

# CDOT EPOXY COATER QSM CHECKLIST

Manufacturer Name \_\_\_\_\_ Date: \_\_\_\_\_

Plant Facility Name and Location: \_\_\_\_\_

Submitted By: \_\_\_\_\_ Phone number: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Manufacturers Comments

Reference: 2022 CDOT Field Materials Manual, CP-11 (Epoxy Coater)

<https://www.codot.gov/business/designsupport/materials-and-geotechnical/manuals>

## 9. MANUFACTURER'S QUALITY SYSTEM MANUAL (MINIMUM REQUIREMENTS)

- 9.1 On an annual basis, at a minimum of two months prior to producing epoxy-coated steel reinforcing bars and epoxy-coated steel dowel bars for a CDOT project, one copy of the Manufacturer's Quality System Manual (QSM) shall be submitted for review and approval to CDOT's Product Evaluation Coordinator (303) 398-6566 within the Staff Materials & Geotechnical Branch at 4670 North Holly Street, Unit A, Denver, Colorado 80216-6408. In lieu of a hard copy QSM, a PDF format document may be submitted. The PDF manual submittal must be complete and whole. CDOT's approval of the QSM is intended only to indicate that the QSM is in conformance with the minimum QC requirements set forth in this Standard. Once the Manufacturer is approved and on the Qualified Manufacturers List (QML), the QSM provisions will remain in effect for a period of one year, unless revisions are determined to be necessary by the Quality Control Manager or requested by CDOT, or if the Manufacturer is decertified. If any changes are made to the QSM, an updated copy shall be submitted to CDOT for review and approval. In lieu of a full updated copy, submittals of updates are acceptable. Updates shall be in the same format as the manual and are to be inserted into the manual to replace outdated pages. The updates may be in PDF format. The updated pages will have the date of update issuance and is to be recorded in a table of revisions. Guidelines for preparing a QSM may be available from the Concrete Reinforcing Steel Institute (CRSI). Guidelines are also documented in AASHTO R 38.

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YES/NO/NA

- 9.2 The Manufacturer's QSM shall include the latest edition of CRSI Plant Certification Manual.....\_\_\_\_\_
- 9.3 The Manufacturer's QSM may be maintained in electronic format. However, one or more copies of the QSM shall be maintained by the Manufacturer's QC Manager in a printed and bound format (3-ring or other). The QSM shall be available to all of the Manufacturer's employees. Each document in the QSM shall indicate its preparation date and all pages of the QSM shall be numbered. If a document is revised, the date of revision shall be indicated on the document and recorded in a table of revisions.....\_\_\_\_\_
- 9.4 The Manufacturer's QSM shall be formatted to provide numbered sections which meet the following order, format, and content:.....\_\_\_\_\_
- 9.4.1 Manufacturer's quality policy or mission Statement endorsed by the company's Chief Executive Officer.....\_\_\_\_\_
- 9.4.1.1 The quality policy / mission statement shall indicate support of top management to enforce the QC requirements contained in the QSM.....\_\_\_\_\_
- 9.4.2 The QSM shall include the address and telephone numbers of applicable personnel at the manufacturing facility. If applicable, the QSM shall include the address and telephone numbers of responsible personnel of the Fabricators.....\_\_\_\_\_
- 9.4.3 The QSM shall include a brief listing and description of all the epoxy-coated deformed and plain bars being manufactured at the facility.....\_\_\_\_\_
- 9.4.4 The QSM shall present and define any significant terms used throughout the QSM.....\_\_\_\_\_
- 9.4.5 For all manufactured items addressed in the QSM, the applicable AASHTO, ASTM, or CDOT specification shall be identified.....\_\_\_\_\_
- 9.4.6 The QSM shall present the personnel structure established to implement the Manufacturer's quality system. The specific roles and responsibilities of all QC personnel shall be documented as follows:.....\_\_\_\_\_
- 9.4.6.1 The QSM shall contain an organizational chart. The chart shall indicate a clear separation between the QC personnel and the production personnel. The QC Manager shall be allowed direct access to top management, independent from production. The names of personnel shall be placed on the chart.....\_\_\_\_\_

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- 9.4.6.2 Each facility shall have a Quality Control Manager who has the overall responsibility for implementing the requirements of the QSM. The QC Manager shall review the established QC system annually in order to satisfy this requirement, or if changes in the manufacturing process(s) occur, or whenever technical or CDOT information indicate a trend in reduced quality.....\_\_\_\_\_
- 9.4.6.3 Each facility shall have at least one Quality Control Technician to perform QC sampling, testing, and inspection. At least one QC Technician shall be on-site during production. The QC Technicians shall be familiar with the tests they perform and have sufficient authority to assure corrective actions are carried out when necessary. The QSM shall indicate the line of authority of the QC Technicians, which shall demonstrate their authority to require corrective action. The QSM shall designate the QC Technicians at the facility and laboratory involved in the production or testing of the epoxy-coated steel reinforcing bars and epoxy-coated steel dowel bars.....\_\_\_\_\_
- 9.5 The QSM shall contain a description of the qualifications required and attained, and years of experience for each QC Manager and QC Technician. All QC sampling, testing, and inspection personnel shall be trained. Plants certified by CRSI shall have at least one QC Manager and at least one QC Technician who are capable of performing and correctly interpreting all the tests required by CRSI Plant Certification Manual. The QSM shall also include periodic auditing of each QC Technician's ability to satisfactorily perform the required tests. Retraining shall be provided when the test method is revised.....\_\_\_\_\_
- 9.6 The QSM shall provide for specific training for frontline production personnel in the safe and correct operating procedures implemented to ensure the required quality of all epoxy-coated steel reinforcing bars and epoxy-coated steel dowel bars.....\_\_\_\_\_
- 9.7 The Manufacturer shall maintain its own qualified internal designated testing location and/or facility to perform QC testing. The Manufacturer shall provide backup QC testing personnel and any necessary backup laboratory equipment. The QSM shall include the address and telephone numbers of a designated backup personnel. The Manufacturer's internal designated testing location and/or facility shall meet the minimum accreditations or qualifications obtained through one or more of the following programs:.....\_\_\_\_\_
- 9.7.1 The manufacturing industry's Concrete Reinforcing Steel Institute Certification Plant Program.....\_\_\_\_\_

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YES/NO/NA

- 9.7.2 National accreditation programs such as AASHTO Accreditation Program or American Association for Laboratory Accreditation..... \_\_\_\_\_
  
  - 9.8 The QSM shall contain an inventory of the necessary equipment used for sampling and testing along with associated calibration equipment used for each required test procedure. The QSM shall assign a unique identification number to each piece of testing equipment. The QSM inventory for each necessary piece of equipment shall include the following information:..... \_\_\_\_\_
    - 9.8.1 The name of each necessary piece of equipment, date placed in service, Manufacturer, model and serial number. The QSM shall include the location where the instructions for use and operation of each necessary piece is stored if not included in the QSM..... \_\_\_\_\_
      - 9.8.1.1 For each necessary piece of equipment, the QSM shall include the interval of calibration or verification, a reference to the calibration or verification procedures used, and the location where the current calibration or verification records are stored. The QSM shall describe the methods of calibration and verification procedures that are performed at the specified intervals..... \_\_\_\_\_
- 9.9 The QSM shall identify all types of Supplier delivered materials used for the production of epoxy-coated steel reinforcing bars and epoxy-coated steel dowel bars.... \_\_\_\_\_
- 9.9.1 The QSM shall contain a copy of the signed certification from the steel Supplier that all steel products permanently incorporated into the manufactured product shall have occurred in the United States of America..... \_\_\_\_\_
  - 9.9.2 The QSM shall contain a description of the specification requirements for all Supplier delivered materials..... \_\_\_\_\_
  - 9.9.3 The QSM shall contain a description of the certification and test reports delivered by the Supplier and a location where these records are stored..... \_\_\_\_\_
  - 9.9.4 The QSM shall include all QC testing of the supplied materials and shall contain a statement that no raw materials shall be used unless they are on the APL or they have been tested and meet all appropriate CDOT, AASHTO, or ASTM specifications..... \_\_\_\_\_

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YES/NO/NA

- 9.9.5 All Supplier delivered materials shall be properly stored to prevent damage, contamination, or other alterations prior to use in production. The QSM shall include procedures for the adequate storage of supplied materials.....\_\_\_\_\_
  
- 9.10 The QSM shall describe the procedure and frequency for inspection and selection of material samples during production. Sampling shall be performed on a stratified random procedure in accordance with ASTM D 3665. All random QC sample locations shall be properly documented and these procedures shall be included in the QSM.....\_\_\_\_\_
  
- 9.11 The QSM shall contain descriptions and examples of the test report forms used by the Manufacturer. The QSM shall identify the individual(s) responsible for maintaining all test records and reports along with the location where the reports are stored.....\_\_\_\_\_

  - 9.11.1 The test reports shall be maintained and available for inspection for a minimum of three years.....\_\_\_\_\_

- 9.12 The QSM shall contain a description of the procedures used to identify and document all material or test results that do not conform to specification requirements. The QSM shall contain provisions for resolving non-conforming material or test results.....\_\_\_\_\_
  
- 9.13 The QSM shall describe procedures used to properly handle, store, and ship epoxy-coated steel reinforcing bars and epoxy-coated steel dowel bars.....\_\_\_\_\_

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NOTE: Please submit the name of Epoxy Powder Supplier and verify that they are on the CDOT Approved Products List. As per the 2021 CP 11 (Epoxy Coaters), Section 6.4.

6.4 Suppliers of epoxy powder shall be on the CDOT Approved Product List (APL). The APL along with instruction for completing CDOT Form 595, Pre-Approved Product Evaluation Request & Summary, can be found at the web address: <https://www.codot.gov/business/apl>

CDOT Reviewer Comments

CDOT Reviewers Signature

Approvers Comments

CDOT Approving Engineer Signature