



Quality Control Plan

N0: 0009/Q/3084

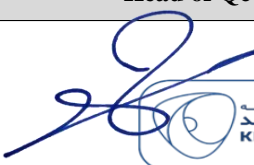

Data: 00/09/06

No: 1 of 6

| | |
|------------------------|---|
| Project | پروژه تصفیه خانه سرنی |
| Manufacture | شرکت پوشش لوله کیوان جاوید |
| Customer | شرکت آب نیرو |
| Supplier | شرکت کوثر صنعت اسپادانا |
| Consoltant Eng Co | مهندسين مشاور آبان پژوه |
| Inspection Company | شرکت بازرسی تجهیزات صنعت آب و برق ایران |
| Pipe Size (OD*Th)mm | 100 , 150 , 250 |
| Type of inside coating | Epoxy Polyamide (AWWA C210) |

Project Defintlon

| Symbol | Legend | |
|--------|-----------------|--|
| H | Hold Point | Client's inspector to be informed 1 working day before starting the task and work should not be conducted without the persence of an inspector |
| W | Witness Point | |
| R | Review Document | |
| | | Client's inspector to be informed 1day before starting the task and work may be done if he would not be available |
| | | It surveillance of a document for the purpose of verifying that an activity conforms the established |

| Prepared By | Approved By | Client's Consultant | Client's Inspector |
|--|-------------|---------------------|--------------------|
| Head of Qc | | | |
|   | | | |



Quality Control Plan

N0: 0009/Q/3084
Data: 00/09/06
No: 2 of 6

Scope

This Quality plan defines the processes of application, inspection, Testing, handling , transportation and storage of Internal coating include Epoxy Polyamide for steel water pipe line. This coating is desined for the anticorrosion protection of steel pipe line. In caseo of any disagreement with respect to AWWA C210 (2015) Standard shall be applied.

Reference Specifications

| | | | |
|------------------|---------------|---------------------|---------------|
| 1-ANSI/AWWA C203 | 12-ASTM D4060 | 23-BS 3900 Part F16 | 34-ASTM D2369 |
| 2-ANSI/AWWA C209 | 13-ASTM D4541 | 24-BS 4164 | 35-ASTM D2697 |
| 3-ANSI/AWWA C210 | 14-ASTM D4587 | 25-BS 6920-1 | 36-ASTM D562 |
| 4-ANSI/AWWA C214 | 15-ASTM D543 | 26-BS 7079 Part A1 | 37-ASTM D4400 |
| 5-AWWA C215 | 16-ASTM D570 | 27-BS 7079 Part A2 | 38-ASTM D1475 |
| 6-AWWA C218 | 17-ASTM D6625 | 28-BS 7079 Part A3 | |
| 7-ASTM D1005 | 18-ASTM D445 | 29-BS EN 1657 | |
| 8-ASTM D1212 | 19-ASTM D546 | 30-BS EN ISO 8501 | |
| 9-ASTM D16 | 20-ASTM D146 | 31-BS EN ISO 8502 | |
| 10-ASTM D2240 | 21-ASTM D737 | 32-BS EN ISO 8503 | |
| 11-ASTM D3891 | 22-BS 3900 | 33-BS EN ISO 8504-1 | |

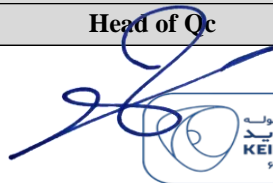
Prepared By

Approved By

Client's Consultant

Client's Inspector



Head of Qc


 شرکت پوشش لوله
 کیوان جاوید
 KEIVAN JAVID
 ثبت : ۹۵۵۵۸



Quality Control Plan

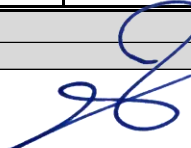

N0: 0009/Q/3084
Data: 00/09/06
No: 3of 6

| Process Name | Instruction | Test Name | Test Method | Acceptance Criteria | Testing Frequency | Inspected By | |
|---|-----------------|---|-------------|--------------------------|-------------------|--------------------|------------------|
| | | | | | | Keyvan Javid Co. | Client Inspector |
| Internal Painting Raw Materials Test | Epoxy Polyamide | Weight Solid | ASTM D2369 | Min. 98% | Each Batch | R | R |
| | | Weight solid (mix) | ASTM D2369 | 98-100% | | R | R |
| | | Volume Solid | ASTM D2697 | Min. 95% | | R | R |
| | | Viscosity Ku at 60°C -Mix | ASTM D562 | Manufacture's Acceptance | | R | R |
| | | Viscosity Ku at 60°C - Base | ASTM D562 | 94-103mils | | R | R |
| | | Immersion and Vapor phase,30 days at 24±1°C a.Deionized water b.Sulfuric acid, 1% by weight c.Sodium hydroxide, 1% by weight | AWWA C210 | Pass | | R | R |
| | | Sag test | ASTM D4400 | 30-42 mils | | R | R |
| | | Cathodic Disbonding,28 days | AWWA C210 | Max. 9.53 mm | | R | R |
| | | Surface dry at 25°C | ASTM D1640 | Max. 240 min | | R | R |
| | | Curing Time at 25°C | ASTM D1640 | Max. 7 Days | | R | R |
| | | Pot life at 60°C | Nace | Min. 6 min | | R | R |
| | | Rub Test | ASTM D4752 | Pass | | R | R |
| | | Specific gravity at 25°C-Base | ASTM D1475 | 1.4-1.46 g/ml | | R | R |
| | | Specific gravity at 25°C-Curing agent | ASTM D1475 | 1.37-1.43 g/ml | | R | R |
| | | Gloss | ASTM D523 | - | | R | R |
| Prepared By | | Approved By | | Client's Consultant | | Client's Inspector | |
| Head of Qc | | | | | | | |
|   | | | | | | | |



Quality Control Plan

N0: 0009/Q/3084
Data: 00/09/06
No: 4 of 6

| Process Name | Test/Activities/Description | Test Method | Acceptance Criteria | Testing Frequency | Inspection by: | |
|---|--|----------------------------|--|--------------------|-----------------|--------------------|
| | | | | | Keyvan Javid Co | Client's Inspector |
| Storage | The shelf life of the product has to be observed | PDS | Storage temp:5-40°C | 2/Shift | H | W |
| Bare Pipe Receipt | Visual inspection of pipe, looking for steel damage (Dents, Laminations weld defect) and the presence of contaminants (Ex. Grease, oil) | AWWA C200 | Free from obvious mechanical damage | All bare Pipes | H | W |
| | if required the pipe identification is either entered in to the tracking system or manually recorded | N/A | Acceptable input into system | All bare Pipes | H | W |
| Surface preparation | Visual inspection. all pipe external surface are inspected for any mechanical defect (Dents, burrs,weld defect, etc) and any contamination. The surface shall be uniform and free from silver, laos and lamination | AWWA C200 SSPC SP1 | Free from obvious contamination | All pipes | H | W |
| | enviromental conditions. The enviromental conditions shall be checked by thermo hydrometer | Manufacture recommendation | RH<80% Air temp ≥3°C | 1/4 hr | H | W |
| | Pipe surface temperature. Surface temperature shall be checked by thermometer | AWWA C210 | Min. 3°C above dew point | 1/4 hr | H | W |
| | Surface cleanliness. The blast quality shall be mind using pictorial standards that visually compared against the freshly blasted steel pipe surface | ISO 8501 | SA2 1/2 | All pipes | H | H |
| | Surface profile. The Surface profile shall be determind by use of tastes micrometer. The time between blasting and coating shall be less than 2 hours. | ISO 8503-2 | 50-100 μm | 2/Shift | H | H |
| Coating Application | Two-component mixing ratio: Volume measurment method is taken for confirmation of the mixing ratio accuracy. | Manufacture recommendation | Base: 2 part by volume Curing agent: 1 part by volume | 2/shift | H | W |
| | Procedure coating application. Epoxy coating is executed in 1 layer | AWWA C210 | Dry Film: 450 μ | 2/shift | H | H |
| | Application equipment /material The coating shall be applied following the guidelines given in the manufacturer technical sheet | PDS | All hoses and gum shall be free from solvent cleaner | 2/shift | H | W |
| | Application temperature. Is checked by using calibrated digital thermometer | PDS | Substrat: Min 3°C above dew point & curing agent temp Min. 50°C | hourly | H | W |
| Prepared By Head of Qc | | Approved By | Client's Consultant | Client's Inspector | | |
|   | | | | | | |

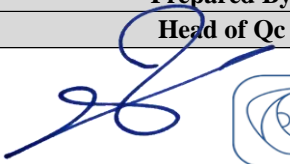



Quality Control Plan

NO: 0009/Q/3084

Data: 00/09/06

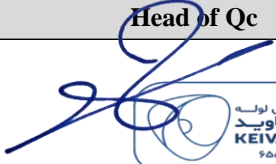
No: 5 of 6

| Process Name | Test/Activities/Description | Test Method | Acceptance Criteria | Testing Frequency | Keyvan Javid Co | Client Inspector |
|---|---|-------------------------|--------------------------------|--------------------|-----------------|------------------|
| Coating Application | DFT Film Thickness | | 450 μ m | Every pipe | H | H |
| Coating inspection | Appearance and continuity. After curing all item are visually inspected any anormal test such as runs, sags, spatters, bubbles, cracks, mechanical damage | AWWA C210 | Uniform color, free of defect | All pipes | H | W |
| | Cut back. All coated pipe are checked for cut back length | AWWA C210 | 50 \pm 10 mm | Every pipe | H | W |
| | Dry film thickness Test | SSPC PA2 | Max = 120% DFT Min =80% DFT | Every pipe | H | W |
| | Holiday detection. After curing each item shall be 100% holiday tested | AWWA C210 | NO Holiday | All pipes | H | W |
| | Adhesion (Pull off) | AWWA C210 ASTM D4541 | Min. 5.5 Mpa | 1/shift | H | H |
| | Marking | AWWA C210 | Pass | Every pipe | H | W |
| Prepared By Head of Qc | | Approved By | Client's Consultant | Client's Inspector | | |
|   | | | | | | |



Quality Control Plan

N0: 0009/Q/3084
Data: 00/09/06
No: 6 of 6

| Process Name | Activites/Description | Std. | Acceptance Criteria | Inspected By | |
|---|---|----------------------------|--------------------------------|---------------------|------------------|
| | | | | Keyvan Javid Co. | Client Inspector |
| Coating Repair | As per technical specification with the same lining material with removing damage material | AWWA C210 | Each pipe | H | W |
| Re-Testing | In the event of any test failure, Two additional test samples shall be taken from the same batch, if one or both of these fail, the batch shall be rejected. | Relevant Acceptance Limits | Relevant Standard | H | W |
| rejection | If any sample of epoxy material does not comply with this standard, the epoxy materials represented by the sample shall be rejected. The application work shall be performed by personnel trained in the epoxy application process. If , at any time, it is determined that the procedure of applying the epoxy material is not according to this standard, the epoxy shall be rejected on the affected pipe. | AWWA C210 | Each pipe | H | W |
| Transport, Stockpiling & Handling | Protected pipe shall be handled with equipment, such as wide belts and wide padded skids, designed to prevent damage to the coating. Bare cables, chains, hooks, metal bars, or narrow skids shall not be permitted to come in contact with the coating. The pipe shall be supported in wide cradles of suitably padded timbers with the supporting surface shaped to fit the curvature of the pipe. Chains, cables, or other equipment used for fastening the load shall be padded. For smaller-diameter pipe, sand or sawdust-filled bags may be used instead of shaped timbers. | AWWA C203 | N/A | H | W |
| Documentation | A certificate of compliance shall be supplied within 2 weeks after the end of the project or periodically during the project. All quality documentation (release note) shall be provided to the quality department where it shall be supplied to the customer where requested. This may be supplied in electronic format. | N/A | In According with Client Order | H | R |
| Prepared By | | Verification By | | Client's Consultant | |
| Head of Qc | | | | Client's Inspector | |
|  شرکت پوشش لوله کیوان جاوید KEIVAN JAVID ثبت : ۹۵۵۵۸ | | | | | |