

Electricity Specification 400P3

Issue 7 September 2023

Painting of Lattice Steel Towers



Amendment Summary

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1 Scope

This document specifies the painting requirements, materials, equipment, surface preparation, workmanship, quality assurance and the conditions under which the Contract shall be carried out for the refurbishment painting of lattice steel towers for overhead transmission Lines owned by Electricity North West Limited (Electricity North West).

2 Definitions

Additional Earths:	Earths of an approved type which are applied by Electricity North West Earthing Party in compliance with the requirements of the Distribution Safety Rules.
Approval:	Sanction by the Overhead Line Circuits Manager that specified criteria have been specified.
Contract:	The agreement between Electricity North West and the Contractor for the execution of the Works including therein all documents to which reference may properly be made in order to ascertain the rights and obligations of the parties under the said agreement.
Contractor:	The person or person's firm or company, including personal representatives, successors and permitted assigns, whose Tender has been accepted by Electricity North West.
Earthing Party:	A party consisting of a Competent Person in charge, accompanied by one or two Competent Persons, whose duty is to apply or remove earths on overhead line conductors.
Engineer:	In this Specification, the term "Engineer" refers to the Engineer in charge of specific work.
Lines:	Any of the overhead lattice steel tower Lines referred to in this Specification.
Specification:	The Specification and schedules (if any) agreed by the parties for the purpose of the Contract.
Site Supervisor:	A person, authorised in writing by Electricity North West, to ensure that all work on, or adjacent to Electricity North West high voltage apparatus is carried out in compliance with the Distribution Safety Rules and Codes of Practice. A Site Supervisor can act as a nominated representative for the Overhead Line Circuits Manager or Engineer.
Site:	The lands and other places, on, in or through which the works are to be carried out and any other lands or places provided by Electricity North West for the purposes of the Contract and includes the structures to be painted.

Tender:	An offer in writing to execute work or supply goods at a fixed price.
Tenderer:	The person or person's firm or company, including personal representatives, successors and permitted assigns, invited by Electricity North West to submit a Tender.
Tower Upper Portion or Top:	That part of the tower extending upwards from a horizontal line 4.6m (15ft) below the lowest conductor on 33kV and 132kV towers.
Tower Lower Portion or Base:	That part of the tower extending upwards to a horizontal line 4.6m (15ft) below the lowest conductor on 33kV and 132kV towers.

3 General Requirements for Approvals and Testing

3.1 Product not to be Changed

No change in the product, packaging or labelling shall be made after Approval has been granted without prior notice to the Electricity North West Overhead Line Circuits Policy Manager, and receipt of a written agreement to the proposed change from the Electricity North West Overhead Line Circuits Policy Manager.

3.2 Electricity North West Technical Approval

The Tenderer shall submit, with this Tender, proposals for testing which will demonstrate, to the satisfaction of the Electricity North West Overhead Line Circuits Policy Manager, compliance with this Specification. Such tests shall be carried out without expense to Electricity North West.

Alternatively, technical reports and other data may be submitted that the Tenderer considers will demonstrate, to the satisfaction of the Electricity North West Overhead Line Circuits Policy Manager, compliance with this Specification. Acceptance of this evidence shall be at the discretion of the Electricity North West Overhead Line Circuits Policy Manager but will not be unreasonably withheld.

Approval shall be 'factory specific' and is not transferable to another factory without the written Approval of the Electricity North West Overhead Line Circuits Policy Manager.

The Supplier and product shall comply with all the relevant requirements of Electricity North West document CP311.

3.3 Quality Assurance

The Tenderer shall confirm whether or not Approval is held in accordance with a quality assurance scheme accredited under ISO 9000. If not, the Tenderer shall submit a statement of the quality assurance procedures employed to control the quality of the product, including the performance of Suppliers and Sub-Contractors.

The right is reserved for the repeat of such tests, from time to time, that the Electricity North West Overhead Line Circuits Policy Manager may deem to be reasonably necessary to demonstrate continued compliance with the Specification.

The Tenderer shall submit, with the Tender, a list of tests and inspections which are carried out on the product prior to despatch which shall demonstrate, to the satisfaction of the Electricity North West Overhead Line Circuits Policy Manager, fitness for installation and service.

The Tenderer shall provide free of charge to Electricity North West such samples as may, in the opinion of the Electricity North West Overhead Line Circuits Policy Manager, be reasonably required for inspection and/or retention as quality control samples. The Electricity North West Overhead Line Circuits Policy Manager will confirm the requirement for samples at the time of Tendering.

The right is reserved for inspections to be made of Tenderer's facilities, from time to time, as deemed reasonably necessary by the Electricity North West Overhead Line Circuits Policy Manager to ensure compliance with this Specification and any Contract of which it forms a part.

The Tenderer shall submit, with the Tender, such details of product packaging disposal, as will enable Electricity North West to comply with the requirements of BS EN ISO 14001 - Environmental Management Systems.

3.4 Formulation

The Tenderer shall submit, with the Tender, such details of the formulation and use of the product and associated substances as will enable Electricity North West to comply with the obligations of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 2002, in the use, storage and disposal of the product. The Tenderer may stipulate, prior to submission of such information, that it is to remain confidential, and the Electricity North West Overhead Line Circuits Policy Manager will, if requested, confirm agreement to this prior to receipt of the information.

3.5 Identification Markings

The Tenderer shall submit, with the Tender, details of markings which it is proposed to apply to the product or packaging to identify manufacturing batches or items. The forms and content of such markings shall be subject to the Approval of the Electricity North West Overhead Line Circuits Policy Manager and shall in all cases include the Electricity North West approved description and commodity code number.

The Tenderer shall submit, with the Tender, such details of marking gross weight on components, assemblies and packages, as will enable Electricity North West to comply with the Health and Safety Manual Handling Operation Regulations 1992, for components, assemblies and packages supplied with a gross weight over 1kg. The forms and content of such markings shall be subject to the Approval of the Electricity North West Overhead Line Circuits Policy Manager.

3.6 Product Conformity

Preference will be given to those Suppliers who can provide suitable product conformity certification to a recognised or specified standard, or an equivalent certification.

3.7 Confirmation of Conformance

The Tenderer shall complete the conformance declaration sheets in [Appendix G](#). Failure to complete these declaration sheets may result in an unacceptable bid.

4 Requirements for Type and Routine Testing

The Electricity North West Overhead Line Circuits Policy Manager shall set out the requirement of the following tests to be carried out by the Supplier at the Supplier's cost.

4.1 Requirement for Type Tests at Suppliers Premises

These are a series of one-off type tests, which are carried out to ensure the satisfactory performance of the product design, under extremes of operating stresses, and of endurance, as may be appropriate, to be determined by the Electricity North West Overhead Line Circuits Policy Manager.

These may or may not be destructive tests.

4.2 Requirement for Routine Tests at the Supplier's Premises

These tests may be required to be carried out on every individual unit or component, as specified, or at some regular frequency to be determined by the Electricity North West Overhead Line Circuits Policy Manager.

The results of these tests may be required to be supplied to Electricity North West with each unit purchased or retained for inspection, at a period to be determined by the Electricity North West Overhead Line Circuits Policy Manager.

5 Constructional Requirements

5.1 Nature and Extent of Work

The work covered by this Specification shall comprise the cleaning and painting of all steelwork, sealing end platforms and safety screens of the galvanized lattice steel towers carrying high voltage Lines as detailed in [Appendix A](#) – Schedule 1 General Line Details.

[Schedule 1](#) lists the various designs and types of towers and/or extensions which the Contractor will be required to paint, together with the calculated area of steelwork and where appropriate, the amount of back-to-back (i.e. closely spaced) double bracings contained in this area.

The actual number of towers or portions of towers available for painting at any particular time during the period of the Contract will depend upon the outage period as dictated by operational requirements and other factors.

5.2 Tenders

Tenderers will be required to inspect as many towers as they deem necessary to enable them accurately to compile their Tenders. Arrangements for visits to Site may be made via the Engineer.

No claim will be considered for any item which does not appear in [Appendix A - Schedule 1](#) General Line Details. The Contractor must make allowances in his Tender to cover any items, which he considers should have been included.

On fixed price Tenders, the Tenderer shall include all aspects of the work including preparation of the Tender, attendance at any meetings or Site visits and all time lost when work cannot be carried out due to bad weather.

5.3 Contract Commencement

The Engineer shall give to the Contractor at least two weeks' notice of the date on which he shall be ready to commence work.

5.4 Order of Work

The Engineer shall decide the order in which the work is to be carried out.

The Engineer shall have the right to issue urgent verbal instructions to the Contractor on Site for the transfer of workmen from one part of the Site(s) to another, or for the complete suspension of the work, if he considers such action to be necessary. Such instructions will only be issued in adverse weather conditions or for operational emergency conditions.

Any failure on the part of the Contractor's workmen to comply immediately with such instructions shall render the Contractor liable for any loss or expense suffered by Electricity North West by reason of such failure.

5.5 Site Access

When the Contract has been awarded, the successful Tenderer together with appropriate Site Supervisor(s) shall attend a pre-contract meeting at which Electricity North West will provide a list of all land occupiers and indicate the means of, and route for, obtaining access to each tower, and any special precautions requested by the occupier. Unless otherwise stated, Electricity North West will notify all occupiers that work is to be carried out by the Contractor.

Where the above facilities have been provided no other access shall be used without the consent of the Engineer. Such facilities do not necessarily include access for vehicles, but such access will not be unreasonably withheld.

The Contractor shall not enter the land of occupier without first informing and obtaining permission of the Engineer.

The Contractor shall comply strictly with the requirements of Engineering Recommendation G29 – Farm Hygiene.

Where owing to the nature of the country, it becomes necessary for the Contractor to improve access to or along the route, he shall be responsible for obtaining the Approval of the Engineer to the proposed work before such work is undertaken.

5.6 Site Security

The Contractor shall ensure that his employees are provided with, proof of identity which must be shown to the Engineer when requested. The employees are also required to comply with any vehicle control and access arrangements, which may be stated by the Engineer.

5.7 Site Supervision

The Contractor shall employ one or more competent representatives whose name(s) shall have been notified in writing to the Engineer by the Contractor to manage the work on Site. The representative shall be present on Site whilst any work is in progress and shall also be available for emergency calls at all other times during the period of the Contract.

5.8 Access to Work

The Contractor shall not commence work on any structure without first obtaining the permission of the Engineer and ensuring compliance with [Section 5.9](#) - Safety Precautions.

To allow painting of the Tower Upper Portions, arrangements will be made for the Lines to be taken out of service for the necessary period of time. Electricity North West will take all reasonable steps to adhere to the outage programme, but operating factors and/or weather conditions may necessitate a departure from the programme envisaged at the commencement of the Contract

Unless otherwise agreed, the Tower Upper Portions on any line shall be completed before proceeding with the Tower Lower Portions.

The Contractor must also be prepared to work on the Tower Lower Portions of any line if the line outage is restricted.

Access to work on double circuit towers may come within one of the following categories:

- Towers on which the conductors on both sides of the towers will be made 'Dead' at the same time. On such towers access will be made available to both halves of the Tower Upper Portions of each tower.
- Towers on which the conductors on one side only will be made 'Dead'. On such towers access will be made available to one half of the Tower Upper Portions of each tower at a time.
- Towers on which all conductors will remain 'Live'.
- Tower Lower Portions.

The Engineer shall have the right to vary these instructions should operational circumstances make it necessary.

If the Engineer is unable to provide the rights of access by the time the Contractor is ready to proceed with the work, then the period required for completion of the Contract shall be adjusted accordingly.

The Contractor shall at his own expense take all necessary precautions where the Site is adjacent to other transmission Lines, British Telecom circuits, Network Rail telegraph circuits, orchards, gardens etc where special precautions may have to be taken. Where the local authorities, canal, railway or other public undertakings affected, deem it necessary for the protection of their employees or property or of the public, or for the assistance of traffic, to provide flagmen or watchmen, the cost of such provision shall be borne by the Contractor. Where required by Network Rail or trolley bus undertakings, work shall be carried on outside normal working hours.

5.9 Safety Precautions

A Safety Meeting, involving the Engineer supervising the Contract, a representative from Electricity North West Operations Section, the Contractor's Management, Site Supervisor(s) and the whole of the Workforce shall be held before any work is commenced on Site. This meeting shall establish and record the items detailed below.

5.9.1 Work to be Defined

No work shall be commenced on any line until a 'Permit to Work' or a 'Limitation of Access' detailing the work has been issued to a Competent Person nominated by Electricity North West as being responsible for safety whilst the 'Permit to Work' or 'Limitation of Access' is in force. The number of Permits/Limitations to be issued will depend upon Site conditions and will be determined by the Engineer.

5.9.2 Documentation

All work on Electricity North West overhead Lines shall be carried out strictly in accordance with the Distribution Safety Rules and relevant Codes of Practice, copies of which may be obtained from Electricity North West. All work shall be carried out under the immediate supervision of the document holder. In case of doubt, clarification must be sought from Electricity North West before any work is begun.

5.9.3 Climbing Restrictions

No tower shall be climbed unless:

- The tower has been identified by Electricity North West as being safe to work on.
- The Contractor has been warned that if any of the conductors are 'Live', it is dangerous to work on any part of any tower other than that defined by Electricity North West as being safe to work on.
- Each of the Contractor's workmen has been issued with the appropriate circuit identification wristlet or armlet which must be worn for the duration of any work on the Tower Upper Portions.
- Instruction to climb has been given to the workmen by the Competent Person holding the 'Permit to Work' or 'Limitation of Access'.
- Workmen on any part of a tower carrying 'Live' conductors are under the immediate supervision of the document holder.
- The methods of any rigging are approved by the Engineer.
- First man up climbing techniques are deployed or the use of permanent climbing systems are made use of.

5.9.4 Climbing Equipment, Climbing and General Working

It is a requirement that the Contractor's employees wear and make proper use of harnesses and are trained and equipped in rescue techniques. The Contractor will be responsible for specifying and approving all safety equipment and ensuring that all his employees are trained in its use. Non-slip footwear shall be worn. Safety helmets to BS EN 397, complete with chin-straps, shall be worn. All equipment, protective clothing, methods of working and safety controls shall be sufficient to provide effective safeguards against all working and environmental hazards.

Attention is drawn particularly to the flexible earthing connections applied to the Lines whilst work is in progress. Should any of these connections be dislodged, no unauthorised person shall touch or replace the connections. All men should descend to ground level immediately and inform the Site Supervisor.

The Contractor shall take proper precautions on Site by:

- Taking into account the normal operations of Electricity North West and the activities of any other Contractor in the vicinity.
- Examining the precautions to be taken by others who may be affected by the Contractor's activities, notifying all those concerned of the actions taken by all parties to provide suitable safeguards and monitoring to ensure that the appropriate action is carried out.
- Notifying the Site Supervisor(s) of any known hazards and ensuring that special precautions are taken against them.
- Ensuring that special precautions are taken for the safety of his employees and other persons when working on or about roads, railways, navigable waterways and such areas subject to abnormal conditions.

The Engineer must be satisfied with:

- The general arrangements to provide adequate supervision over the whole work for the whole time.
- The Site Supervisor(s) knowledge, instructions and powers to ensure the health, safety and welfare of the Contractor's staff or any other persons on Site and that all workmen in his charge clearly understand their duties and responsibilities, the nature and limitations imposed by the work, the importance and use of safety devices and that they comply with any instructions issued by the Engineer or Site Supervisor.

The Contractor's Site Supervisor(s) will collaborate with the Engineer to ensure full compliance with his instructions and with any detailed safety requirements laid down by him and keep the Engineer informed of all changes in Site or working conditions which may affect the health or safety of any persons on Site which may arise as a result of the Contract work or activities. Similarly, the Engineer must be informed of any changes in circumstances which might create a health or safety hazard to the Contractor's employees or others due to the activities of other persons in the vicinity of the Contract works.

The Contractor's Site Supervisor(s) will liaise with landowners from information given to him by Electricity North West, wayleaves etc.

The Contractor's Site Supervisor(s) will provide the Engineer, daily, with a list of personnel employed on the Site, for use in case of emergency.

5.10 Contractor's Responsibility

5.10.1 General

The Contractor will be responsible for the precautions to be taken in the protection of public and Electricity North West property etc, for any remedial works required and for the settlement of any claims arising from the Contract work in respect of the following clauses. Electricity North West shall only be liable for claims for damage to crops which, in the opinion of the Engineer, was unavoidable in the execution of the Contract provided that the Contractor has made use only of the access route(s) indicated to him by Electricity North West. The Contractor shall take all reasonable steps to keep such damage to a minimum. The Contractor shall indemnify Electricity North West against all other claims for injury or damage to persons or property. Sites requiring special precautions shall be notified to the Contractor at the Tendering stage.

5.10.2 Protection of Property

The Contractor shall take precautions to prevent paint from being splashed on to insulators, cable sealing end porcelains, phase, number and circuit colour plates, fixed tower climbing systems, adjacent property and ground. Arrangements must be made with the Engineer to remove as soon as possible any paint splashed on to insulators and cable sealing end porcelains. Any other paint splashes must be removed with the minimum of delay. The design of any covers provided by the Contractor for this purpose shall be to the Engineer's Approval, and such covers applied to tower fittings must fit securely. The Engineer will determine from time to time whether the covers may be left in position at the end of each day or shall be removed.

The Contractor shall take special precautions when painting in the vicinity of public roads and property to prevent damage to vehicles, property, or crops etc.

The Contractor shall take effective measures to prevent livestock straying or gaining access to freshly painted towers, materials and equipment.

5.10.3 Remedial Works

The Contractor shall, at his own expense and without undue delay, make good to the satisfaction of the authorities, owners and tenants concerned, all land, roads, field drains, fences, walls, hedges, gates and the like, and of property and premises of any kind which are damaged or disturbed by the Contractor's employees in the execution of the Contract.

The Contractor shall make good, or compensate Electricity North West for making good, any tower anti-climbing guards or other fittings damaged by his employees during the execution of the Contract, providing it is agreed with the Engineer that the guards or fittings were in a sound condition before the damage occurred. Anti-climbing guards may be changed after the tower is painted and any damage will therefore not be accounted for.

5.11 Site Cleanliness

The Contractor shall, every night on completion of the day's work, and whenever reasonably required by the Engineer, clear away and remove from Site, all rubbish accruing from his operations, and shall on completion of the work, clear away and remove from the Site all plant, surplus materials and temporary works of every kind and leave the whole of the Site in a clean condition to the satisfaction of the Engineer.

All paint containers shall be counted on delivery to Site and the exact number of empty containers shall be accounted for as having been returned or disposed of to a regulation tip. On no account whatever must empty containers be thrown away on private ground or left on Site. In particular, care shall be taken not to have paint containers lying on ground to which cattle have access. Injury to livestock due to failure to comply with these requirements shall be the responsibility of the Contractor.

Animal and poultry diseases can cause serious financial loss to individual farmers and to the nation as a whole. The importance of observing precautions to reduce the risks of spreading diseases cannot be over-stressed.

The practical measures given herein are designed to prevent the spread of animal and poultry diseases and are to be followed by Contractor's employees when working on, or crossing farms where livestock are kept.

It will be Electricity North West's responsibility to ensure that supplies of disinfectant, application equipment, protective clothing and straw will be made available to the Contractor.

It is essential that the farmer's own animal hygiene precautions should be carefully observed before any work starts, the measures already being taken on the property should be ascertained and faithfully followed.

The farmer may be able to help by removing livestock temporarily from areas where access is required, and the following additional precautions will minimise the risk of spreading diseases:

- All contact with animals must be avoided.
- Keep strictly to the route or area that has been agreed with the Engineer.
- Where work is likely to be continued over several days, it may be expedient to consider the provision of temporary fencing for working areas and access routes to allow work to proceed and permit the remainder of the field to be grazed. Double stockproof fencing may be necessary where there is a risk of disease-free accredited herds coming into contact with non-accredited stock.
- All gates must be closed and any damage to fences, hedges and walls made good, so that livestock cannot stray.
- Endeavour to keep ditches and drainage outfalls open and in working order.
- Prevent pollution of streams, ditches and troughs.
- Do not leave polythene bags, paint tins or other litter where animals can reach them. This applies particularly to discarded food which may carry infectious agents harmful to livestock.
- Do not enter livestock buildings without the farmer's permission. When entry is necessary, any request by the farmer for use of rubber boots and protective overgarments must be complied with. The boots and garments must be cleaned and disinfected before entry and on leaving.

In addition to the foregoing precautions, there are some occasions, for example, when working in disease affected areas, where special care will be necessary.

When an outbreak of foot and mouth disease occurs, an 'Infected Area' and an 'Infected Place' (the source of the outbreak or suspected outbreak) are defined and notices are posted at the farm or farms affected.

In the event of an outbreak, it is probable that all work within an 'Infected Area' would be suspended by Electricity North West. However, in the event of work being allowed to proceed, the following rules shall apply to all operations within an 'Infected Area'.

- Movement from highways to farm property must be kept to a minimum.
- All persons going on to farm land, whether on foot or in vehicles, must disinfect footwear on entry and on leaving.
- Arrangements must be made for vehicles to be disinfected before entry and on leaving farmland. A disinfectant spray may be used or a layer of straw, soaked in disinfectant, six times the length of the circumference of the vehicle wheels.
- No entry shall be made into fields containing livestock, unless the area occupied is fenced off.
- Particular care must be taken not to go beyond prescribed Sites and access routes.

5.12 Working Day

Normal working hours shall be a five day week, Monday to Friday inclusive, with up to eight hours per day on Site.

Time spent in daily travelling shall not be accepted as part of the working week.

5.13 Number of Men Employed

The Contractor must state when Tendering for the Contract, the number of men per gang, and the number of gangs he proposes to use to complete the work in accordance with the outage dates given in [Appendix A - Schedule 1](#) General Line Details.

Within the week of acceptance of his Tender, the Contractor shall submit a programme in the form of a daily bar chart. This programme shall include the labour and plant resources that the Contractor proposes to employ for the various sections of the works.

If the number of Contractor's men is not maintained at the level stated in the programme, the Engineer shall have the right to abandon the work until such time as a satisfactory number of men is provided or cancel the work.

The Contractor shall employ only such workmen as are careful and skilled in their various trades and callings. The Engineer shall be at full liberty to object and if necessary to require the removal of any workman who is incompetent or negligent in the due and proper performance of his duties.

5.14 Fair Wages

The Contractor shall pay rates of wages and observe hours of labour not less favourable than those commonly recognised by employers and trade societies in the trade in the district where the work is being carried out. Where there are no such wages and hours recognised or prevailing in the district, those recognised or prevailing in the nearest district in which, in general, industrial circumstances are similar shall be adopted.

The conditions of employment generally accepted in the district in the trade concerned shall be taken into account in considering how far the terms of the fair rates clauses are being observed. The Contractor shall be responsible for the observance of the fair wages clauses by sub Contractors.

Workmen shall be paid the time rates payable in terms of the fair wages clauses to work people of the same class employed in similar establishments in the district in which the work is being carried out.

5.15 Payments

When the Engineer is satisfied that the works have been completed, he shall sign the Certificate of Completion and issue the certificate to the Contractor. Only those areas which have received the final coat to the satisfaction of the Engineer shall be included in the validation.

5.16 Retention Sum

A percentage of the agreed Contract price will be retained by Electricity North West until such time that any third party claims are resolved to the satisfaction of the Engineer.

6 Specification

6.1 General

The work covered by this Specification comprises the surface preparation and painting of all steelwork of the galvanized lattice steel towers carrying high voltage transmission Lines as set out in the attached [Appendix A - Schedule 1](#) General Line Details.

6.2 Materials & Equipment

6.2.1 Tools

The Contractor shall ensure that all brushes, tools, tackle, haulage, transport, safety equipment and other apparatus necessary to carry out the work detailed in [Appendix A - Schedule 1](#) General Line Details, are on Site when the Contract commences.

Portable hand held electric tools must be operated at not more than 110 volts AC. Where the Contractor takes supplies above this voltage, he must provide the necessary transformers, so connected that the mid-point of the 110 volt winding is connected to earth. Battery (DC) operated tools from a supply not exceeding 110 volts can also be used.

A sample of each type of paint brush, including suitable types to paint back-to-back members, shall be submitted to Electricity North West for Approval. Old, worn or dirty brushes shall not be used for painting.

6.2.2 Chemicals

The Contractor shall ensure that:

- All chemical products to be used and their containers are labelled in line with the current European Union publications as shown in [Appendix H](#).
- Current safety data sheets are available for each product and shall be presented when requested by Electricity North West.

6.2.3 Paint

The paints to be used are set out in [Appendix E - Approved Paints](#).

For normal brush application the paint shall be supplied in 5 litre metal cans with securely attached metal or plastic carrying handles and will bear the following information:

- Manufacturer.
- Formulation reference.
- Batch number (marked in two positions).
- Date of manufacture.
- Quantity in litres.
- "Electricity Company Tower Paint".

- Paint type and colour:
Two coat alkyd primer: buff
Two coat alkyd top coat: grey.
- “Thinning agents must not be used”.
- Relevant Health and Safety information.

The Contractor shall satisfy himself that the paints as supplied are suitable and shall comply with all the relevant instructions governing the use of such paints.

The Contractor shall ensure that paint tins are intact before being opened.

The Contractor shall not make use of nor take on to Site any pigments, oils, thinners or driers, or make use of paints other than those approved by the Engineer. The Engineer shall state the purpose for which such materials are to be used and shall if he so decides take control of such materials and issue them in small quantities for the uses previously authorised. Cleaning agents are permitted only for cleaning brushes or removing paint from persons or plant.

At the Engineer’s request, the Contractor may be required to coat selected towers with paints different to those specified in [Appendix E](#) - Approved Paints. Any additional costs incurred will be met by Electricity North West, provided that an instruction approved by the Engineer is issued requesting the change. The Engineer will supply any health and safety data relevant to the paint so specified.

6.3 Surface Preparation

6.3.1 General Requirements

Before painting, all rust, scale and loose particles shall be entirely removed by means of wire brushes, scrapers, hammer and chisel or other mechanical means and any dirt, oil or grease removed to produce a clean surface. In saline or marine atmospheres all traces of salt must also be removed. Rust removing or converting solutions shall not be used nor brought to Site.

The degree and method of cleaning shall be to the Engineer’s Approval, but this will in no way absolve the Contractor from his responsibility to ensure that the surfaces are adequately prepared and cleaned prior to painting.

No structural member shall be disturbed or damaged in any way in the course of the cleaning process and the Contractor shall be held responsible in this respect.

Any seriously corroded members or missing bolts, nuts or lock nuts shall be reported to the Engineer before painting.

All cleaned surfaces shall be painted within eighteen hours of the preparation state having been passed by the Engineer. If exposed to rain, the prepared surfaces shall be lightly wire brushed before the application of any paint.

The Contractor shall check the prepared surface and satisfy himself that Electricity North West requirements have been met prior to inviting Electricity North West to inspect. [Appendix C - Schedule 3](#) Certificate of Completion, in respect of the preparation of each tower must be countersigned by a Electricity North West

representative before painting proceeds. These certificates must be retained on Site by the Contractor and produced on demand.

6.3.2 Surface Conditions

The condition of galvanized and previously painted tower steelwork in various conditions is shown in [Appendix D - Surface Preparation Pictorial Standards](#) figures 1 - 22, both prior to and after surface preparation. In some cases more than one example of a particular condition is included. The upper and lower photographs in each figure represent the original surface condition and prepared surface of each piece of steelwork respectively. The scale of the photographs is approximately half actual size.

6.3.3 Surface Treatments

In the surface treatments listed below, refer to the pictorial representations given in [Appendix D - Surface Preparation Pictorial Standards](#).

6.3.3.1 Oil/Grease Contamination

Any surfaces contaminated with oil/grease shall be cleaned using swabs soaked in a degreasant supplied to the Engineer's instructions. Swabs are to be changed frequently. Particular attention must be paid to back-to-back angles.

6.3.3.2 Sound Galvanising and Sound Adherent Paint

Remove surface deposits of soil, dirt, crop dressing compounds and zinc corrosion products by the use of a serviceable wire brush to obtain the required finished surface condition.

6.3.3.3 Zinc Corrosion Products on Galvanising

Wire brush thoroughly until a sound substrate is produced.

6.3.3.4 Rust Staining on Galvanising

Wire brush thoroughly until a sound substrate is produced.

6.3.3.5 Rust Eruptions on a Galvanised Surface

Scrape where necessary, using tungsten carbide scrapers and wire brush thoroughly thus removing all loose and friable rust to produce the required surface condition.

6.3.3.6 Mechanically Bonded Rust and Pitting

Using tungsten carbide scrapers remove mechanically bonded rust. Complete the surface preparation by wire brushing thoroughly to remove all loose and friable rust, to produce the required surface condition.

6.3.3.7 Laminated Rust with Heavy Pitting

Remove any laminated rust corrosion products by tungsten carbide scrapers and where necessary by chipping hammers or suitable mechanised cleaning equipment. Complete the surface preparation by wire brushing thoroughly to remove all loose and friable rust, to produce the required surface condition.

6.3.3.8 Loose and Flaking Paint Surface

Remove any loose and flaking paint by tungsten carbide scrapers and where necessary by chipping hammers or suitable mechanised cleaning equipment, scrape back the paint work until a firmly bonded edge is reached. Complete the surface preparation by wire brushing thoroughly to remove all loose paint and any rust products, to produce the required surface condition.

6.4 Painting & Workmanship

No paint shall be applied until the preparatory work has been completed. When the Contractor is satisfied that the preparatory work has been properly carried out he shall invite Electricity North West to make an inspection of the work. [Appendix C](#) - Schedule 3 Certificate of Completion, in respect of the preparatory work on each tower must be countersigned by Electricity North West representative before painting begins.

Paint shall be evenly spread and brushed out to the film thicknesses specified in the appropriate data sheets given in [Appendix E](#) - Approved Paints. Particular care shall be taken to work it round all bolts and nuts and into all joints. Where the surface is pitted, the first coat is to be stippled and paint applied until an even surface is obtained. Particular attention must be given to back-to-back members and other box type sections. If it is not possible to paint such areas with a conventional brush, the Contractor must obtain the Engineer's Approval to any alternative method.

The Contractor shall be responsible for inspection as the work proceeds to ensure that all surfaces are properly and completely covered and that adequate film thicknesses are achieved.

When the Contractor is satisfied that a coat of paint has been properly completed, he shall invite Electricity North West to make an inspection of the work. Schedule 3 Certificate of Completion, in respect of each coat on each tower must be countersigned by the Engineer before a succeeding coat is started.

Certificates of Completion must be retained on Site by the Contractor and be produced on demand.

Any paint work damaged after application must be reinstated using the full specified paint system.

6.5 Tower Foundation Muff Caps and Adjacent Steelwork

6.5.1 Maintenance and Repair or Replacement of Existing Tower Foundation Caps (or Muffs)

Clear vegetation and soil down to just below joint between muff cap and concrete chimney.

Clean surface of muff using wire brush. After the topcoat on the adjacent tower steelwork has been allowed to dry, apply bitumen paint to muff, cap and first 30 centimetres of adjacent tower steelwork as a weather seal.

6.5.2 Materials

Bituminous paint shall be heavy duty single pack type complying with BS 3416 Type 1, Class A.

6.5.3 Application – Replacement Caps

Where caps are broken off and replaced, the concrete shall be left to cure for 28 days, unless agreed otherwise. All surface laitance, dirt and other contaminants shall be removed. Any cracks or blow holes larger than 2mm across shall be filled with a filler compatible with the paint.

Steelwork shall be wire brushed to remove all loose and flaking paint, dirt and loose rust.

Two coats of the paint shall be applied to the tower leg and cap, from 300mm below ground level to 300mm above the top of the concrete. The paint shall be worked well into the joint between the concrete and steel. The manufacturers' recommendations on over coating times shall be followed.

The ground around the cap shall not be backfilled until after the over coating time has expired.

6.5.4 Application – Maintenance of Existing Caps

The above requirements shall be met, with the following variations:

- Any loose and flaking paint on the concrete shall be removed prior to painting.
- Two coats of paint shall be applied from the ground level to 300mm above the top of the concrete cap.

6.6 Weather Conditions

The Engineer shall decide when weather conditions are unsuitable for painting.

Paint shall not be applied during wet or frosty weather but in certain conditions such as fog or mist where only a damp substrate is formed, the Engineer may authorise work to proceed with the use of moisture tolerant paints.

Paint shall not be applied when either the air or metal temperature is within three degrees Celsius of the dew point or when the air temperature is below five degrees Celsius.

Paint shall not be applied when the relative humidity is above 90%.

6.7 Quality Control

The Contractor shall be entirely responsible for the quality control of the work.

The Engineer may, at his discretion, make such inspections as he considers necessary to check the paint and the paint film thicknesses.

Both the non-destructive digital tester and the magnetic tester will measure total paint thickness, including any previously applied coatings. In the case of the magnetic type, the readings will also include the thickness of galvanising. If therefore, 'dry' gauges of these types are used, it will be necessary to take datum measurements of existing coatings before painting commences. The paint inspection gauge (PIG) will be used for a destructive test when measuring paint thickness.

7 Safety Requirements

7.1 Compliance with the CDM Regulation

The Contractor shall comply fully with all requirements of the latest issue of the CDM regulation.

7.2 Compliance with Health & Safety Requirements

The Contractor shall comply fully with the requirements of the Health and Safety at Work etc Act 1974, and all other relevant statutory health and safety requirements. Should the Contractor refuse or neglect to comply with any of the above requirements the Engineer may, at his sole discretion, terminate the Contract or order the cessation of all or any part of the works until the refusal or failure has been remedied and any costs arising from the termination or cessation shall be borne by the Contractor.

The Engineer shall be at liberty, by notice in writing to the Contractor, to require the removal from Site of any person who shall, in the opinion of the Engineer, conduct himself in a manner detrimental to adequate standards of health and safety in respect of himself or other persons on Site.

7.3 Objectives

The above instructions are imposed so as to give practical effect to the statutory duty placed on both the Contractor and Electricity North West to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all persons on the Site. To this extent, the instructions specify minimum acceptable standards applying generally to any Contract work, and these shall incorporate any further specific instructions, given by the Engineer, to take account of the particular Contract work or activities.

7.4 Action by Contractor's Management

Nominate Site Supervisors with suitable knowledge and experience who must be familiar with all relevant statutory regulations, with the requirements of the Contract and with the above instructions, copies of which should be provided for the Site Supervisors.

Appoint deputies or assistant supervisors as necessary to cover work locations and times not covered by the nominated supervisors and ensure that an appropriate level of supervision continues in operation at all times, notwithstanding holidays, sickness, terminations etc.

Advise the Engineer of the Site Supervisors nominated initially and keep him informed of changes in supervision as they occur and of arrangements for deputies or assistants.

Give the Site Supervisor the authority to take immediate action on any matters of health and safety arising from the work and authorise appropriate delegated powers to deputies or assistants.

Direct Site Supervisors that the above instructions shall be followed implicitly.

Carry out appropriate and regular inspections and checks to ensure that Site Supervisors are in fact carrying out their full responsibilities.

Keep in touch with new regulations and ensure that these are advised to the Site Supervisors for implementation.

Ensure that supervisors and workmen required to enter or work on Electricity North West Sites are adequately trained and instructed to meet the required standards and to ensure their own safety or that of others who may be affected by their activities.

7.5 Action by Contractor's Site Supervisors

Collaborate with the Engineer to ensure full compliance with these instructions and with any detailed safety requirements laid down by him.

Keep the Engineer informed of all changes in Site or working conditions which may affect the health or safety of any persons on Site which may arise as a result of the Contract work or activities. Similarly, the Engineer must be informed of any changes in circumstances which might create a health or safety hazard to the Contractor's employees or others due to the activities of other persons in the vicinity of the Contract works.

Inform his workmen of their duties and responsibilities, and control operations so that all appropriate safeguards are provided for the carrying out of the work.

Provide the Engineer, daily, with a list of personnel employed on the Site, for use in case of an emergency.

7.6 Suspension and Termination of Works

On termination of the Contractor's operations, either temporarily or permanently:

The Site of the works shall be inspected jointly by the Engineer and the Site Supervisor to establish that the affected areas have been left safe.

The clearance section of the 'Permits to Work' and 'Limitations of Access' shall be signed.

7.7 High Voltage Electricity Compounds

Special requirements apply to entry into and work in High Voltage Electricity Compounds. Access to these areas shall be by possession of pass or permit only. All vehicles and mobile plant are subject to special restrictions, and prior permission must be obtained before any such plant is taken into a High Voltage Electricity Compound.

8 Duties of the Site Supervisor

All work to be carried out on Electricity North West apparatus must be carried out in accordance with the Distribution Safety Rules and any relevant Codes of Practice. Special Contract conditions may apply, and these will be explained to the Site Supervisor.

The Site Supervisor in charge of the work shall ensure that they fully understand the work to be carried out and in particular the sequence of work in relation to the earthing schedule.

The Site Supervisor has complete control of the work on Site and shall have in his possession:

- All necessary safety and quality control equipment.
- copy of the earthing schedule.

- A copy of any relevant documents.
- The telephone number or radio contact of a Electricity North West Engineer from who he can get advice on Site if necessary.

The Site Supervisor will ensure that the following rules are strictly adhered to:

- No unauthorised person shall tamper with or move any Additional Earth; bridging earth, trailing earth, running earth, vehicle or scaffold earth.
- No Contractor's man shall work on Site unless supervised by the Employer's representative.
- No Contractor's man shall work in such a way as to infringe the required safety clearances from 'Live' conductors.
- All Contractor's men shall make proper and practical use of safety helmets and safety belts or harnesses.

The Site Supervisor must not leave Site whilst any work covered by the Permit to Work is being carried out. If he has to leave Site for any reason he will require all such work to cease until his return. Alternatively, he shall arrange for another Site Supervisor to be present during his absence.

The Site Supervisor will ensure that the Site is left in a clean and safe condition at any time when work is suspended, e.g. at night, and will also ensure that the following points are complied with by the Contractor, or personally:

- All anti-climbing guards are closed and locked.
- All conductors, ropes etc are clear of roads and paths and any area to which the public has access.
- All scaffolds are secure.
- All farm gates and accesses are closed and secured unless otherwise instructed.
- Towers with wet paint are fenced off where livestock have access.
- Contractors have left Site and have been warned that no work will be recommenced until the Site Supervisor has returned.

9 Duties of the Engineer

The Engineer can stop the work at any time or have removed from Site any person, should he find that the work is not being carried out as prescribed.

10 Documents Referenced

DOCUMENTS REFERENCED	
Health and Safety at Work Act 1974	
Control of Substances Hazardous to Health Regulations 2002	
Manual Handling Operations Regulations 1992	
BS EN ISO 9001:	Quality management systems . Requirements.
BS ISO 10601:	2007 Micaceous iron oxide pigments for paints. Specification and test methods.
BS EN ISO 14001: 2004:	Environmental management systems. Requirements with guidance for use.
BS EN 397:	1995 Industrial safety helmets.
BS EN ISO 1461:	1999 Hot dip galvanized coatings on fabricated iron and Steel articles.
BS 3416:	1991 Bitumen-based coatings for cold application, suitable for use in contact with potable water.
BS 7976 Part 2, 2002:	Pendulum testers. Method of operation.
BS 7976 Part 2, 2002:	Pendulum testers. Method of operation.
ENA TS 98-1:	Surface preparation and paint finishing of new plant and equipment.
CEGB:	pictorial standards for surface preparation of tower steelwork prior to painting.
CP311:	Equipment Approval Policy and Process

**Engineering Recommendation G29 -
Farm Hygiene.**

Distribution Safety Rules.

11 Keywords

Contractor; materials; safety; tower.

Appendix A – Schedule One – General Line Details

1. Circuit(s).
2. Voltage.
3. Towers to be painted.
Type.
Number of towers.
4. Circuit outage dates.
5. Labour.
Supervisory staff.
Number of gangs.
Number of men per gang.
6. Additional drawings/maps/information attached.
7. Tower details.

Schedule One – General line Detains (Continued)

TOWER NUMBER	TOWER TYPE	APPROX. OVERALL HEIGHT (M)	APPROX. SURFACE AREA (M ²)	TENDER PRICE

Schedule One – General line Detains (Continued)

TOWER NUMBER	TOWER TYPE	APPROX. OVERALL HEIGHT (M)	APPROX. SURFACE AREA (M ²)	TENDER PRICE

Appendix B – Schedule Two - Labour and Vehicle Rates

ITEM	Rate per hour					
	STANDARD TIME	WET TIME	ACCESS WITHHELD TIME	OVERTIME		
				MON-FRI	SAT	SUN
SUPERVISOR						
PAINTER						
OTHER (SPECIFY)						
VEHICLES/EQUIPMENT (SPECIFY)						

Appendix C – Schedule Three – Certificate of Completion

Tower no	Tower type	Top circuit colour						Top circuit colour						Base						Comments
		Prep		U/coat		Finish		Prep		U/coat		Finish		Prep		U/coat		Finish		
		Name	Date	Name	Date	Name	Date	Name	Date	Name	Date	Name	Date	Name	Date	Name	Date	Name	Date	

Appendix D – Pictorial Standard for Surface Preparation of Tower Steelwork Prior to Painting

Galvanized – New

Figure 1 (a) – Original Condition

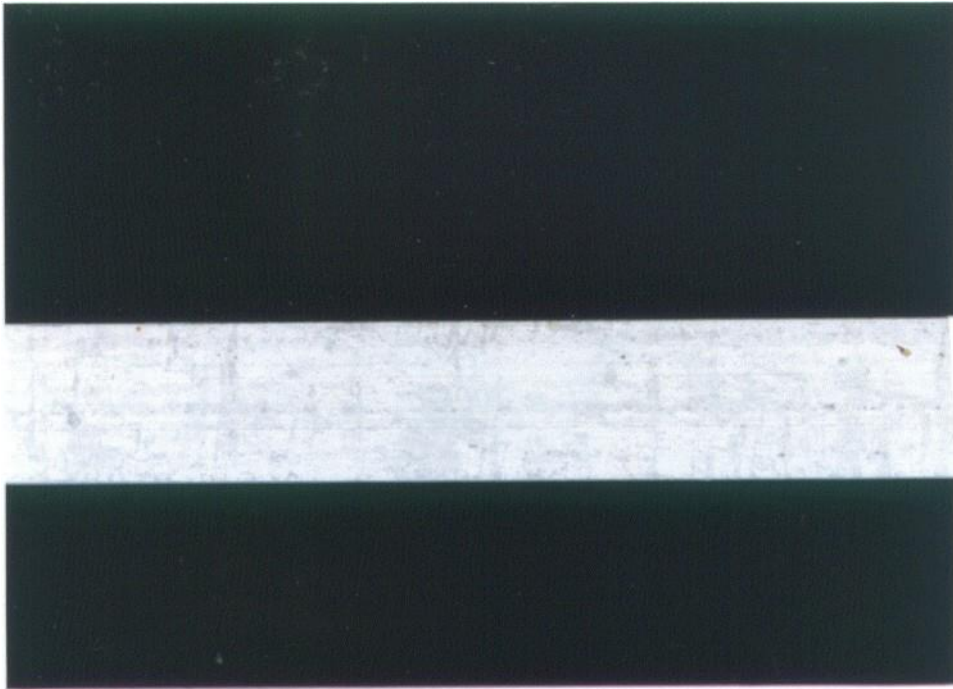
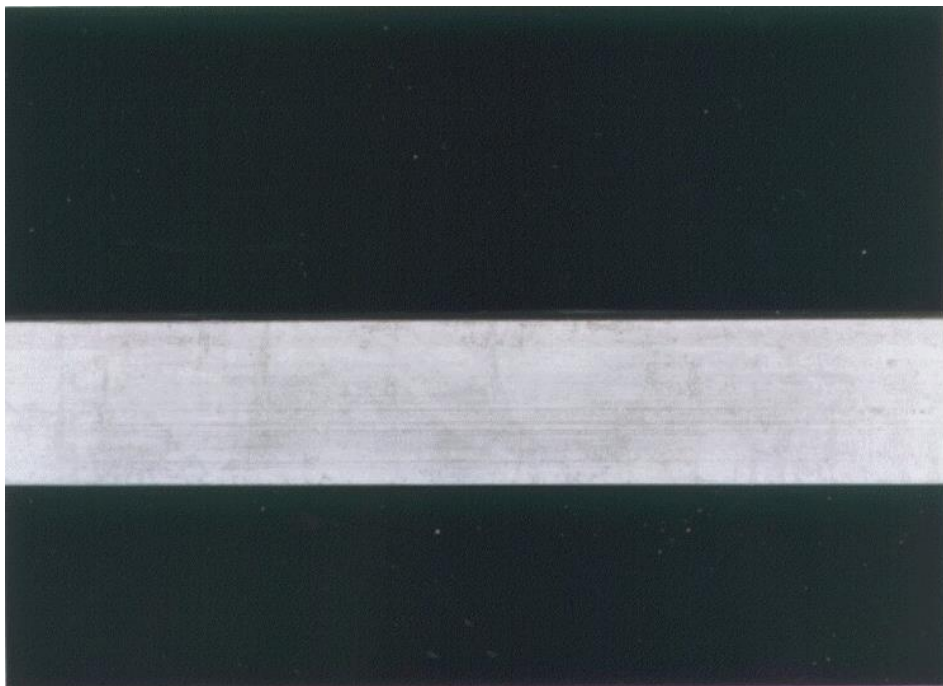


Figure 1 (b) – Prepared Condition



Galvanized - Slightly Weathered

Figure 2 (a) – Original Condition

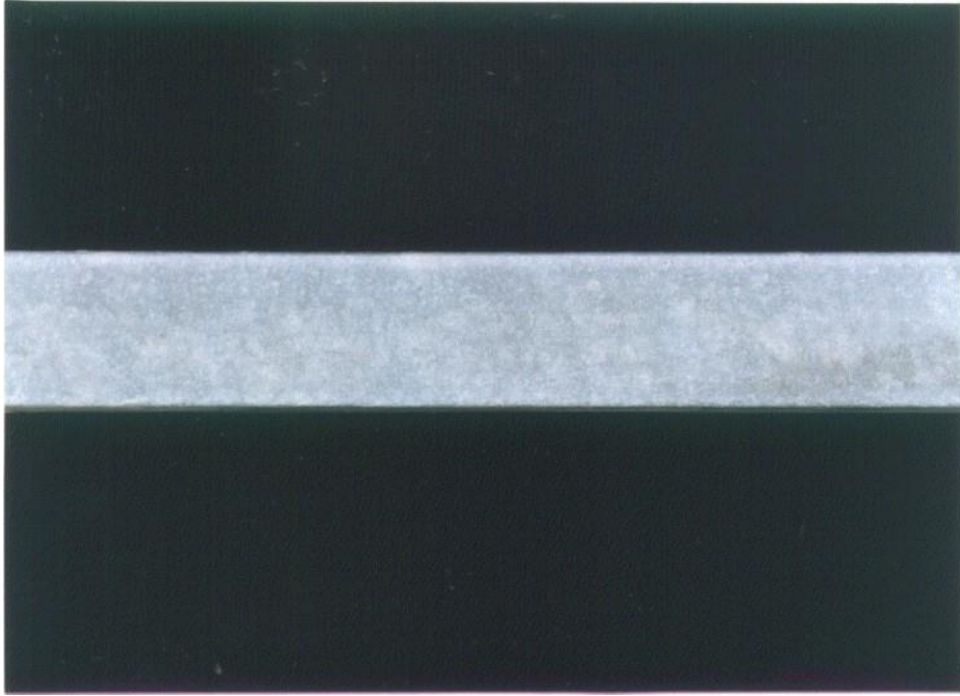
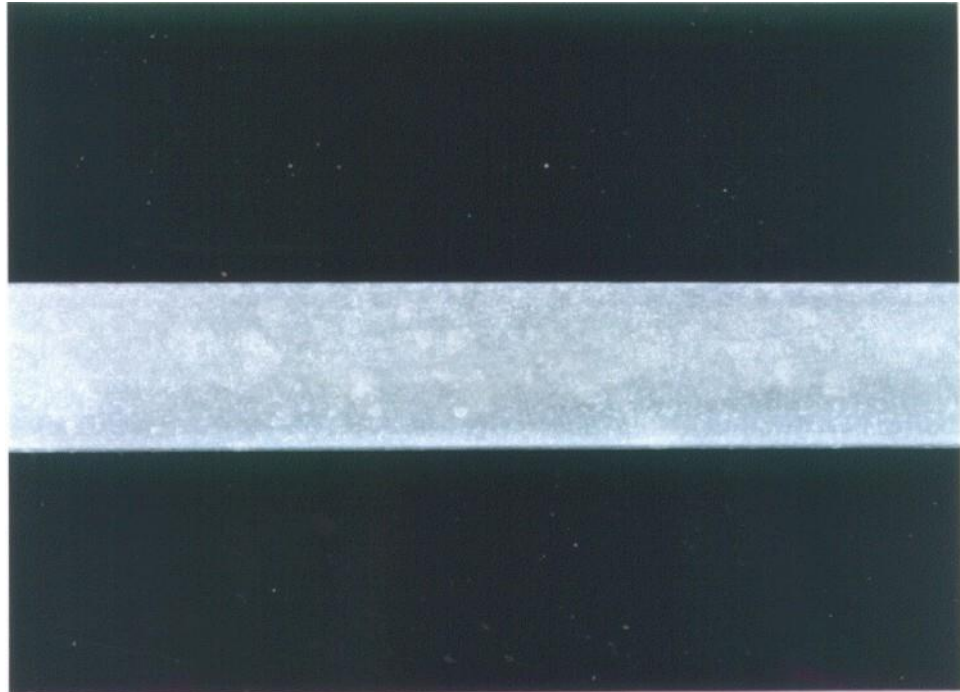


Figure 2 (b) – Prepared Condition



Galvanized – Weathered

Figure 3 (a) – Original Condition

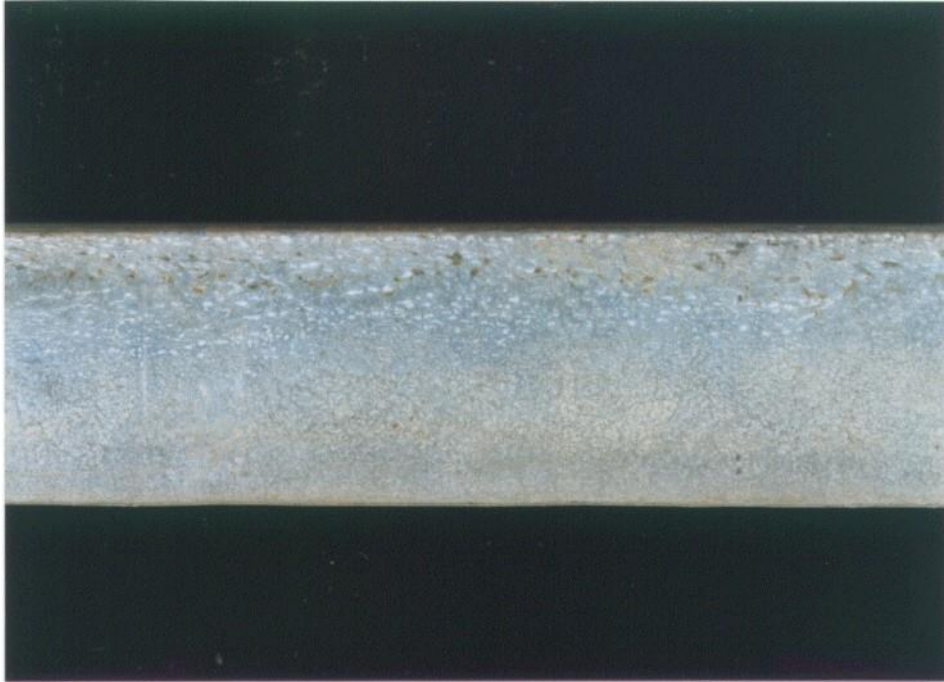
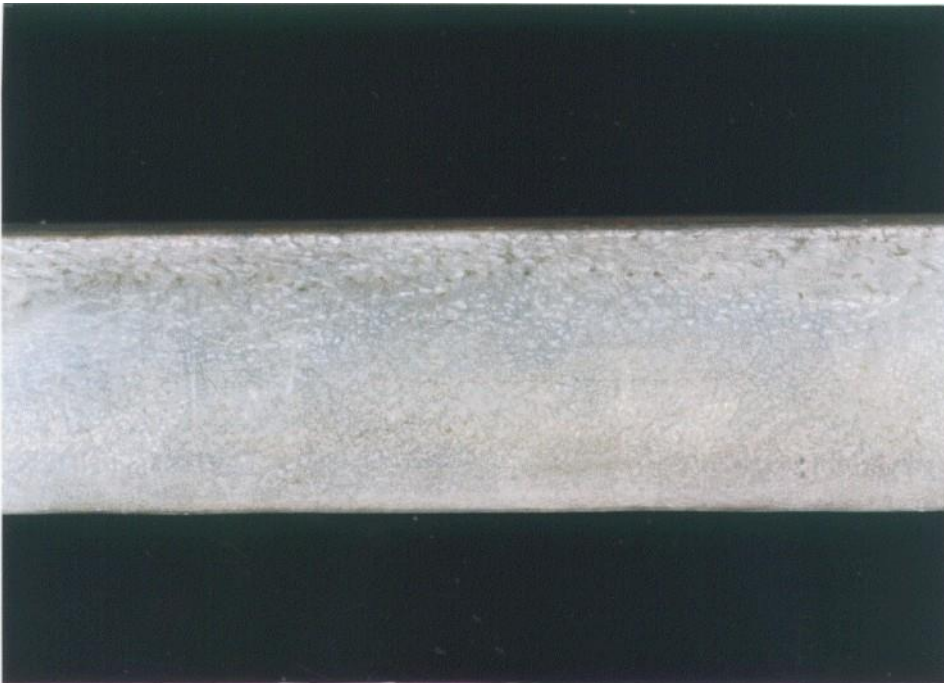


Figure 3 (b) – Prepared Condition

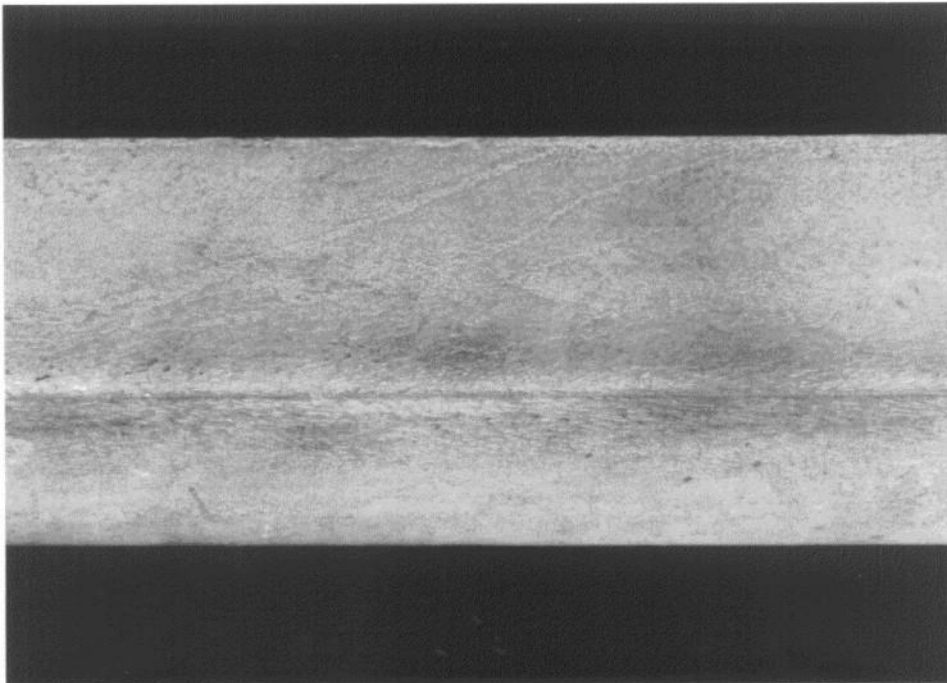


Galvanized - Slight Rust Staining

Figure 4 (a) – Original Condition



Figure 4 (b) – Prepared Condition



Galvanized - Some Rust Spots

Figure 5 (a) – Original Condition

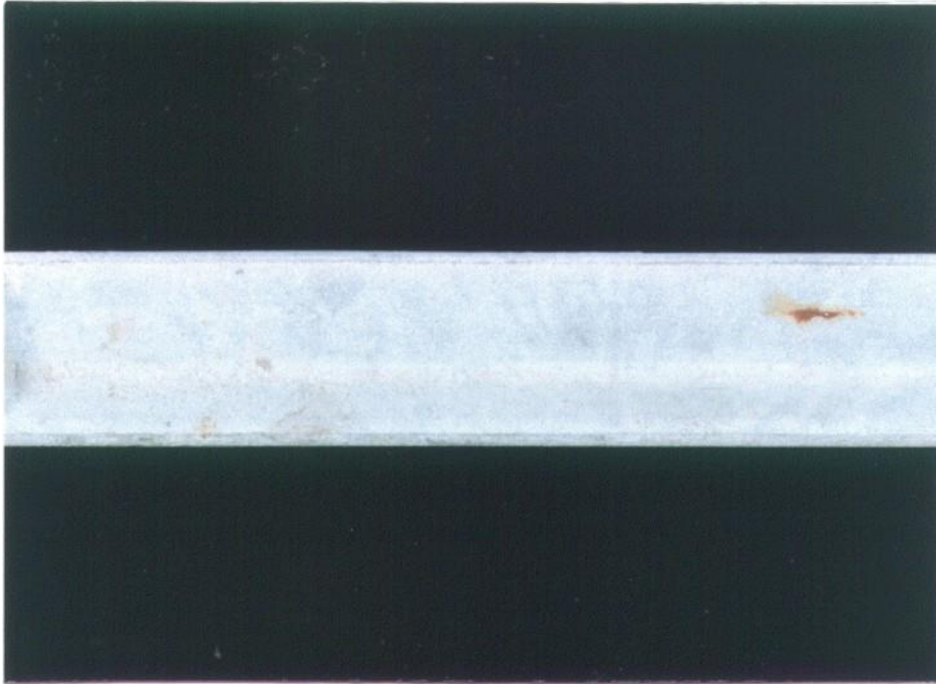
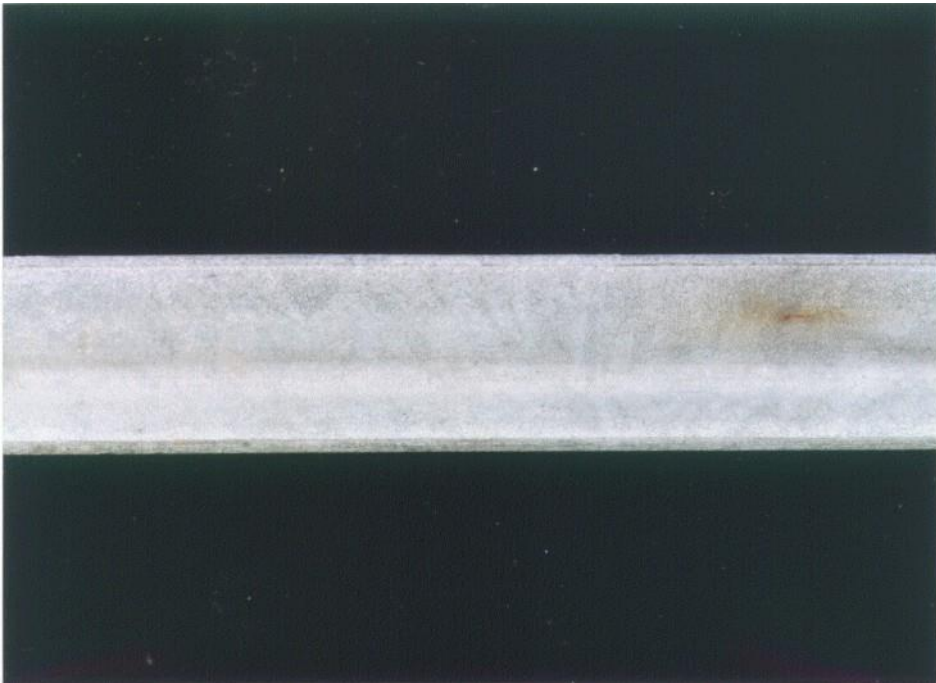


Figure 5 (b) – Prepared Condition

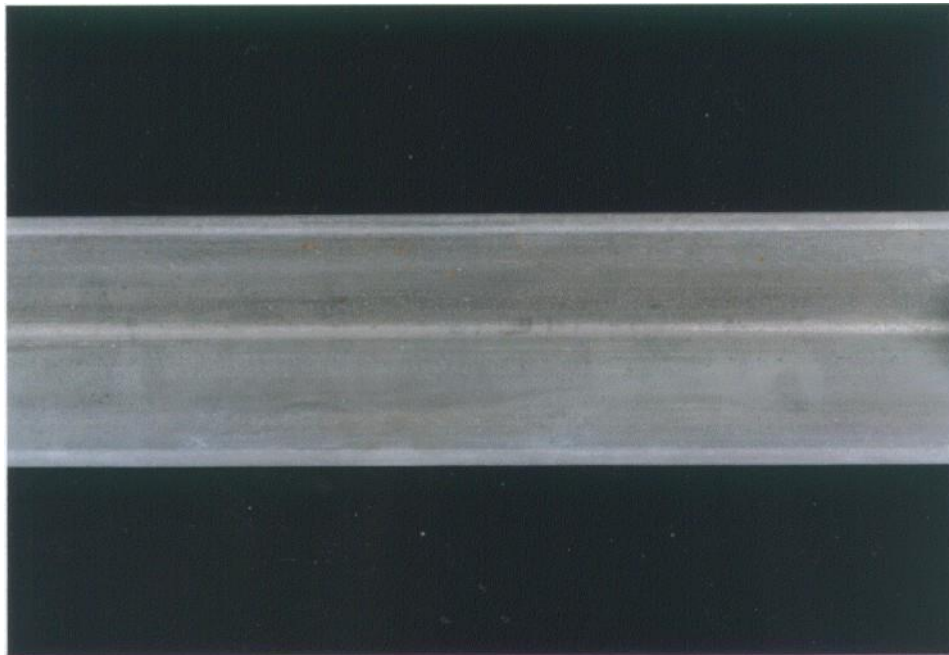


Galvanized - Some Rust Spots

Figure 6 (a) – Original Condition



Figure 6 (b) – Prepared Condition

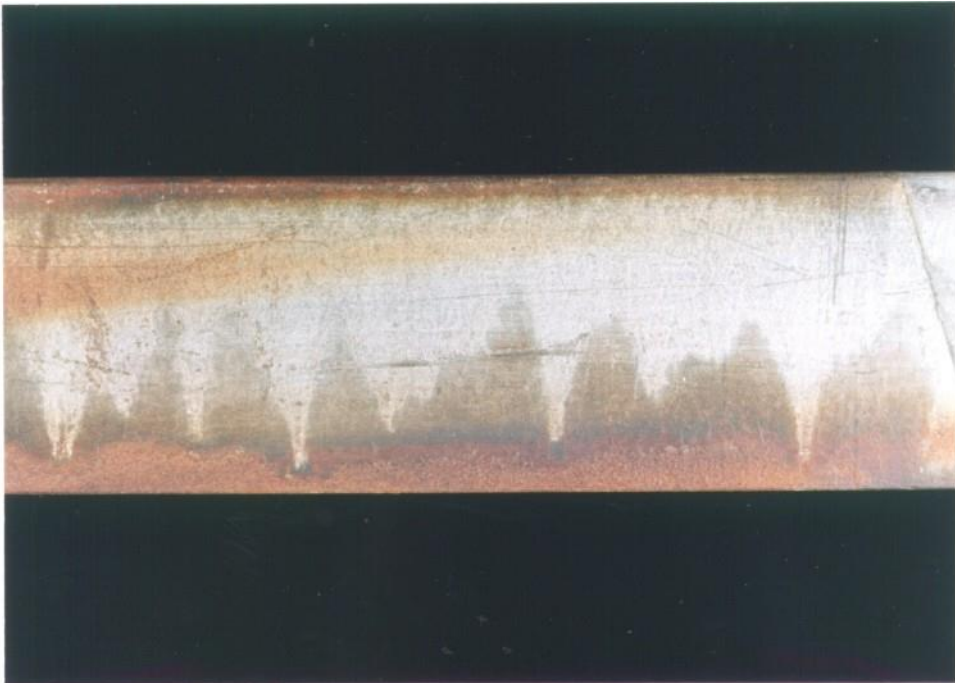


Galvanized - Rust Breakthrough, Some Rust Pitting and Staining

Figure 7 (a) – Original Condition



Figure 7 (b) – Prepared Condition



Galvanized - Rust Breakthrough, Some Rust Pitting and Staining

Figure 8 (a) – Original Condition



Figure 8 (b) – Prepared Condition



Galvanized - No Zinc Left, Pitted Rust Over All Surface

Figure 9 (a) – Original Condition



Figure 9 (b) – Prepared Condition



Previously Painted - Good Condition

Figure 10 (a) – Original Condition

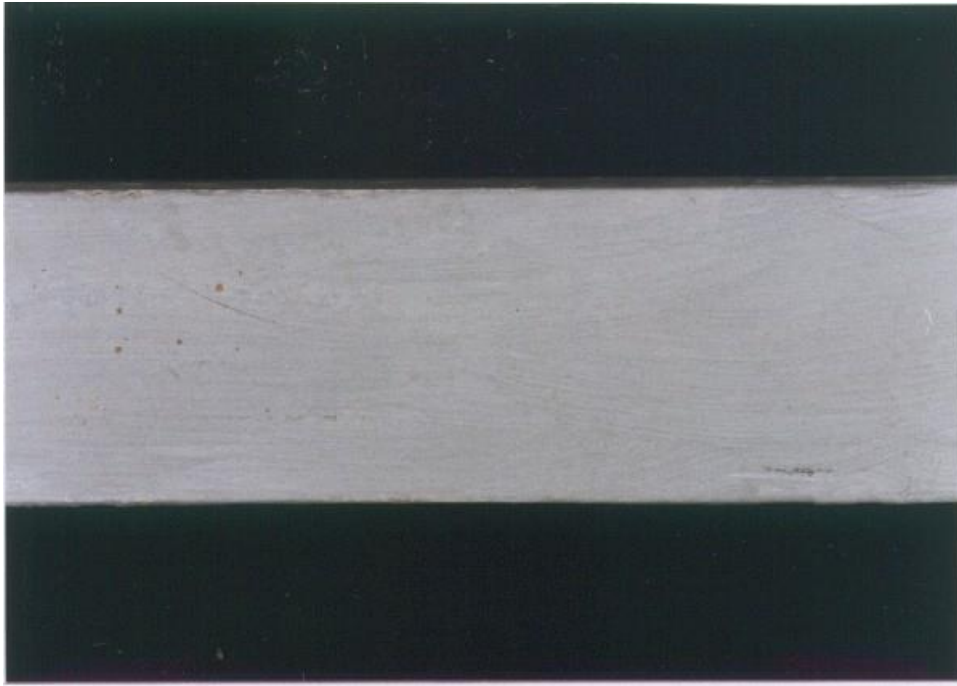
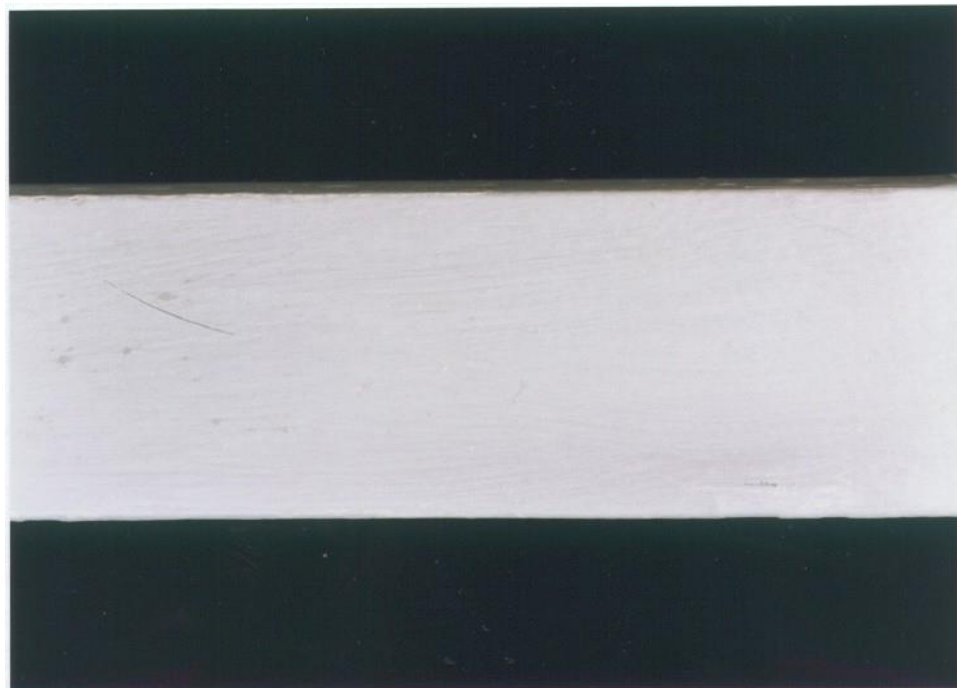


Figure 10 (b) – Prepared Condition



Previously Painted - Eroded Top Coat

Figure 11 (a) – Original Condition

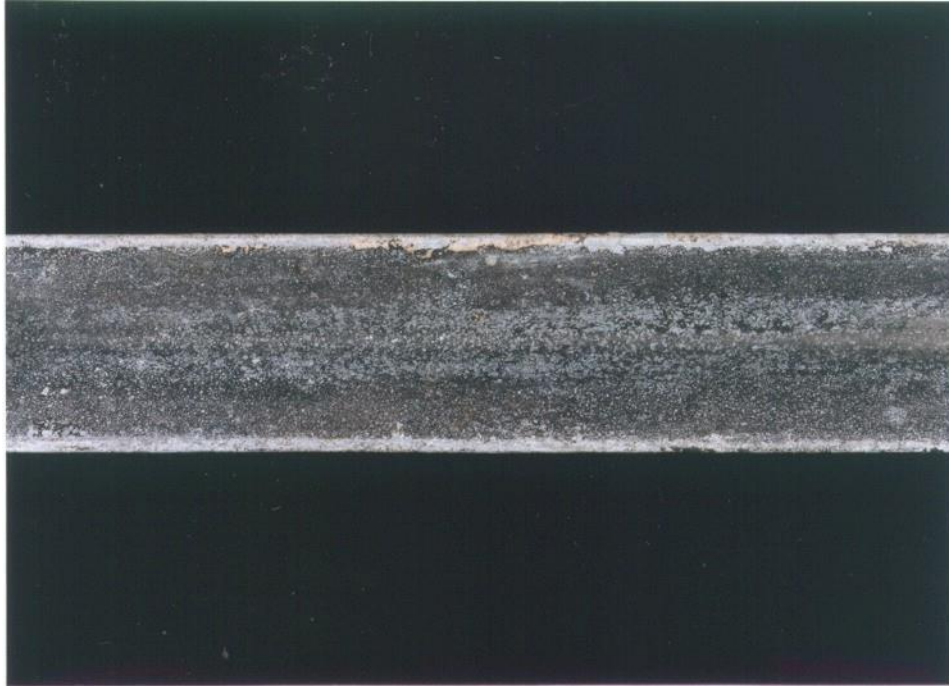
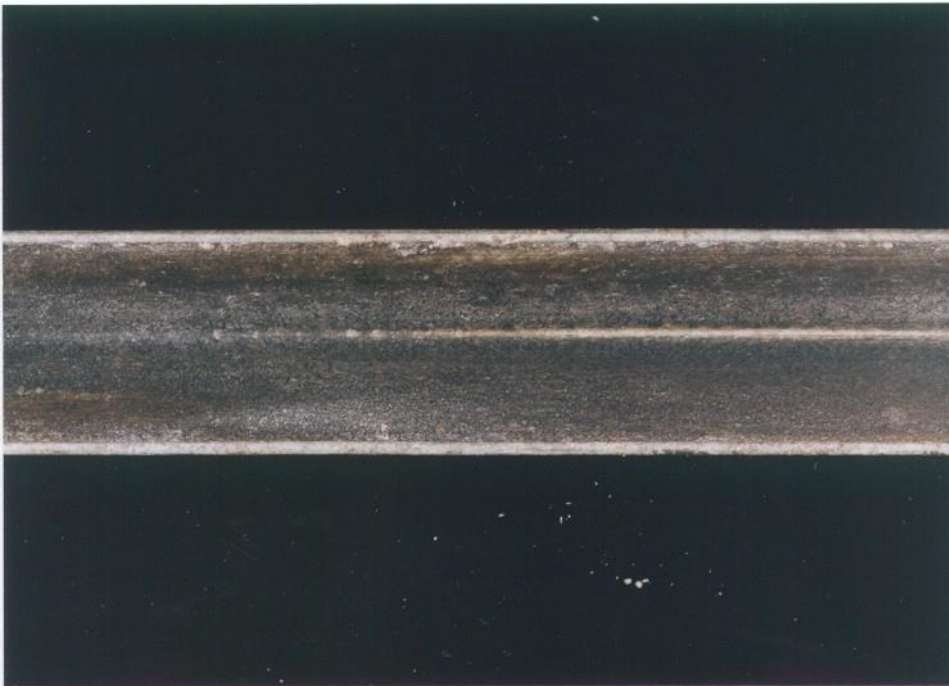


Figure 11 (b) – Prepared Condition



Previously Painted - Zinc Salts Breaking Through Coating

Figure 12 (a) – Original Condition

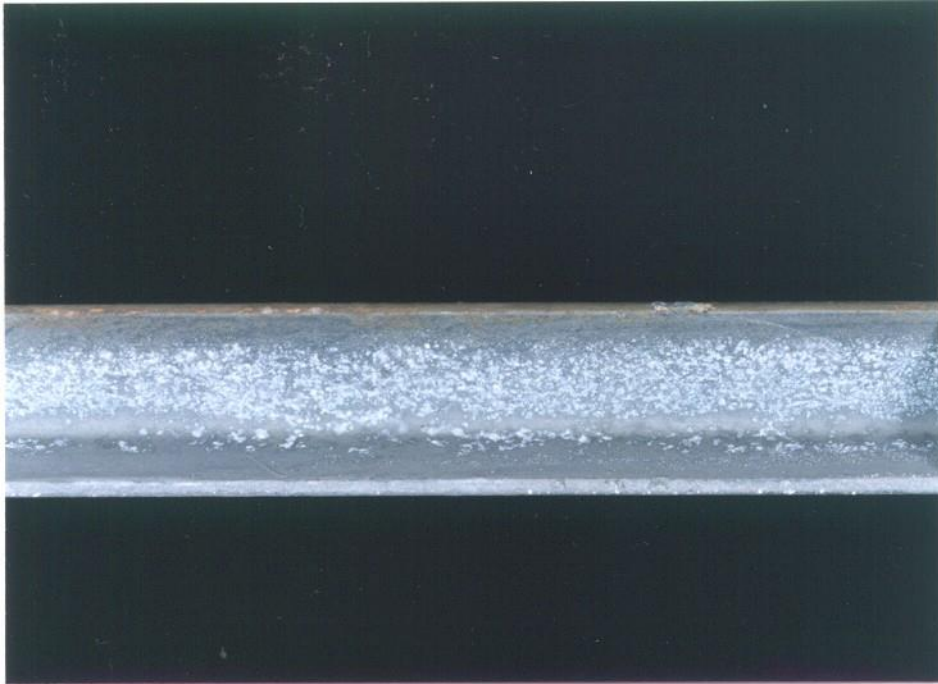
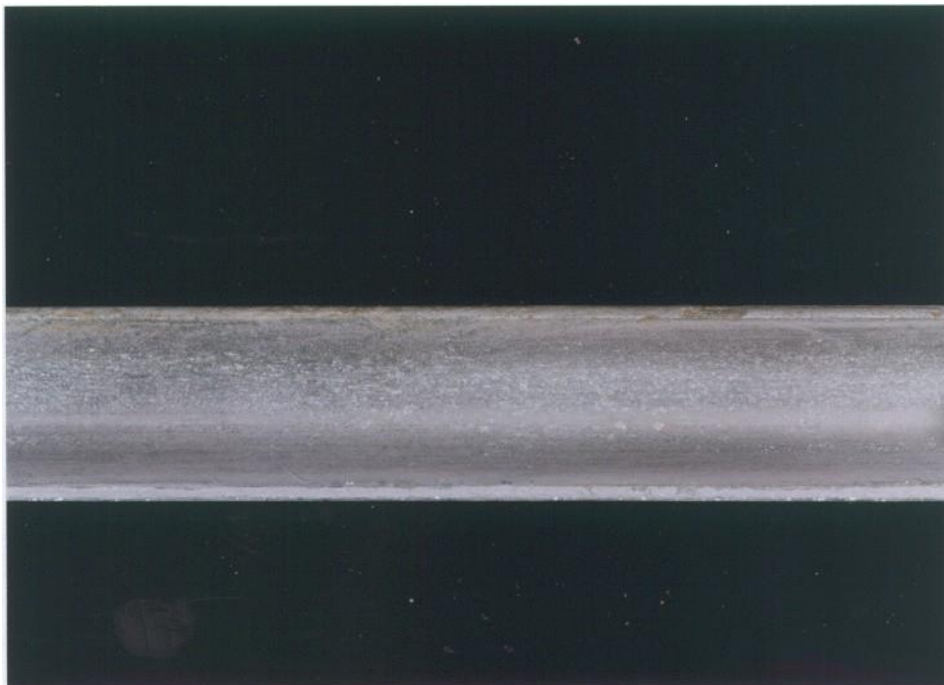


Figure 12 (b) – Prepared Condition



Previously Painted - Paint Damaged (Chipped) On Edge

Figure 13 (a) – Original Condition

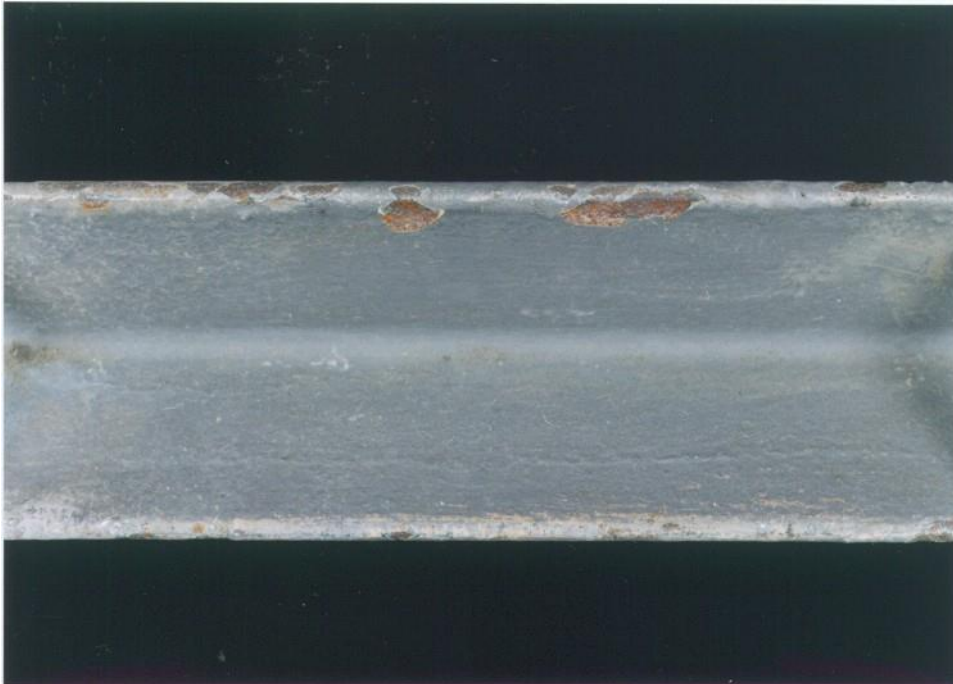
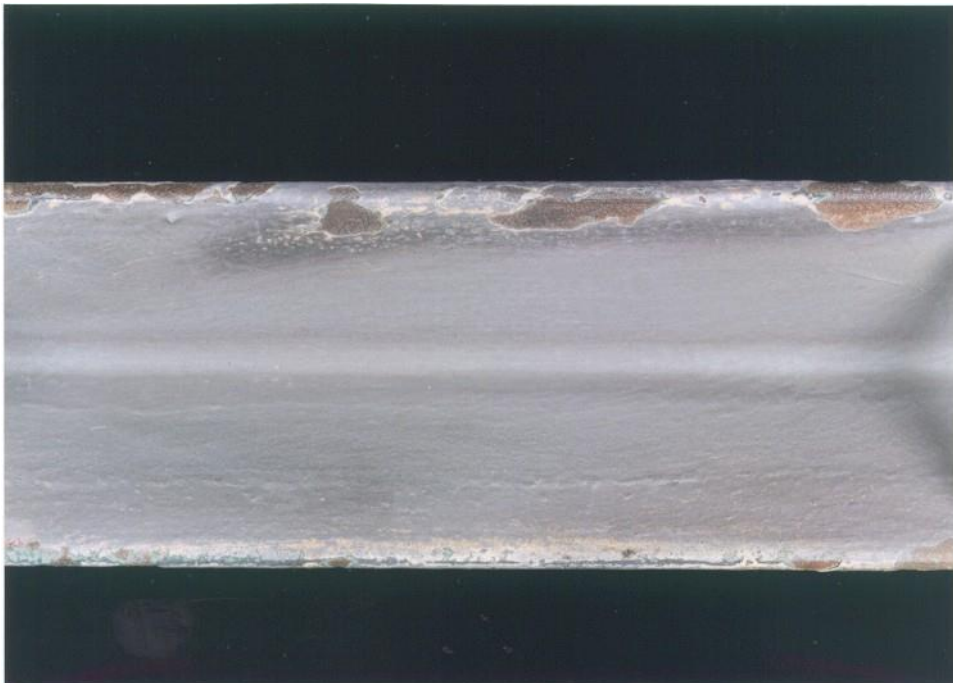


Figure 13 (b) – Prepared Condition

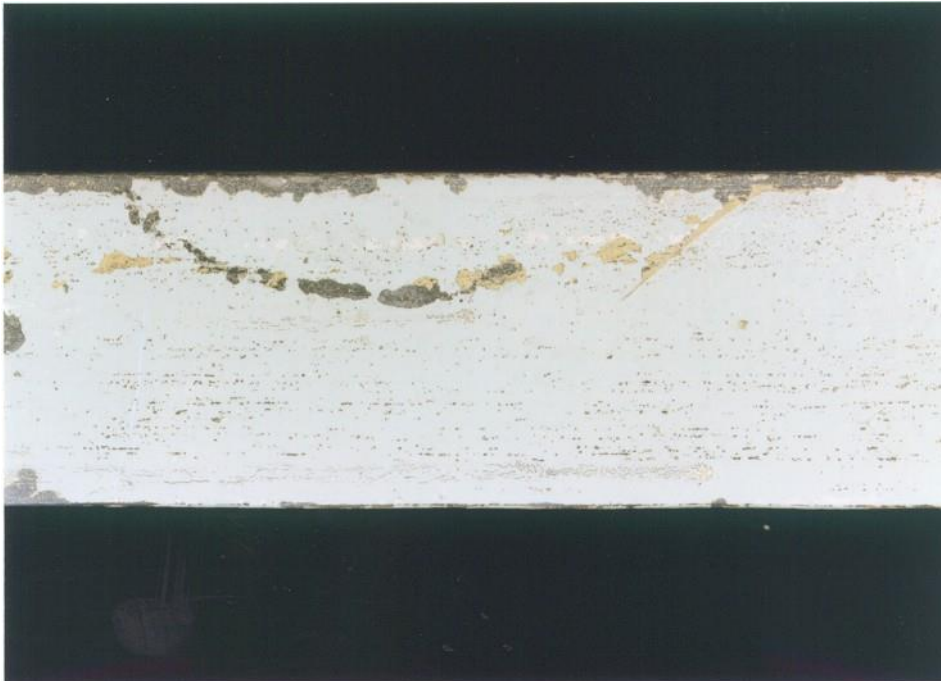


Previously Painted - Paint Damaged (Chipped) On Edge and Face

Figure 14 (a) – Original Condition



Figure 14 (b) – Prepared Condition



Previously Painted - Paint Wear and Breakdown At Edge

Figure 15 (a) – Original Condition

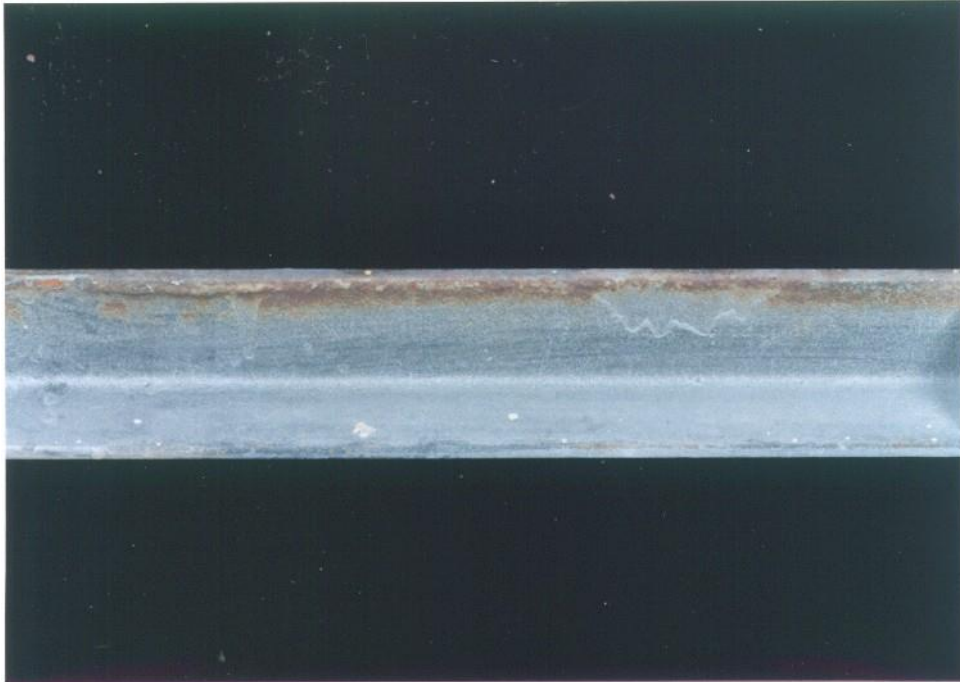
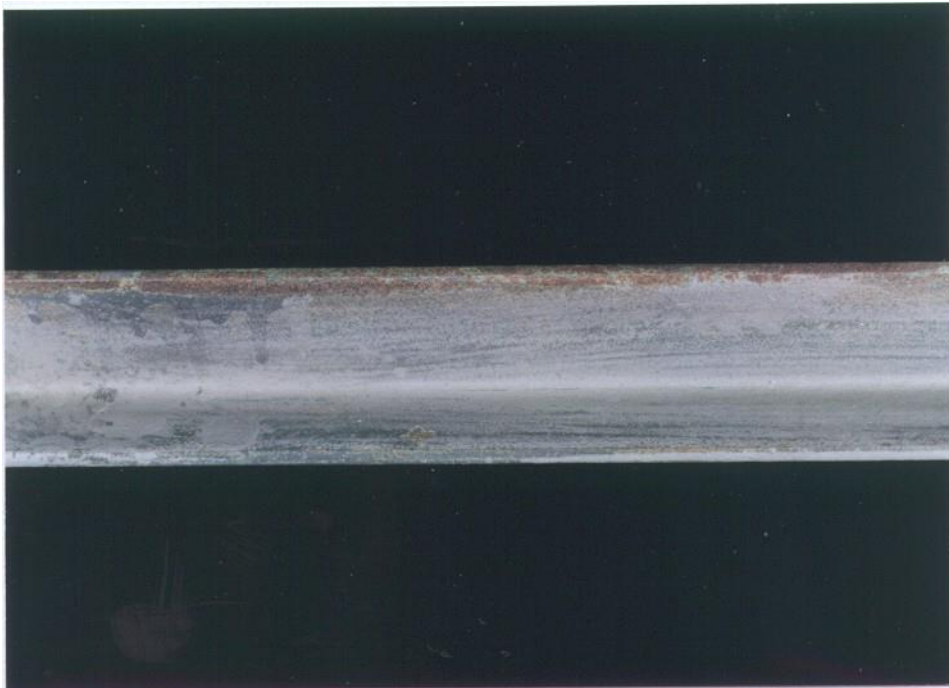


Figure 15 (b) – Prepared Condition

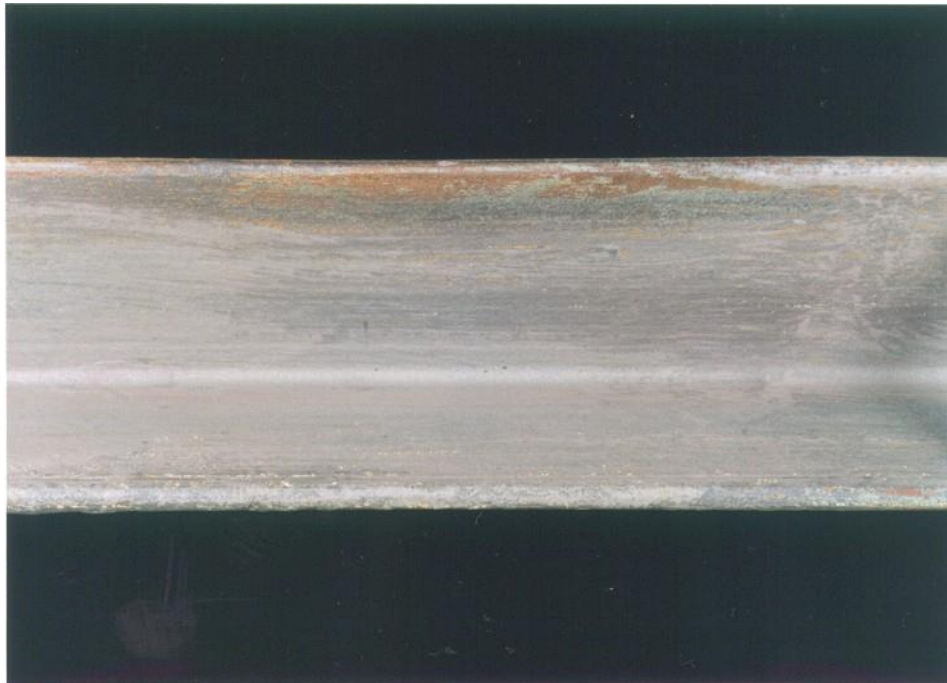


Previously Painted - Paint Wear and Breakdown at Edge - Slight Pitting

Figure 16 (a) – Original Condition



Figure 16 (b) – Prepared Condition

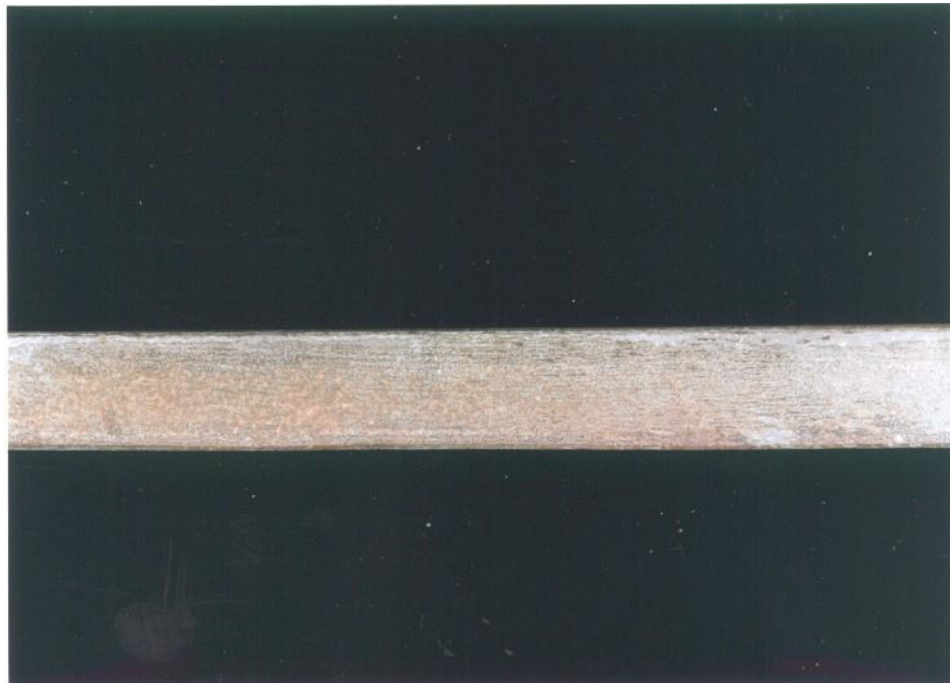


Previously Painted: Rust Breakthrough - Slight Pitting

Figure 17 (a) – Original Condition



Figure 17 (b) – Prepared Condition



Previously Painted - Rust Breakthrough - Pitted Rust

Figure 18 (a) – Original Condition



Figure 18 (b) – Prepared Condition



Previously Painted - Rust Breakthrough - Pitted Rust

Figure 19 (a) – Original Condition

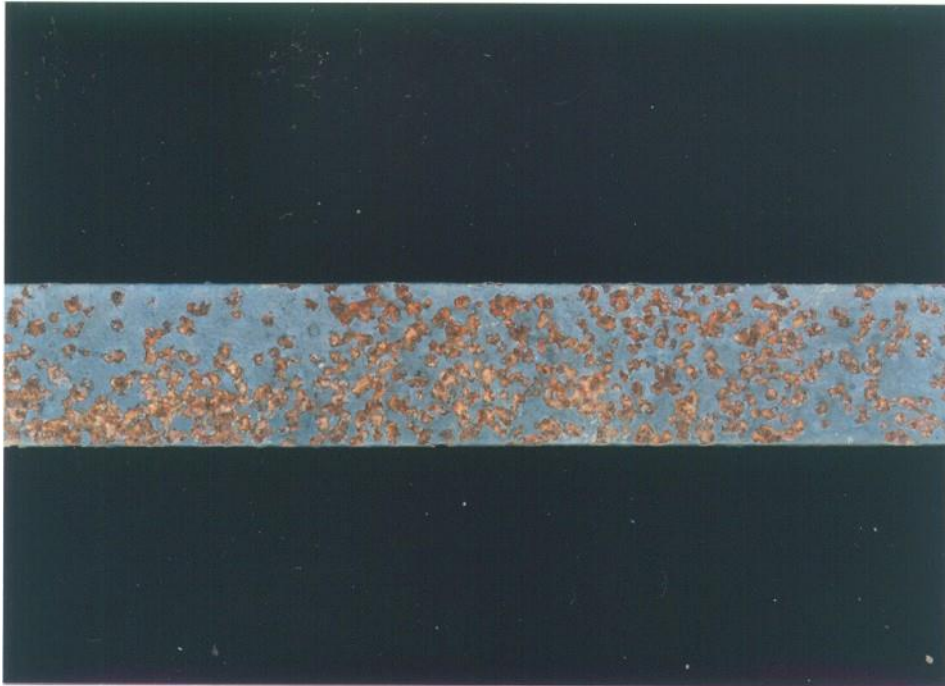
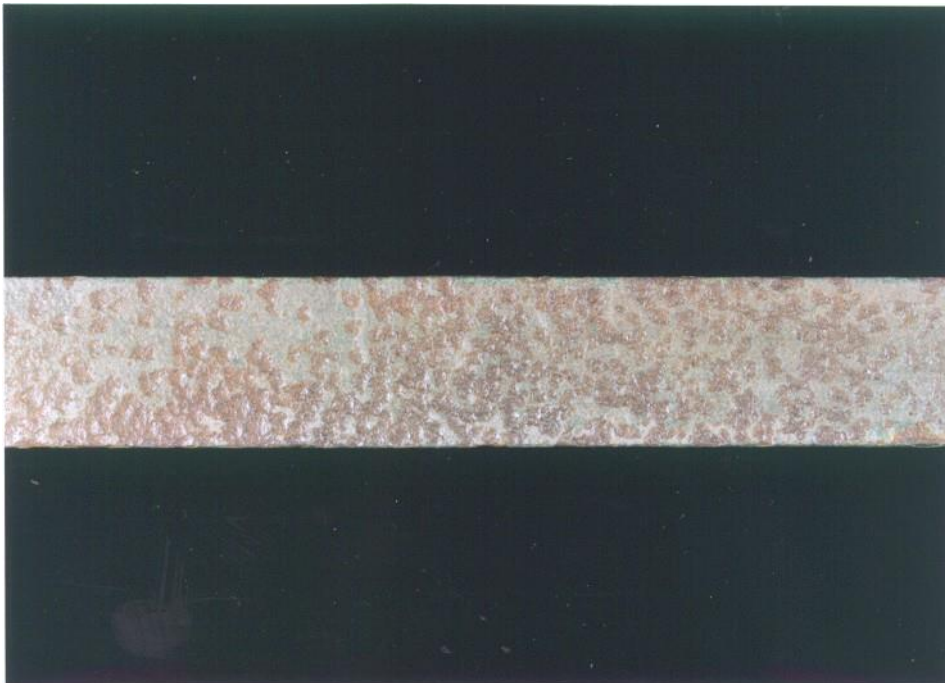


Figure 19 (b) – Prepared Condition



Previously Painted - Rust Breakthrough - Pitted Rust

Figure 20 (a) – Original Condition

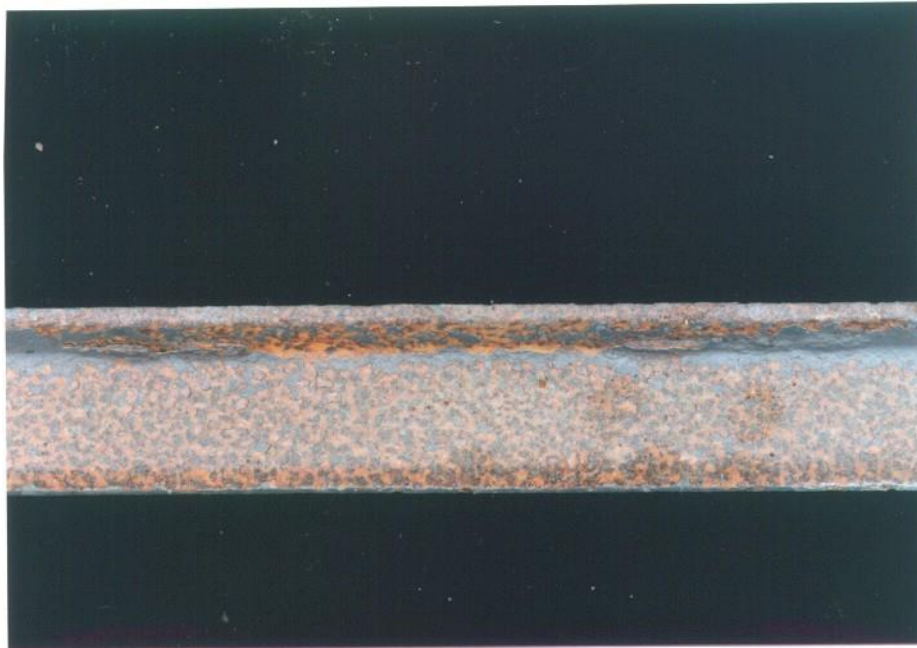
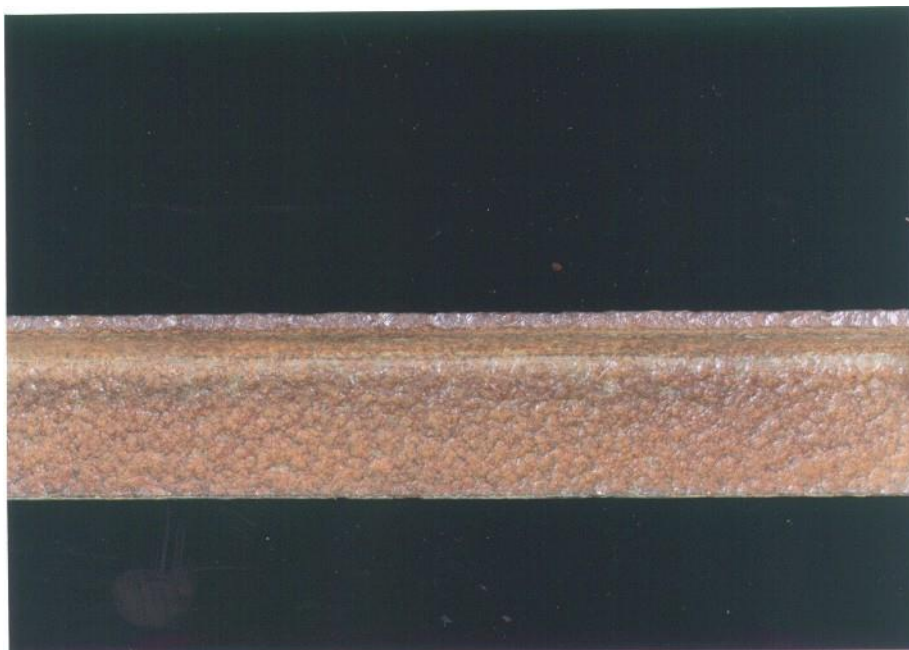


Figure 20 (b) – Prepared Condition

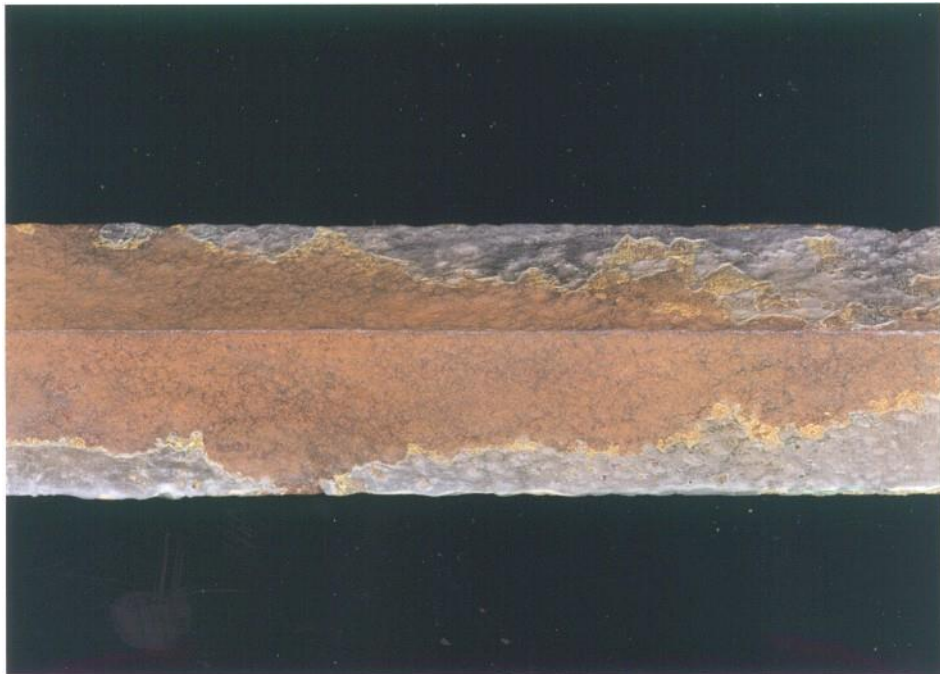


Previously Painted - Embrittled Paint, Heavy Pitting and Laminated Rust

Figure 21 (a) – Original Condition



Figure 21 (b) – Prepared Condition



Previously Painted - Embrittled Paint, Heavy Pitting and Laminated Rust

Figure 22 (a) – Original Condition



Figure 22 (b) – Prepared Condition



Appendix E – Approved Paints

E1 General Specification for the Paints

All paints supplied for use on overhead line towers must meet the following general requirements.

- Within the normal constraints of good practice all paints should be formulated with the lowest toxicity materials and where possible with high flash point solvents.
- All paints must be suitable for application over a wide variety of substrates including weathered galvanising, rusty steel, aged paint or any combination of these.
- Each coat of a multi-coat paint system must be compatible with all preceding coats and, to avoid any dispute, should be supplied by the same manufacturer.
- All materials must have a shelf life in excess of 12 months. No hard settlement will be acceptable.

All materials used on overhead line towers must provide a slip resistant surface suitable for climbing on. The TRRL pendulum test, with RAPRA Four S rubber as a slider, has been identified as a suitable practical objective test for the assessment of slip resistance of painted surfaces. All coats must have a minimum category of 'Low Potential for Slip' according to the limits set-by the UK Slip Resistance Group, ie a measurement of 35 or above under both dry and wet (distilled water) conditions. Measurements to be carried out in accordance with:

- The Measurement of Floor Slip Resistance. Guidelines Recommended by the UK Slip Resistance Group, Issue 2, June 2000.
- BS 7976 Part 2, 2002. Pendulum testers - Part 2: Method of Operation.
- Rheological data in the form of a band of acceptable values of viscosity measured using a Rion VT04 Viscometer (No. 1 Rotor, No. 1 cup) from 5°C to 30°C must be available from the paint manufacturer and shall be provided with materials tendered to Electricity North West for Approval on request.

E2 Two Coat ALKYD System Primer

This primer may be used over galvanized steel in various stages of deterioration. It must also be suitable for use over previously painted surfaces from which loose rust and paint has been removed by chipping, scraping and wire brushing.

E2.1 Composition Requirements

Specific Gravity	1.30-1.40
Pigment content	45-50% w/w
% Zinc phosphate in total pigmentation	40-45% w/w
% lamellar micaceous iron oxide* in total pigmentation	5% w/w
Volatile content	White spirit
Volume solids	48%minimum
Medium	Urethane alkyd 20-25% w/w

NOTE: Micaceous Iron Oxide referred to in this Specification must comply with ISO 10601 (BS91/57463), Type 2, Grade 1 but with a minimum thin flake content of 70%.

E2.2 Other Requirements

- Colour 08 C 35 - 08 E 51 (buff yellow) Matt finish
- Drying time Surface dry at 20°C 4 hours maximum
Hard dry at 20°C 16 hours maximum
- Wet edge time 20°C 10-15 minutes

E2.3 Application Properties

- To be capable of application by brush direct from the can over the temperature range 5-30°C.
- The paint must be capable of application to give a dry film thickness of 50-75 microns.
- **Viscosity** ICICone and Plate (20°C) 3.0-4.0 poise
RION VT04 (No 1 Rotor 20°C) 25-35 poise
RION VT04 (No 1 Rotor 10°C) 50 poise maximum

- **Hiding power** Complete obscuration of a Merest Chart at 50 micron dft.
- Sag resistance

When applied on vertical surfaces the paint must be sag resistant at 175 microns wet film thickness.

- Moisture displacement

Under a normal brushing action the paint should be capable of displacing moisture present in the form of uniformly dispersed droplets which have not coalesced from the substrate without detrimental effect on the dried film.

E3 Two Coat ALKYD System Finish

This material is to be suitable for application over suitably primed surfaces

E3.1 Composition Requirements

Specific Gravity	1.55-1.70
Pigment content	55-60% w/w
% lamellar micaceous iron oxide* in total pigmentation	75% minimum w/w
Volatile content	White spirit
Volume solids	48-52%

Medium

Urethane alkyd 17-20% w/w

NOTE: Micaceous Iron Oxide referred to in this Specification must comply with ISO 10601 (BS91/57463), Type 2, Grade 1 but with a minimum thin flake content of 70%.

E3.2 Other Requirements

- Colour Tower grey (BS4800 00 A-09)
- Drying time Surface dry at 20°C 4 hours maximum
Hard dry at 20°C 16 hours maximum
- Wet edge time 20°C 10-15 minutes

E3.3 Application Properties

- To be capable of application by brush direct from the can over the temperature range 5-30°C.
- The paint must be capable of application to give a dry film thickness of 75-100 microns.

- **Viscosity**

ICI Cone and Plate (20°C)	3.5-4.5 poise
RION VT04 (No 1 Rotor 20°C)	35-45 poise
RION VT04 (No 1 Rotor 10°C)	60 poise maximum

- Sag resistance

When applied on vertical surfaces the paint must be sag resistant at 225 microns wet film thickness.

- Moisture displacement

Under a normal brushing action the paint should be capable of displacing moisture present in the form of uniformly dispersed droplets which have not coalesced from the substrate without detrimental effect on the dried film.

E4 Suppliers of Two Coat Urethane ALKYD Paints

SOLVENT BASED PAINT SYSTEMS

Axalta Coating Systems
(Huthwaite UK) Ltd.

Blackwell Road.

Sutton in Ashfield.

Huthwaite.

NG17 2RG.

Tel Number: 01623 510585.

Contact for technical advice

Julian Wyman (Mobile: 07740 40105) or Jonathan Bunce.

Paint reference numbers

Primer
Top Coat

SP01-5644
SP36-4149

Protega Coatings
(Note: formerly Tikkurila)
Kelvin Way
West Bromwich
West Midlands B70 7JZ

Tel: 0121 525 5665
Fax: 0121 525 2787

Contact for technical advice

Mr Brian Brazier
(mobile 07836 740066)

Paint reference numbers

Primer
Top Coat

Temaprime MPH417
Temalac AM212

Polytoll Ltd
Neptune Way
Roman Road Industrial Estate
Blackburn
BB1 2BT

Tel: 01254 503756
Fax: 01254 247891

Contact for technical advice

Mr Andrew Miller
(Director)
Mobile: 07771 973662

Paint reference numbers

Primer
Top Coat

PC 5WE 301 (IN7AT201)
PC 5WM 830 (IN7CT101)

Pronto Industrial Paints Ltd
Stainsby Close
Holmewood Ind Estate
Chesterfield
S42 5UG

Tel: 01246 857777
Fax:

Contact for technical advice

Mr David Beckford (Director)
Mr Steve Turvey (Paint
Specialist)

Paint reference numbers

Primer
Top Coat

450:126:4300 (LR 128-013)
450:136:4300 (LR 128-004)

Protective Polymers Limited

Lydford Road
Meadow Lane Industrial Estate
Alfreton
Derby
DE55 7RQ

Telephone: 01623 441106
Email: sales@protective polymers.com

Contact for Technical Advice

Mr Tim Blythen. (Mobile:07747 539709)

Paint Reference Numbers

Primer: Urethane Alkyd Buff Primer (PPT004)
Top Coat: Urethane Alkyd Grey MIO (PPT006)

Water Based Paint System (NORUST)

Polytoll Ltd
Neptune Way
Roman Road Industrial Estate
Blackburn
BB1 2BT

Tel: 01254 503756

Contact for technical advice

Mr Andrew Miller

Appendix F – Approved Measuring Instruments

TYPE OF INSTRUMENT	SUPPLIER
<p>Nstokeon-destructive digital coating thickness gauge for any film measurements with memory statistics & print-cut options</p> <p>Gauge Ref: A256F - T2A Printer Ref: X2567420C</p>	<p>Elcometer Instruments Edge Lane Droylsden Manchester</p> <p>M35 6BU</p> <p>Tel: 0161 370 7611</p>
<p>Destructive coating inspection gauge for dry film measurements</p> <p>Gauge Ref: Al21 Cutter Ref: T1210006B 0 - 2mm T1210006C 0 - 0.8mm T1210006D 0 - 0.15mm</p>	<p>As above</p>
<p>Non-destructive magnetic coating thickness gauge for dry film measurements</p> <p>Gauge Ref: A111ABM</p>	<p>As above</p>
<p>Wet film thickness gauge in stainless steel</p> <p>Gauge Ref: B11529451</p>	<p>As above</p>
<p>Wet film thickness gauge in disposable plastic</p> <p>Gauge Ref: 154</p>	<p>As above</p>
<p>Whirling hygrometer with slide rule</p> <p>Ref: Model 116</p>	<p>As above</p>
<p>Temperature gauge with magnetic fixing</p> <p>Range: -30C to +50C</p>	<p>As above</p>

Appendix G – Conformance Declaration

SECTION-BY-SECTION CONFORMANCE WITH SPECIFICATION

The Tenderer shall declare conformance or otherwise for each product/service or range of products/services, section-by-section, using the following Conformance Declaration Codes.

Conformance Declaration Codes:

N/A =	Clause is not applicable/appropriate to the product/service.
C1 =	The product/service conforms fully with the requirements of this clause.
C2 =	The product/service conforms partially with the requirements of this clause.
C3 =	The product/service does not conform to the requirements of this clause.
C4 =	The product/service does not currently conform to the requirements of this clause, but the manufacturer proposes to modify and test the product in order to conform.

Manufacturer:

Product/Service Description:

Product/Service Reference:

Name:

Company:

Signature:

SECTION-BY-SECTION CONFORMANCE

Section	Section Topic	Conformance Declaration Code	Remarks * (must be completed if code is not C1)
Error! Reference source not found.	Product not to be Changed		
Error! Reference source not found.	Electricity North West Technical Approval		
Error! Reference source not found.	Quality Assurance		
Error! Reference source not found.	Formulation		
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* Applicable specifications shall be stated in the Remarks column where alternatives are quoted within a section. The Remarks column shall also be used to indicate cases where the products or services exceed the quoted specifications.

Additional Notes:

Appendix H – Chemical Labels

Key points

- ▶ Look out for new labels and safety data sheets.
- ▶ Train employees to understand and recognise the new label information.
- ▶ Check that your use of the substance or mixture is covered on the SDS and is not advised against.
- ▶ Follow the advice provided on the new labels and in safety data sheets.
- ▶ Check whether the classification has changed.
- ▶ Evaluate the risks to workers and update your workplace risk assessments if necessary.
- ▶ If you are an employer, communicate these changes to your employees.
- ▶ If you have any questions about the new label or safety data sheet, speak to your supplier.

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More information

The European Chemicals Agency (ECHA) website (<http://echa.europa.eu>) provides detailed guidance on the CLP regulation and the REACH regulation.

A list of Member States' national CLP helpdesks can also be found on the ECHA website.

Information on legislation to protect workers from chemicals can be found at:
http://europa.eu/legislation_summaries/employment_and_social_policy/health_hygiene_safety_at_work/index_en.htm

Information and publications on health and safety at work can be found at:
<http://ec.europa.eu/social/healthandsafety>

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Chemical labels are changing – How will this affect you?



Chemical products are used every day at work, for example cleaning products, lubricants, paints and glues. Labels on these products tell us useful information about:

- ▶ the type of chemicals the product contains;
- ▶ what hazards are associated with the product;
- ▶ how to use the chemical safely.

Over the next few years, new legislation, known as the CLP regulation (classification, labelling and packaging of substances and mixtures), will change the way chemical products are classified to identify hazards and how this information is communicated on labels and safety data sheets (SDS).

The CLP regulation implements the United Nations' Globally Harmonised System of Classification and Labelling of Chemicals (GHS) in the EU. GHS is being adopted worldwide to improve and harmonise worker and consumer safety and facilitate global trade.

Some of the differences you may see are:

- ▶ classification criteria and classification methods are different for some types of hazard, so some chemical products may be classified more or less severely;
- ▶ new hazard pictograms will replace danger symbols on labels;
- ▶ new wording in hazard (H) and precautionary (P) statements will replace risk (R) and safety (S) phrases;
- ▶ classifications for both the CLP and the previous legislation on SDS, and label information moved from Section 15 to Section 2 of the SDS.

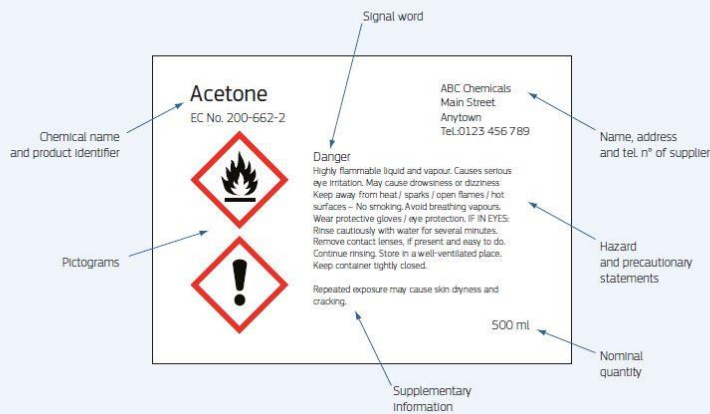
Other changes to SDS are also being made as a result of the REACH (registration, evaluation, authorisation and restriction of chemical substances) regulation.

You should look out for these changes, make sure you understand the new information and comply with any new safety instructions.






The nine CLP pictograms



Example



The three new pictograms have the following meaning:

Type of hazard	Old symbol	New pictogram
May cause serious long-term health effects, such as carcinogenicity, mutagenicity, reproductive toxicity, respiratory sensitisation, specific target organ toxicity and aspiration hazard	 or 	
Less serious health hazards such as irritants, skin sensitisers and less severe toxicity (harmful)		
Contains gases under pressure	No symbol	