





250KTPY Iron Ore Concentrate Plant (Line 1)

MC/ Consultant:



DOCUMENT TRANSMITAL

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شرکت مهندسین مشاور کاوشگران

250 KTPY Iron Ore Concentrate Plant

Painting Specification

کد مدرک: P1-KCE-M14-60AA00-01-B01



Painting Specification

ISSUED FOR Construction

00	1402/05/29	A.Neshati	A.Neshati	A.Neshati
REV	DATE	Prepared by	Checked By	APPROVED



250 KTPY Iron Ore Concentrate Plant

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1. Introduction

The project is **Rahbaran Foolad Isfahan** Project in the center part of Iran. Construction items include grinding, magnetic separation, classification, dewatering tailing via thickener, filerpress, dewatering concentrate via drum filter.

1.1 Site conditions

General Characteristics and

	Latitude	Longitude	Elevation (m)		
1- Location	N 30°48'14.7"	E 53°33' 42"	1495		
	Abarl	kooh city in Yazd pro	vince in central part of Iran		
	Max. Recoded in	Max. Considered	Min. Recorded in	Min. Considered	
2-Temprature	Summer (°C)	for design (°C)	Winter (°C)	for design (°C)	
	43	43	-10	-7 to -10	
	3-Rainfall		4-Sn	ow	
Average yearly/	Max daily (mm)	60/36	Snow Load (KN/m2)	(0.5-1)	
5- Hu	midity		6- Pressure		
Ave. Relative (%)	Max. Relative	Barometric I	Pressure (mbar)	-	
10-50	69				
7- Wind Design wind ve		velocity (m/sec)	26-40	(100)	

2. Principles

2.1 Field of Application

Instruction which will be used for local supply defines specification for corrosion protection of machines, pipes, pipelines, vessels, electrical equipment and steel structure components unless otherwise specified in drawings or other manufacturing documents.





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2.2 Fundamental Definitions

- All Surfaces in steel (except high grade steel) of machine or structural steel elements shall be provided with a coat of paint and all other unpainted component in steel (except high grade steel) shall be provided with preserving agent
- All colors shall be the glossy type
- All parts which have to remain without coat shall be preserved with TECTYL 502-C or equivalents products, with the same specification, after surface cleaning; drawing indication is required

2.3 Exceptions

Unless otherwise specified the following surfaces are not to be coated.

- Anchor plates and anchor bolts for casting in concrete are blasted only to remove
 rolling skin and annealing scale from surface. These parts are neither coated nor
 preserved to achieve better adhesion to the foundation. Unless those sections, be out of
 the foundation and exposed, which will be provided with a coat of "ZINGA"
- All parts in stainless steel and Acid-resistant steels are neither coated nor preserved.
- Structure made of aluminum, brass, bronze, copper, stainless and galvanized steel,
 other metallic materials corrosion resistant, rubber components and insulating items in
 general, threads of screws, tie rods, mechanical items, lubricated components, sliding
 and rolling parts, lubricators, insulated areas, etc.

2.4 Indication in Drawings and Other Manufacturer Documents

Apart from the basic exceptions described in item 0, indications in drawings and other manufacturing documents are required when deviations from the standard specifications given in painting specifications groups, specification of painting for each layer, are required for functional reasons.





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3. Surface Condition

3.1 Surface Preparation

All Surfaces to be provided with coat or preserving agent shall be cleared of annealing colors, rust, slag, rolling skin, mill scale, dirt, dust, oil, grease, old paint, cooling lubricants, etc.

Blasting operation shall be done at a surface temperature above dew points.

3.2 Preparation by Blasting

Preparation grade is required according to the contract. This abbreviate used should be clean and free of oil, grease and salt.

The following conditions are required according to DIN EN ISO 12944-4.

• Sa 2 ½; Scale, rust and coats have been removed to such an extent that reminders on the steel surface are visible only as spots of slight shading due to discoloring of pores.

3.3 Preparation by Manual De-Rusting

Preparation grade St3 is required for machine components, which cannot be blasted due to their sizes, or weights, for example mill housing.

The following conditions are required according to DIN EN ISO 12944-4.

St 3; loose scale or coats have been removed. Rust has been removed to such an extent
that the steel surface after subsequent cleaning shows a clear luster given by the metal
itself.

4. Coating

- 4.1 Basic Specifications
- Upon preparation of the steel substrate, the first coat shall be applied within 6 hours
 to prevent new formation of rust and this first coat prevents of cooling during
 machining





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- Depending on the degree of damage to the primer by finish-machining or welding, the first coat is either touched up or newly applied
- The weld seam area shall be cleaned with particular care to remove the alkaline ore acid filler metal constituents and to avoid their destructive effects
- The second coat is applied upon completion of workshop assembly or functional or acceptance testing, immediately before application of the final coat. It shall be ensured that the surface to be coated are free of grease, oil, dirt and dust
- As a rule, the top coat is applied only upon proper application on the first and second coats stated in painting specification and on completion of assembling or functional or acceptance testing of the machine
 - 4.2 Painting Application
- Paint shall be applied by complying with the painting specification shown in section 4.4.
- Paint to be applied by airless spray methods in order to obtain an evenly coating on 100% of the surface to be painted.
- Paint application shall be stopped in the following events;
 - \circ By ambient temperature less than +5°c and more than +45°c
 - \circ By a support temperature of more than $+55^{\circ}c$
 - o By humidity of more than 80%
 - o In case of rain, fog and smog
 - Substrate is wet or humid
 - Any case when the dew point doesn't exceed the substrate temperature of at least 3°c
- Measure shall be taken for the wet paint freshly applied to be set to dry in case of inclement weather. The areas damaged because of the weather inclemency to be





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removed, surface to be prepared once again and then re-painted identical to the undamaged areas

- Each coat to be applied as a continuous film, evenly thick and with no pores
- Each coat of paint to be enough dry and/or hardened before applying the subsequent
 coats, so as the coat will be evenly. It is also to understand that the thickness indicated
 for each coat of every cycle are minimum values to be kept with, and therefore the
 applier shall take care to keep thickness within maximum values so as to guarantee a
 complete drying of the coat also deeply as well as the full evaporation of solvents. For
 all what above said the instruction of manufacturer shall be respected and looking
 jointly at the weather as well.
- Angles and corners should be coated carefully with the same coating system
 - 4.3 Equipment and Application
- The applier shall adopt the most suitable painting equipment depending on the paint to be applied, coat thickness and on the support on which paint will be applied
- For any other rust preventing paint spray application allowed only on a bare sand blasted support (SA 2 ½) and on a support sandblasted to a lower degree or brushed application usually made by paintbrush.
- For all priming products application by paint roller strictly not allowed
- The applier shall employ skilled labor familiar with any application methods being used
- All other consideration for coating, storage, handling, suitable environmental condition, safety and hazardous comments are stated in the paint manufacturer's specification
 - 4.4 Paint Specification
- 4.4.1 Specification No.1





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This specification shall be used for general purposes to prevent surfaces again corrosion. All machinery, steel structure components, pipelines and vessels in steel are included in this category.

					Minimum	Interva	l	
Process	Process Description		Treatment and Paint Name	Painting Method	Dry Film Thickness (µm)	Min. (Hour s)	Max. (Days)	
	Surface preparation		Blast Cleaning (SIS SA 2 1/2	(2)			
1st Coat		at	Zinc Rich Epoxy Primer	Airless Spray ¹	50-70	16	90	
Shop Painting	2 nd Coat		Epoxy Mid Coat	Airless Spray	50	16	30	
	3 rd Interior		Epoxy Finish Coat	Airless Spray	50	16	-	
	Coat	Exterio r	PU Finish Coat	Airless Spray	50	16		
Site Painting	Surface Preparation		Power Tool Clear For damaged are painted at site. Rust preventive completely remo	ea, at site w	elding area and			
	Touch	ing Up	Same as Shop pa	Same as Shop painting excepting shop primer				

Total	160 ± 10	
D.F.T.	100 ± 10	

¹ Painting method is stated in the paint manufacturer's specification while here airless spray is suggested.





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4.4.2 Specification No.2

This specification shall be used for conveyors, chutes, ducts and bins, which are stated in dusty environments.

				Minimum	Interval	
Process	Description	Treatment and Paint Name	Painting Method	Dry Film Thickness (µm)	Min. (Hour s)	Max. (Days)
	Surface preparation	Blast Cleaning (SIS SA 2 ½	2)		
Shop Painting	1st Coat	Zinc Rich Epoxy Primer	Airless Spray ²	50-70	16	90
	2 nd Coat	Epoxy Mid- Coat	Airless Spray	50	16	30
	3 rd Coat	Poly Urethane	Airless Spray	50	16	-
Site Painting	Surface Preparation	Power Tool Cle For damaged ar painted at site. Rust preventive completely rem	ea, at site w	elding area and		
	Touching Up	Same as Shop p	painting exce	epting shop prin	ner	

Total D.F.T. 160 ± 10

² Painting method is stated in the paint manufacturer's specification while here airless spray is suggested





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5. Color Coding

5.1 Structure Components

Item	Amplication	Specification	RAL	C-1	Remark	
No.	Application	No.	Code	Color	Kemark	
1	Steel structure, Profiles & Purlins	1	5010	Gentian Blue	-	
2	Galleries, Trestle & Racks	1	5010	Gentian Blue	-	
3	Supporting Structure	1	5010	Gentian Blue	-	
4	Handrail & Ladder	1	1017	Saffron Yellow	-	
5	Maintenance Deck & Stairs	1	5010	Gentian Blue	Step walkway shall be provided with galvanized gratings	
6	Corrugated plats and covers	1	5010	Gentian Blue	-	





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5.2 Mechanical Equipment

Item	Application	Specification	RAL	Color	Domark
No.	Application	No.	Code	Color	Remark
1	General Machinery	1	6017	May	
1	& Motors	1	0017	Green	-
2	Indoor Crane	1	1021	Rape	
2	muoor Crane	1	1021	Yellow	-
3	Outdoor Crane	1	6017	May	
3	Outdoor Crane	1	0017	Green	-
4	Equipment	1	1017	Saffron	_
7	handrails	1	1017	Yellow	
5	Dust Collection	1	6017	May	-
5	Fans	1	0017	Green	-
6	Bag Filter	1	7039	Quartz	_
0	Bug Titter	1	7037	Grey	
	Slurry Collector,			Quartz	Only for dry (outer)
7	distributer and	1	7039	Grey	surfaces
	Tank			Giej	Surfaces
8	Water Tank and	1	7039	Quartz	Only for dry (outer)
O	Basin		1037	Grey	surfaces
9	Conveyors	2	7039	Quartz	-
,	Mechanical Parts	2	1039	Grey	
10	Chute, Duct & Bin	2	7039	Quartz	-
10	Charles Dact & Bill	2	1039	Grey	
11	Gates and valves	1	6017	May	_
11	Gates and valves	1	0017	Green	-





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	Fire Fighting			Brown	
12	Components	1	3011	Red	-
13	Dangerous Parts	1	9005	Jet Black	-
14	Protective Guards for exposed moving items	1	3001	Single Red	-
15	Machine Tools	Supplier's	Standard		-

5.2.1 Painting for Mills

Standard Paint Coating

Application to be three (3) coat system:

Prime Coat

Zinc rich epoxy

Middle Coat

Micaceous Iron oxide

Epoxy Anti-corrosive paint

Top Coat

Polyurethane finish(Aliphatic)

Unless specified by the Client, the colours will be

Mill Colour

Ethereal blue (RAL501 5)

Safety guard/rail

Yellow (RAL 1023)

Film Thickness:

Prime coat

60 microns

Middle coat

80 microns

Top coat

60 microns





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5.3 Electrical & IC Equipment

Item No.	Application	Specification No.	RAL Code	Color	Remark
1	Power Panel Outer/Inner	1	7032	Pebble Grey	-
2	Control Panel Outer/Inner	1	7032	Pebble Grey	-
3	DC/AC Motors, Generators & Gear motors	Supplier's Sta	ndard		-
4	Transformers	Supplier's Sta	ndard		-
5	Pull Boxes	1	7001	Silver Grey	-
6	Control Desk	1	7032	Pebble Grey	-
7	Instrument Frame	1	7032	Pebble Grey	-
8	Wire Conduit duct	1	7032	Pebble Grey	Except Galvanized ducts

5.4 Fluids

Item	Application	Specification	RAL	Color	Remark
No.	Пррпошни	No.	Code	00101	
1	Row Water &	1	5010	Light Dive	
1	Makeup		5012	Light Blue	-





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2	Industrial &	1	6002	Leaf	
2	Service Water	1	0002	Green	-
3	Potable Water	1	6002	Leaf	_
3	1 Otable Water		0002	Green	-
4	Fire Fighting	1	3011	Brown	-
	Water		3011	Red	
5	Concentrate	1	5021	Water	With Green
	Slurry Pipelines		3021	Blue	Bands
6	Tail Pipelines	1	9007	Grey	With Green
	Tan Tipennes		7007	Aluminum	Bands
7	Tail Slurry	1	7016	Anthracite	With Green
,	Pipelines		7010	Grey	Bands
8	Air Pipelines	1	5013	Cobalt	_
	7 in 1 ipenites		3013	Blue	
9	Hydraulic Lines	1	1019	Grey	_
	Try draume Emes		1017	Beige	
10	Lubricating Oil	1	8001	Brown	_
10	Pipelines		0001	Dio wii	
	Flocculent &			Lemon	
11	Additive	1	1012	Yellow	-
	Pipelines			T CHO !!	
12	HVAC	1	7032	Pebble	_
12	111110		7032	Grey	
13	Grease	1	1003	Signal	_
13	Grease	1	1003	Yellow	





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14	Dust Collection Pipelines	1	7032	Pebble Grey	-	
15	Air Compressor	Supplier's Sta	andard		-	
16	Main Pumps	Supplier's Sta	andard		-	
17	Special Valves	Supplier's Sta	andard		-	

6. Inspection and Testing

- Required tests and inspection steps will be considered according to ITP for each equipment.
- The sub-contractor shall furnish to the purchaser test certificates, inspection and test report to confirm compliance to the standards specified such as profile, film painting measurement and adhesion test (if necessary)
- Paint manufacturer lab test certificates to show the quality of materials used in the paint shall be furnished (Mechanical, Physical, chemical and corrosion resistivity)
- The inspection and test reports shall include grade of surface preparation, paint system adopted, name of paint manufacturer, dry film thickness of each coat as measured.
- Following items shall be considered due to inspection of rubber sheeting
 - The sheeting shall be free from blisters and any other imperfections that would affect its performance
 - \circ Tolerances on the nominal thickness shall be within $\pm 5\%$ for raw sheet and $\pm 10\%$ for finished product

راهبران فولاد اصفهان

250 KTPY IRON ORE CONCENTRATE PLANT OF RAHBARAN FOOLAD ISFAHAN

مشاور

Comment / Reply Sheet

To:	RFI	Ref Transmittal No.: P1-KCE-RFI-T-0254	P1-KCE-RF1-T-0254
CC:	KCE	Transmittal Date.:	1402/05/30
Comment Sheet No.:	******	Reply Sheet No.:	
Comment Sheet Date:		Reply Sheet Date:	
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Item	Doc. Number	Doc. Description	ion	Doc. Rev.	Doc. Purpose of Comment Rev. Issue Status	Comment Status
1	P1-KCE-M14-60AA00-01-B01	Painting Specification	fication	01	IFC	
Item	Client / Consultant Comment	ıt	Consultant Reply	ant Rep	ly	
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Comment Sheet	Reply Sheet	
Prepared By:	Prepared By:	Recipient Acknowledgment:
Checked By:	Confirmed By:	
Approved By:	Authorized By:	Date of Receipt:

Comment Status: COM: Commented APP: Approved CAN: Cancelled

REJ: Rejected AWC: Approved with Comment

AFC: Approved for Construction AFP: Approved for Purchase

AFD: Approved for Design NOC: No Comment