रेल और वेल्ड की पेंटिंग
PAINTING OF RAILS AND WELDS

1. परिचय / Introduction

To effectively utilise the rails to the maximum possible extent, it is, necessary to paint the Rails and Welds. The Rails in areas prone to corrosion / deterioration and welds need painting to increase their life for maintaining their health to desired standards. Although rail renewal are decided based on GMT carried by the rail on the consideration of fatigue life of rail, in many cases premature renewal are required due to corrosion / deterioration.



RAIL



WELD

Detailed guide lines for painting of rails and welds are.

2. पेंट का विशिष्टता / Specification of Paint

Ready mixed paint, brushing bituminous black, lead free, acid, alkali, water and chlorine resisting, conforming to IS: 9862-1981 or bituminous emulsion IRS: P-30-1996.

High build epoxy paint conforming to RDSO specification no. M&C/PCN-111/88.

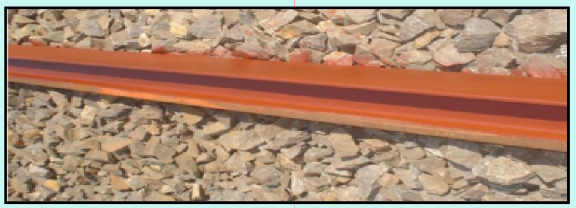
3. रेल के लिए / For Rail

3.1 सामान्य / General

The initial painting has to be done before laying the rails in the track.

While carrying out renewals anti-corrosive painting of rails should be carried out in severe corrosion prone locations such as coastal, industrial, all station areas, tunnels and cuttings in the approaches of major towns.

In case of the rails already laid in track and subject to corrosion, the painting has to be done in the track itself.



RAIL PAINTED ON CESS



RAIL PAINTED IN TRACK

3.2 रेल की पेंटिंग के लिए प्रक्रिया / Procedure For Painting of Rails

(As per correction Slip No. 124 dated 14.02.2011 of IRPWM)

3.2.1 सतह की तैयारी / Surface Preparation

Surface preparation of rails shall be done, with the help of hand operated or power operated tools i.e. scrappers, wire brushes, sand paper, pumice stones etc. Wire brushing shall invariably be done at the end so as to obtain uniform rubbed surface. The surface prepared shall be checked visually for uniformity of surface. Special care should be taken in surface preparation at weld collars and liner contact areas. Surface preparation should not be done when ambient temperature is below 10^0C or above 50^0C, in rainy season, during night, in winter before 8AM, in summer between 11AM to 3PM and in extremely windy/misty/dusty conditions. Chemical should not be used for surface preparation.

3.2.2 पेंट का उपयोग / Application of Paint

Painting should be done in two coats of thickness of 100 microns each by anti corrosive bituminous black paint confirms to IS: 9862 after an interval of 8 hours between two coats. All the liners and Elastic Rail Clips shall also be painted with anti corrosive black bituminous paint after duly cleaning the surface.



RAILS PAINTED USING BITUMINOUS PAINT

3.2.3 रेल पेंटिंग की आवृत्ति / Frequency of Painting of Rail

Condition	Frequency
In identified corrosion prone areas, bituminous painting of rails shall be done on inside of gauge face including web and foot.	Once in a year
On non-gauge face side of rail including web and foot.	Once in three years
In other areas, wherever signs of corrosion are seen in isolated patches.	Prompt action for anti-corrosive painting shall be taken

4. वेल्ड के लिये / For Weld

4.1 सामान्य / General

All welds should be painted immediately after welding is over and weld has been checked ultrasonically.

4.2 ए.टी. वेल्डेड रेल जोड़ के वेल्ड कॉलर की पेंटिंग के लिए प्रक्रिया / Procedure For Painting of Weld Collar For A.T. Welded Rail Joints

4.2.1 सामान्य क्षरण के लिये संरक्षण / To Protect Against Normal Corrosion

New Joint	Old Joint
Surface Preparation	
Remove dust, loose rust and mill scale by wire brushing. Scrub welded area with water to make it free from slag and other water soluble compounds. Make it dry.	▪ Remove dust, dirt and flaked paint from the welded joint by wire brushing. ▪ Degrease the surface by petroleum hydro-carbon or any other suitable solvent, if oil or grease is present. Allow it to dry.
Painting Procedure	
▪ Apply one coat of ready mixed paint, brushing, bituminous black, lead free, acid, alkali, water and chlorine resisting, conforming to IS: 9862-1981 on the welded area and 10cm on either side. ▪ After eight hours drying, apply a second coat of the same paint. ▪ Painting should be carried out by brush only.	▪ Apply one coat of ready mixed paint, brushing bituminous black, lead free, acid, alkali and chlorine resistant to IS:9862-1981 or bituminous emulsion to IRS: P-30-1996 on welded area and 10 cm on either side. ▪ If required, a second coat of the same paint may be applied after a minimum of eight hours drying. ▪ Painting should be carried out by brush.



SURFACE PREPARATION



PAINTED WELD

4.2.2 तीव्र क्षरण के लिये संरक्षण / To Protect Against Severe Corrosion

New Joint	Old Joint
Surface Preparation	
▪ Remove dust, loose rust and mill scale by wire brushing. ▪ Scrub welded area with water to make it free from slag and other water soluble compounds. Make it dry.	▪ Remove dust, dirt and flaked paint from the welded joint by wire brushing. ▪ Degrease the surface by petroleum hydrocarbon or any other suitable solvent, if oil or grease is present. Allow it to dry.

New Joint	Old Joint
Painting Procedure	
Apply one coat of high build epoxy paint (two pack) conforming to RDSO specification no. M&C/PCN-111/88 on the welded area up to 10 cm on either side of weld caller.	

NOTE:

1. The epoxy based paint recommended is a two pack system with a pot life of around five hours. Hence prepare only that much quantity of paint which can be consumed in less than five hours.
2. The paint should be procured along with the thinner recommended by the manufacturer of the paint. No other thinner i. e. kerosene oil, etc should be used.
3. The painting shall be carried out by brush only. Brush shall be cleaned by the thinner after use.

4.2.3 ए. टी. वेल्ड पेंटिंग की आवृत्ति / Frequency of Painting of A.T. Welds

Condition	Frequency
Painting of weld collar on all welds to protect them against corrosion after the welding.	immediately after USFD
In service painting (maintenance painting) of A.T. welds.	
In areas not prone to corrosion	Once in four years
At locations prone to corrosion	Every year

Corrosion is generally heavy in the following locations:

Platform lines where trains make prolonged halts.

- Sidings where saline or corrosive goods are dealt with.
- Where the rails are affected by the dropping of engine ashes, such as at ash pits.
- Near water columns due to insufficient drainage.
- Tunnels and damp cuttings.
- Areas near the sea coast.
- Industrial belts.

Corrosion is generally noticed on the web and foot of the rail. The frequency may be increased depending on the site conditions. On condition basis at locations which are prone to severe corrosion (areas of severe corrosion to be decided by territorial Chief Engineer/Chief Track Engineer).

5. पेंटिंग का रिकॉर्ड / Records of Painting

In addition to the regular inspection, it is essential that proper records of painting of rails and welds are maintained by the in-charge SSE/P.Way in his section register.

The record is to be kept in the under mentioned format. This record is to be maintained separately for rails as well as for welds.

Section	Between Station	Line UP/ Dn/ SL/ Stn Yard Line	Km.		Recommended frequency of Painting	Last Date of painting	Next due date of painting	Remarks
			From	To				
1	2	3	4	5	6	7	8	9

Further, the date of painting of rails should invariably be shown on the rail web also. These marking should be done against Km. post on the inside web of the left side rail. In the case of platform lines/ through lines between platforms, such marking should be done against the location of duty Station Master's office.

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हमारा उद्देश्य /OUR OBJECTIVE

To upgrade maintenance technologies and methodologies and achieve improvements in productivity and performance of all railway assets and manpower which inter alia would cover reliability, availability for use, utilisation and efficiency.

भारत सरकार - GOVERNMENT OF INDIA
रेल मंत्रालय - MINISTRY OF RAILWAYS

(केवल कार्यालयीन प्रयोग हेतु /For Official use only)
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