

VOLUME : II-G

Part – C

(Painting)



700 638

	NTPC SAIL POWER COMPANY (P) LIMITED ROURKELA POWER PROJECT (PP - III: 1 X250MW) TECHNICAL SPECIFICATION FOR EPC PACKAGE	
---	--	---

01.00.00 GENERAL

01.01.00 This specification covers the materials, tools, facilities and quality requirement for surface preparation and painting of steel structures, mechanical & electrical equipments, technological structures, piping, ducts, chutes etc. for 1 X 250 MW Thermal Power Plant at NSPCL, Rourkela as elaborated in the further text.

This specification will be read in conjunction with other parts/ volumes of the Tender specification where other related project requirement have been indicated.

The term "Painting" referred herein covers rust preventive, preventive and decorative coating along with surface preparation of the following areas.

1. All Mechanical equipment, Technological structures, chutes, piping, ducts etc. unless otherwise specifically indicated in the relevant section
2. Various types of static and rotary equipment inclusive of electric motors etc.+
3. Steel tanks and vessels
4. Pipe work including trestles, supports, hangers, etc.
5. Metallic duct work such as ventilation ducts, gas ducts including supports, hangers, etc.

This is a general guideline to the painting scheme to be followed. However, in case if a specific painting procedure is stipulated in any tendering specification, then this general guideline will be superseded. Any special case which may arise from time to time will be dealt with individually on the merits of each case.

01.02.00 Surfaces made of aluminium, brass, bronze, stainless steel, and other corrosion resistant alloys are not required to be painted unless specified except for identification bands or for aesthetic purposes.

01.03.00 All machined mating surfaces (e.g. flanges) will be properly cleaned, and will be provided with protective coating before despatch.

01.04.00 The complete painting scheme for any item includes the following basic activities:

- i) Proper surface preparation
- ii) Application of primer coats
- iii) Application of intermediate coats and
- iv) Application of finish coats

All the above coats will be of quality paint products and of approved make as stipulated in this specification. The scope of work will also include supply of all paint materials as per specification described herein

Rourkela Power Project (PP - III: 1x250 MW) EPC Package	Technical Specification Section - VI, Vol. - II G, Bid Doc. No.: CC&M-C-347-2:11	Part - C, Painting	Page 1
---	--	-----------------------	--------



**NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)**



**TECHNICAL SPECIFICATION FOR
EPC PACKAGE**

and of approved quality/ specifications.

**02.00.00 PAINTING FOR MECHANICAL & ELECTRICAL AND OTHER EQUIPMENT,
MECHANICAL STRUCTURES, PIPING, DUCTS ETC.**

02.01.00 This section covers the painting requirements for the power plant equipment, structures, piping etc. and any other surface required to be painted.

02.02.00 Codes and Standards

Painting of equipment will be carried out as per the specifications indicated below and will conform to the relevant IS specification for the material and workmanship.

The following Indian Standards may be referred to for carrying out the painting job :

IS:5	: Colours for ready mixed paints and enamels
IS:1303:	Glossary of terms relating to paints
IS:2379:	Colour code for identification of pipelines
IS:1477:	Code of practice for painting of ferrous metals in buildings (Parts I & II)
IS:2524:	Code of practice for painting of non-ferrous metals in buildings (Parts I & II)
IS:2395:	Code of practice for painting of concrete, masonry and plaster surfaces (Parts I & II)
IS:2338:	Code of practice for finishing of wood and wood based materials (Parts I & II)
IS:6278 :	Code of practice for white washing and colour washing
IS:3140:	Code of practice for painting asbestos cement building products
IS:158 :	Ready mixed paint, brushing, bituminous, black, lead free, acid, alkali, water and heat resisting
IS : 2074:	Ready mixed paint, air drying, red Oxide Zinc Chrome, priming
IS : 104:	Ready mixed paint, brushing, Zinc Chrome, priming
IS : 2932:	Enamel , synthetic, exterior (a) undercoating (b) finishing specification.

02.03.00 Preparation of Surfaces

02.03.01 Surface preparation being a pre requisite for any paint application, will be such as to clean the surface thoroughly of any materials which will be conducive to premature failure of the paint substrates.

02.03.02 All surfaces to be painted will be thoroughly cleaned of all grease, oil, loose mill scale, dust, rust and any other foreign matter. Mechanical cleaning by power tool and scrapping with steel wire brushes will be adopted to clear the surfaces. However, in certain locations where power tool cleaning cannot be carried out, sand scrapping may be permitted with steel wire brushes and/or abrasive paper. Cleaning with solvents will be resorted to only in such areas where other methods



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

specified above have not achieved the desired results. Cleaning with solvents will be adopted only after written approval of the Owner/ consultant.

02.03.03 The workmanship will, in general, be in accordance with IS: 1477-1971. Surface of all the steel works to be painted will be thoroughly cleaned and degreased in accordance with IS:1477(Part-I) by means of mechanical and power tool cleaning or shot blasting. The cleaning quality will conform to second quality blast cleaning as per BS-4332 or to SA 2.5 of Swedish Standards Institution SIS 055900. Cleaning of surface will ensure primer coat is rigidly anchored to the virgin metal surface. Primer paint will be applied not later than 2-3 hours after preparation of surface, unless otherwise specified.

02.04.00 The acceptable surface preparation quality/grade are described under each painting scheme. The procedures covered are solvent cleaning, hand tool cleaning, power tool cleaning and blast cleaning

02.04.01 Solvent cleaning (SP 1) (If applicable)

The surface will be cleaned by wiping, immersion, spraying or vapour contacting of a suitable solvent or washing with an emulsion or alkaline solution to remove oil, grease, dirt, old paint, etc. Solvent cleaning will not remove rust, scales, mill scales or weld flux. Therefore, before application of paint, solvent cleaning will be followed by other cleaning procedures as stated below.

02.04.02 Hand tool cleaning (SP 2)

The surface will be cleaned by vigorous wire brushing done manually to St-2 quality. This method effectively removes loosely adherent materials, but would not affect residues of rust or mill scales that are intact and firmly adherent.

02.04.03 Power tool cleaning (SP 3)

The surface will be cleaned by electric or pneumatic tools to St-3 quality. The tools will be used carefully to prevent excessive roughing of surface and formation of ridges and burns. This method will remove loosely adherent materials but would not affect residues of rust or mill scales that are firmly adherent.

02.04.04 Blast cleaning (SP 4)

The surface will be cleaned by impingement of abrasive materials, such as graded sand at high velocity created by clean and dry compressed air blast. This method will remove loosely adherent materials as well as adherent scales and mill scales. Prior to application of blast, heavy deposit of oil and grease are removed by solvent cleaning and excessive surface scales are removed by hand tools or power tool cleaning. The surface will be cleaned to Sa-2 1/2 quality which means that to 95% of surface area is free from all rust, mill scales and visible residues, foreign materials, etc. The blast cleaning is not recommended for sheet metal work.



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP – III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

02.05.00 Primer Paints (P)

After the surface is prepared in a manner acceptable to Owner/ consultant, two (2) coats of Primer paints will be applied only on dry and clean surfaces. Second coat of red oxide primer will be applied only after first coat has dried up completely. Coating of primer will in general conform to IS:2074-92 and will be applied by brushing to ensure a continuous film without "holidays".

02.05.01 Primer paint P1: (Epoxy based)

A two pack air drying epoxy polyamide resin based red oxide –zinc phosphate (primer):

Epoxy content (% wt)	15 to 18
Air drying time	About 30 minutes (touch dry) Over night (hard dry)
Dry film thickness (DFT/coat)	30 microns (min)
Temperature resistance	Upto 120 deg.C dry heat

02.05.02 Primer paint P2 (Epoxy based)

A two pack air drying epoxy polyamide with zinc dust of at least 92% zinc dust on the dry film.

Epoxy content (% wt)	8 to 10
Air drying time	About 10 minutes (touch dry) 2 hours (hard dry)
Dry film thickness (DFT/coat)	40 microns (min)
Temperature resistance	Upto 300 deg.C dry heat

02.05.03 Primer paint P3 (Ethyl zinc silicate, EZS, based)

A two pack heavy duty zinc dust rich silicate primer:

Total solids (% wt)	84 + 2
Air drying time	16 hours
Density	3.07 + 0.005
Dry film thickness (DFT/coat)	60 microns (min)
Temperature resistance	Upto 450 deg.C dry heat

02.05.04 Primer paint P4 : Double boiled linseed oil as per IS – 77 : specification for linseed oil, boiled for paints

02.05.05 Primer paint P5 : In organic Zinc silicate with suitable air drying time, 40 microns per coat

02.05.06 Primer paint P6 : Red oxide Zinc phosphate as per IS 12744 with DFT 30 microns per coat

Rourkela Power Project (PP – III: 1x250 MW) EPC Package	Technical Specification Section – VI, Vol. – IIG, Bid Doc. No.: CC&M-C-347-211	Part - C, Painting	Page 4
---	--	-----------------------	--------



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

02.05.07 Primer paint P7 : Red oxide Zinc chrome primer(alkyd based) as per IS 2074 with DFT 40 microns per coat

02.06.00 Intermediate paints (N)

These paints will be applied over primer coats as an intermediate layer to provide weatherproof seal of primer coats.

02.06.01 Intermediate paint N1

A two pack air drying high build epoxy resin based paint with MIO.

Air drying time	6 to 8 hours (touch dry) 7 days (full cure)
Dry film thickness (DFT/coat)	80 microns
Temperature resistance	Upto 180 deg.C dry heat
Compatible with	Primer P1

02.07.00 IntermediatePaint N2: Synthetic Enamel (long oil alkyd) to IS 2932, 1 coat = 20 Microns per coat.

02.08.00 Finish Paint (F)

Finish paint coats will be applied over primer coats and intermediate coats after proper cleaning and touch up of primed coats. Synthetic enamel paint comprising of IS:2932-95 will be used for finish coats.

02.08.01 Finish paint (F1)

A two pack air drying epoxy polyamide enamel suitably pigmented.

Air drying time	2 to 3 hours (touch dry) 7 days (full cure)
Dry film thickness (DFT/coat)	30 microns
Temperature resistance	Upto 130 deg.C dry heat
Compatible with	Primers P1 and P2 Intermediate N1
Colour	Generally all shades

02.08.02 Finish paint (F2)

A single pack synthetic rubber based enamel paint.

Air drying time	2 hours (touch dry) 24 hours (hand dry)
Dry film thickness (DFT/coat)	25 microns



**NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP – III: 1 X250MW)**



**TECHNICAL SPECIFICATION FOR
EPC PACKAGE**

Temperature resistance	Upto 200 deg.C dry heat
Compatible with	No primers
Colour	Generally all shades

02.08.03 Finish Paint F3

A single pack heat resistant silicon Aluminum paint.

Air drying time	3 to 4 hours (touch dry) 24 hours (hard dry)
Dry film thickness (DFT/coat)	25 microns (min)
Temperature resistance	upto 400 deg.C dry heat
Compatible with	Primer paint P3
Colour	smooth aluminium

Heat resistant Silicone Aluminium Paint with suitable air drying time as per IS 13183 Gr I , 25 microns per coat.

02.08.04 Finish Paint F4: Heat resistant Alumina Paint IS 13183 Gr II, DFT 20 microns per coat.

02.08.05 Finish Paint F5 :Heat resistant Silicone Aluminium Paint with suitable air drying time as per IS 13183 Gr I, 25 microns per coat.

02.08.06 Finish Paint F6:Aliphatic acrylic polyurethane paint , DFT= 30 microns per coat.

02.08.07 After cleaning the dust on the dried up primer/ intermediate paint, , first coat of synthetic enamel will be applied. After this first coat dries up hard, the surface is wet scrubbed cutting down to a smooth finish and ensuring that at no place the first coat is completely removed. After allowing the water to get evaporated completely, the second finish coat of synthetic enamel paint will be applied only after gently removing the gloss of first coat from entire surface and it is dusted off the surface. The requirement of workmanship will be as per IS:1477-71.

02.08.08 Equipment No. and the name of the equipment will be painted on the surface of the equipment on visible locations in English. Service of the Pipe/Line designation with arrow identification for the direction of flow will be painted on all pipes at visible locations at an interval of 20 metres. Wherever pipelines are insulated, the service of the piping and arrow mark will be painted over the clad surface.

02.08.09 For painting of structure, equipment, tanks & vessels etc. suggested colour code is given in clause 02. 8. For items not specified, the colour code to be followed for piping will be in line with IS 9404:2002 (Identification of pipelines used in Thermal Power Plants – Colour Code).



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

02.08.10 For insulated pipeline the finish paint will be applied at that place where colour band is to be painted on the aluminium sheeting. The finished paint (colour band) will be of 1m length at that place.

02.08.11 Colour band for piping will be applied at these following locations:-

- a) At start and end point.
- b) At every 10m intervals.
- c) At every T joints and cross connection of piping.
- d) At every battery limit of pipeline
- e) Near valves before connection with the consumer.

02.08.12 Width of band

Size of pipe including insulated Pipe line outside diameter	Width of band
80 mm and below	25 mm
Above 80 mm upto 150 mm	50 mm
Above 200 mm upto 300 mm	75mm
Above 350 mm	100 mm

02.08.13 Direction of flow will be indicated by black or white arrow in contrast to the base colour on the pipeline. Length of the arrow will be minimum 125 mm and width will be minimum 65 mm. These will be put at an interval of 10 m.

	NTPC SAIL POWER COMPANY (P) LIMITED ROURKELA POWER PROJECT (PP – III: 1 X250MW) TECHNICAL SPECIFICATION FOR EPC PACKAGE	
---	--	---

02.09.00 Suggested Colour Codes for Painting of Structures, equipments, tanks & vessels, electrical items, etc are given in APPENDIX-A,B & C below:-

APPENDIX A

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
	MAIN PLANT						
1.	Main Turbine	Blue	5012	White		9010	Legend in black letters
2.	Main generator	Blue	5012	White		9010	Legend in black letters
3.	Condenser	Blue	5012	White		9010	Legend in black letters
4.	Ejectors & Vacuum Pumps	Blue	5012	White		9010	Legend in black letters
5.	Heat exchangers (eg. Deaerator LP & HP heaters, gland steam condenser, lube oil cooler, stators water cooler etc.	Blue	5012	White		9010	Legend in black letters
6.	Flash tanks (HP, LP, etc.)	Blue	5012	White		9010	Legend in black letters
7.	Pumps						
	i) Boiler feed pumps	Blue	5012	White		9010	Legend in black letters

Rourkela Power Project (PP – III: 1x250 MW) EPC Package	Technical Specification Section – VI, Vol. – IIG, Bid Doc. No.: CC&M-C-347-211	Part - C, Painting	Page 8
---	--	-----------------------	--------



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			Remarks
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	
	ii) Condensate extraction pumps	Blue	5012	White		9010	Legend in black letters
	iii) Lube oil	Grey	9002	White		9010	Legend in black letters
8.	Valves, gates, filters	Grey	9002	White		9010	Legend in black letters
9.	Turbine oil system						
	i) Main oil tank	Grey	9002	White		9010	Legend in black letters
	ii) Central oil tank	Grey	9002	White		9010	Legend in black letters
	iii) Oil purifier & Polishing filter	Grey	9002	White		9010	Legend in black letters
10.	Boiler steel supporting	Grey	9002	White		9010	Legend in black letters
11.	Boiler coating	Grey	9002	White		9010	Legend in black letters
12.	Superheaters (exposed portions if any)	Grey	9002	White		9010	Legend in black letters
13.	Metal structures						Columns &

	NTPC SAIL POWER COMPANY (P) LIMITED ROURKELA POWER PROJECT (PP – III: 1 X250MW)	
TECHNICAL SPECIFICATION FOR EPC PACKAGE		

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
	i) Primary Members	Blue	5012				Beams
	ii) Secondary Members	Grey	9002				Tie/ Bracing's/ Struts etc.
14.	Hand rails	Blue	5012				Wherever required otherwise SS or GI
15.	Pipe supports	Black	9011				
16.	Gratings (non-galvanised)	Black	9011				
17.	Air ducts	Grey	9002	White		9010	Primary, secondary, rear, igniter, scanner air etc. with hot or cold indication to be identified in black letters.
18.	FANS/ PA/ Scanner (booster) air/ igniter air/ Soal air fan	Grey	9002	White		9010	Legend in Black Letters.
19.	Flue gas ducts	Grey	9002	White		9010	Legend in Black Letters.
20.	ID fans	Grey	9002	White		9010	Legend in Black Letters.



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

Sl. No.	Equipment	GROUND COLOUR		IDENTIFICATION TAG/BAND			Remarks
		Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	
21.	Coal mills and associated feeders	Grey	9002	White		9010	Legend in Black Letters.
22.	Mill reject system grey green	Grey	9002	White		9010	Legend in Black Letters.
23.	Paddle feeders below track hopper	Golden Yellow	1004	Signal Red	537	3001	For moving parts black strips should be superimposed over the base colour.
24.	Travelling Tripper	Golden Yellow	1004	Signal Red	537	3001	For moving parts black strips should be superimposed over the base colour.
25.	Stacker cum	Golden Yellow		Signal Red	537	3001	For moving parts black strips should be superimposed over the base colour.

	NTPC SAIL POWER COMPANY (P) LIMITED ROURKELA POWER PROJECT (PP – III: 1 X250MW) TECHNICAL SPECIFICATION FOR EPC PACKAGE	
---	---	---

Equipment

Sl. No.	Equipment	GROUND COLOUR		IDENTIFICATION TAG/BAND			Remarks
		Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	
26.	Belt feeder	Golden Yellow		Signal Red	537	3001	For moving parts black strips should be superimposed over the base colour.
27.	Drive frames, take-off units chutes, guards of conveyors	Grey	9002	White		9010	Legend in Black letters
28.	Stringer & stands, mouthpieces, tail end frames head end frames, other supporting structures of various other accessories and other equipments, not covered in this list.	Grey	9002	White		9010	Legend in Black letters
29.	Coal crushers	Grey	9002	White		9010	Legend in black letters
30.	Vibrating feeders	Grey	9002	White		9010	Legend in black letters
31.	a. Dust extraction system piping	Grey	9002	White		9010	Legend in black letters
	b. Ventilation system	Grey	9002	White		9010	Legend in



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
	consisting of GI ducting						black letters
	c. Dust suppression system consisting of GI piping	Grey	9002	White		9010	Legend in black letters
32.	Steel gratings and grids over emergency hopper	Black					
33.	Conveyor system – idler frames	Grey	9002				
34.	Structural steel work fabricated at site	Grey	9002				

FUEL OIL HANDLING SYSTEM

35.	HSD storage tank	Blue	5012	White		9010	Legend HSD to be displayed in Black letters
36.	Furnance oil storage tank	Blue	5012	White		9010	Legend FO to be displayed in Black letters
37.	Pumps, filters and valves	Blue	5012	White		9010	Legend in black letters

ASH HANDLING SYSTEM



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
38.	Bottom ash hopper	Blue	5012	White		9010	Legend in black letters
39.	Scraper	Blue	5012	White		9010	Legend in black letters
40.	Clinker Grinder	Blue	5012	White		9010	Legend in black letters
41.	Flush mixer	Blue	5012	White		9010	Legend in black letters
RAW WATER INTAKE EQUIPMENTS							
42.	Intake gates						
	- Above water parts	Grey	9002				
	- Sub merged parts	Grey	9002			9010	
	- Rotating Mechanism	Grey	9002				
	- Sub Merged beams	Grey	9002				
	- Travelling	Grey	9002				
INSTRUMENT AND SERVICE / PLANT AIR SYSTEM							
43.	Trash Rack						
	- Above water stationary parts	Grey	9002	White		9010	Legend in black letters
	- Above/Under	Grey	9002	White		9010	
Rourkela Power Project (PP - III: 1x250 MW) EPC Package		Technical Specification Section - VI, Vol. - IIG. Bid Doc. No.: CC&M-C-347-211			Part - C, Painting		Page 14

	NTPC SAIL POWER COMPANY (P) LIMITED ROURKELA POWER PROJECT (PP - III: 1 X250MW)	
TECHNICAL SPECIFICATION FOR EPC PACKAGE		

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
	water/moving parts						
44.	Metal structures						
	- External	Grey	9002				
	- Internal	Grey	9002				
DEMINERALIZED WATER SYSTEMS							
45.	Filter beds and Ion Exchange resin beds.	Grey	9002				To be Identified by suitable legends.
46.	Air blowers	Grey	9002	White		9010	Legend in black letters
47.	Carbon dioxide exhausters.	Grey	9002	White		9010	Legend in black letter
INSTRUMENT AND SERVICE/PLANT AIR SYSTEM							
48.	Compressors with inter and after coolers	Blue	5012	White		9010	Identifying legends to be used.
49.	Heater/Drivers	Grey	9002	White		9010	
50.	Air receivers	Blue	5012	White		9010	Legend in black letters
MISCELLANEOUS EQUIPMENTS							
Rourkela Power Project (PP - III: 1x250 MW) EPC Package		Technical Specification Section - VI, Vol. - IIG, Bid Doc. No.: CC&M-C-347-211			Part - C, Painting		Page 15



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

Sl. No.	Equipment	GROUND COLOUR		IDENTIFICATION TAG/BAND			Remarks
		Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	
51.	Cranes	Golden Yellow	1004	White		9010	Tower Cranes & Booms will have alternate sections for Signal Red/White for aviation requirement with diagonally painted sections in black.
	- Mono Rails & chain pulley systems	Golden Yellow	1004				
52.	Hooks	Signal Red	3001				
53.	Tanks	Grey	9002	white			Legend in Black letters
54.	Doors Industrial type	Blue	5012				
55.	Solid wastes processing equipment	Grey	9002				
56.	Hydraulic power unit	Golden Yellow	1004	Signal Red	537	3001	
57.	Fencing	Black					
58.	Lighting poles	Aluminium					



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			Remarks
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	
59.	Chimney						As per safety regulations Top two bands in Red & White 3000 mm each.
ELECTRICAL COMPONENTS							
60.	MAIN GENERATOR						
	- Lub oil system	Grey	9002	White		9010	Legend in Black Letters
	- Seal Oil System						
	- Hydrogen system	Grey	9002	White		9010	Legend in Black Letters
	- Stator Water Sys.						
61.	DIESEL GENERATOR SET						
	- Diesel Engine	Grey	9002	White		9010	
	- Generator	Grey	9002	White		9010	
62.	L.T. TRANSFORMERS						
	- Indoor	Blue	5012				Legend in Black Letters
	- Outdoor	Blue	5012				Legend in



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP – III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
							Black Letters
63.	33 KV class transformers	Blue	5012	Signal Red	537	3001	
64.	400 KV/33 KV tie transformers	Blue	5012	Signal Red	537	3001	
65.	GENERATOR BUST DUCT						
	- Inside of main plant building	Blue	5012	Signal Red	537	3001	
	- Outside of main plant building	Blue	5012	Signal Red	537	3001	
66.	Generator transformer	Blue	5012	Signal Red	537	3001	
67.	Battery charger	Grey	9002	White		9010	
68.	Mimic flow diagram						
	400 KV	Purpur Violet	4007	White		9010	
	220 KV	Signal Green	1003	White		9010	
	132KV	Tarkis Blau	5018	White		9010	
	33.0 KV	Oliv Green	6003	White		9010	



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP – III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

		GROUND COLOUR		IDENTIFICATION TAG/BAND			
Sl. No.	Equipment	Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	Remarks
	21.0 KV/15.75 KV	Beige-rot	3012				
	11.0 KV	Zink Gieb	1018	White		9010	
	6.6 KV	Enzian Blau	5010	White		9010	
	3.3 KV	Gras Grün	6010	White		9010	
	415 V	Lehm Braun	8003	White		9010	
	220V DC	Tief Orange	2011				
	Gen Fld.	Tiefschwarz	9005				
69.	Unit Control board (Control Room)	Grey	9002				
70.	Control panel, PLC panel & UPS for CHP/AHP	Grey	9002				
71.	MOTORS						
	- Indoor	Blue	5012				Enamel paint to be used
	- Outdoor	Blue	5012				
72.	LT SWITCHGEAR (INDOOR)						
	- LT Switchgear Exterior	Grey & Blue	900250 12				Front & Rear Panels in Grey (RAL



NTPC SAIL POWER COMPANY (P) LIMITED
ROURKELA POWER PROJECT
(PP - III: 1 X250MW)



TECHNICAL SPECIFICATION FOR
EPC PACKAGE

Equipment

Sl. No.	Equipment	GROUND COLOUR		IDENTIFICATION TAG/BAND			Remarks
		Colour	RAL	Colour	ISC No.	Equi-valent RAL No.	
							9002). End Panels sides in Blue (RAL 5012)
	- MCC	Grey & Blue	9002 5012				Front & Rear Panels in Grey (RAL 9002). End Panels sides in Blue (RAL 5012)
	- D.C. Distribution board	Grey & Blue	9002 5012				Front & Rear Panels in Grey (RAL 9002). End Panels sides in Blue (RAL 5012)
	- L.T. busduct outside of enclosures	Blue	5012				
73.	6.6 KV SWGR	Grey & Blue	9002 5012				Front & Rear Panels in Grey (RAL 9002). End Panels sides in Blue (RAL 5012)
	- 6.6 KV busduct inside of main plant	Blue	5012				