

Materials Bulletin/Materials Manual Requirements for HDPE Pipe Source Approval and Quality Control/Quality Assurance Standards

(Note: These articles, subject to revision, will be incorporated into a Materials Bulletin on an interim basis and later incorporated into the Materials Manual, both of which are mandatory for source approval and QC/QA purposes)

The following articles set forth the requirements for source approval and Quality Control/Quality Assurance for HDPE Class II corrugated polyethylene pipe.

Test results to substantiate compliance with specifications and establish initial Class II HDPE pipe source approval shall be in accordance with the following:

- a. **Laboratory Accreditation:** All test results for initial product approval must be conducted by either an accredited independent laboratory or accredited pipe or resin manufacturer's laboratory deemed appropriately qualified by the Plastics Pipe Institute and acceptable to the State Materials Engineer. The laboratory accreditation program should be in accordance with Geosynthetic Accreditation Institute (GAI) or other accreditation program as deemed acceptable by the Director, Office of Materials. Quality Assurance tests conducted by pipe manufacturers shall be performed by personnel meeting the requirements of the accreditation agency. Test results obtained via multiple laboratory participation in round-robin testing programs sponsored on behalf of FDOT may be used to satisfy applicable parts of the specification requirements for initial product approval if the test results can be validated to the satisfaction of the Director, Office of Materials.
- b. **Compliance with Specifications:** All test results must indicate full compliance with the properties specified in Table 1 of Section 948 except as may be modified in c. below.
- c. **Initial Product Approval:** Test results must be submitted for each diameter of pipe proposed for use. Single point (index) tests for the junction and longitudinal profile may be used on alternating pipe sizes within a manufacturing process if the single point test is validated to the satisfaction of the Director, Office of Materials. Single point index tests may not be used on maximum and minimum pipe sizes within a manufacturing process as defined and described by the manufacturer and approved by the Director, Office of Materials. Other temperatures in the incubation for OIT evaluation may be employed if such temperatures can be scientifically validated to the satisfaction of the Director, Office of Materials.
- d. **Submittals:** Requests from manufacturers for initial source approval of Class II HDPE pipe shall be submitted to the Director, Office of Materials.
- e. **Sample Authentication:** For initial product approval, the manufacturer shall coordinate the sample selection with the Director, Office of Materials and provide a representative sample (seven corrugations in length) for evaluation purposes.
- f. **Materials Identity:** For initial and continuing manufacturer/product approval purposes, the pipe manufacturer shall identify in their QC/QA plan (or other proprietary documentation) each formulation of resin proposed for use. The listing shall include the identity of resin,

antioxidant inhibitor, carbon black and blend ratios for each resin formulation. Each formulation shall be given a numerical designation and this designation must be included in the product certifications for the pipe. Proprietary components and proportioning may be identified by coding.

g. **Melt Index Variation:** Pipe shall meet the Junction Test requirements described in Table 1 of Section 948 in accordance with Item c. above, at any time there is a substantial change in resin class or source. A substantial change in resin is defined as a variation in resin melt index of more than 30% of the pipe manufacturer's targeted value for a specific resin or blend.

h. **Antioxidant Variation:** The oxidation resistance test requirements described in Table 1 shall be met on at least one pipe diameter from each manufacturing process at any time there is a change in antioxidant or carrier resin composition, grade or volume.

i. **Carbon Black Variation:** Pipe shall meet the Pipe Liner test requirements described in Table 1 of Section 948 at any time there is a change in the grade or volume of carbon black or color concentrate.

j. **Full Protocol Testing:** Prior to the issuance of manufacturer approval, the pipe manufacturer shall produce evidence satisfactory to the State Materials Engineer substantiating that the full series of tests for 100-year service life as outlined in FDOT Research Report, "Protocol for Estimating the Service Life of Corrugated High Density Polyethylene Pipe," or amendments thereto, have been initiated or scheduled, including a schedule for completion of the full protocol testing. Failure on behalf of the pipe manufacturer to continuously pursue full protocol testing could result in denial or suspension from Class II HDPE pipe interim approval status.

k. **Quality Control, Quality Assurance Plans:** The manufacturers shall modify their QC/QA Plans to address each of the requirements of this section and the minimum requirements set forth in Plastic Pipe Institute's "Recommended Quality Control / Quality Assurance Procedures for Manufacturers of Corrugated High Density Polyethylene Pipe". Minimum Quality Assurance testing is shown in Table A. *(This will be based on Industry Standards being developed by PPI and will be modified by FDOT as necessary)*

l. **Index Testing:** Single point index tests may be used for quality assurance testing purposes if the single point value can be validated to the satisfaction of the Director, Office of Materials.