry and undamaged. Open, torn or ripped bags shall be rejected. Rejected bags and replacement product shall be at the contractor's expense. All bags shall be non-returnable and become the property of the State upon receipt and acceptance at the final destination.

REFLECTIVE GLASS BEAD BAG MARKING: Each bag shall be labeled to show the following (abbreviations may be used):

- 1) Reflective Glass Beads, Highway or Airport
- 2) Specification Number Four and AASHTO M 247, Type I or F.S. TT-B-1325D, Type IA
- 3) Batch Number
- 4) Date of Manufacturer;
- 5) Net Quantity in Container(s)
- 6) MSDS and any other information and/or warnings as may be required by Federal and State Laws
- 7) Manufacturer's Name and Address

COMPLIANCE TO SPECIFICATION NUMBER FOUR:

To ensure compliance for Specification Number Four, Bidders must submit the following documentation with their bid in order to be considered responsive:

For ease of review, the following should be provided as a single standalone set of documents.

- (1) Cover sheet indicating the bidder, ITB number, and the Specification Number;
- (2) Certified test reports for each type of (highway/airport runway) reflective glass beads

from an independent laboratory (performed within 180 days of bid opening) confirming compliance with bid specifications for each type of glass bead;

- (3) Material Safety Data Sheets for each type of glass bead
- (4) Statement of Compliance signed by authorized representative of the firm verifying that bead coatings used for the solvent based and waterborne traffic paints meet the paint manufacturer's recommendations.
- (5) Notarized Affidavits of Compliance signed by the authorized representative of both the manufacturer and the bidder indicating all products submitted for bid are compliant with these specifications
- (6) Notarized Affidavit of Compliance signed by authorized representative of both the manufacturer and the bidder, indicating all containers submitted for bid are compliant with these specifications
- (7) Manufacturer's recommended equipment and any other limits for safe and proper application, use, as well as storage of these materials and containers
- (8) Product Support point of contact to include the contact name, address, email and telephone number(s)

Materials and containers used in this contract on the basis of a manufacturer's certificate of compliance may be tested at any time, whether in place or not. If the materials or containers are found to not meet contract specifications, they may be rejected and ordered removed and replaced with acceptable materials at no extra charge to the State.

END OF SPECIFICATION FOUR