

Sample Result Name	Type	Measure Date Time	Recalculation Date Time	Origin
10458 (hno-23122) test sample	Unknown	Tuesday, January 13, 2015	11:38:54 AM	Measured
Method Name	Method Version	Operator Name	Check Type	Check Status
Fe-10-MO		SARA SAE	None	Not Used
Grade Verification Name	Grade Verification Similarity	Correction Type	Type Corr Sample Name	Grade Search Name
	0	None		
Grade Search Similarity	Type	Status	Outlier Removal	
0	None	Not Used		

Sample Name	Grade
10458 (hno-23122) test sample	

	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Co	Cu	Nb	Ti	V	W	Pb	Sn	As	Zr
	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	0.084	0.067	0.46	0.031	0.022	0.049	0.011	0.043	0.004	0.005	0.080	0.004	<0.0010	0.003	0.070	<0.010	0.006	0.006	0.003
2	0.083	0.063	0.46	0.031	0.023	0.048	0.009	0.042	0.004	0.005	0.079	0.003	<0.0010	0.003	0.056	<0.010	0.005	0.006	0.003
3	0.079	0.065	0.44	0.032	0.023	0.045	0.011	0.045	0.006	0.006	0.077	<0.003	<0.0010	0.002	0.064	<0.010	0.005	0.007	0.004
Rep	0.082	0.065	0.45	0.031	0.023	0.047	0.011	0.043	0.005	0.005	0.079	0.003	<0.0010	0.003	0.063	<0.010	0.005	0.006	0.003
Min Cal	0.005	0.005	0.004	0.003	0.002	0.005	0.003	0.005	0.003	0.002	0.002	0.003	0.0010	0.002	0.030	0.010	0.002	0.005	0.003
Mean	0.082	0.065	0.45	0.031	0.023	0.047	0.011	0.043	0.005	0.005	0.079	<0.003	<-0.002	0.003	0.063	<0.008	0.005	0.006	0.003
Max Cal	1.80	24.00	2.76	0.16	0.30	10.10	10.20	6.48	2.40	2.52	1.44	0.39	1.20	1.32	3.72	0.31	0.18	0.17	0.28
	Ca	Ce	B	Zn	La	Fe													
	Conc	Conc	Conc	Conc	Conc	Conc													
	%	%	%	%	%	%													
1	<0.0005	0.017	0.001	0.014	0.003	99.0													
2	<0.0005	0.017	0.0009	0.014	0.002	99.0													
3	<0.0005	0.018	0.001	0.014	0.003	99.0													
Rep	<0.0005	0.017	0.001	0.014	0.003	99.0													
Min Cal	0.0005	0.006	0.0005	0.003	0.002														
Mean	<0.0001	0.017	0.001	0.014	0.003	99.0													
Max Cal	0.016	0.66	0.018	0.036	0.27														

Qualify in 1008 as
per SES 26-615
Dupak

MR NO: - 22037

UURB

USHA MARTIN LIMITED

PLANT: ADITYAPUR, JAMSHEDPUR, INDIA. POST BOX NO: 147, PHONE :0657- 3982200.

TEST CERTIFICATE

F/BM-QA/04

Customer

NO - 18414

Challan No

Ch No. : 973759

Quantity

Rolling Input 200 x 200 mm

PROCESS ROUTE :-

MBF/EAF/LFVD/CCP/RM

P.O. NO / Date

8429 / 8245 / Invoice No. R-81

NO:- 23122

Specification code:-

Size

80 MM

1 Dt: 8-Nov-14

Grade : SAE -1008

Rev.

Product :

ROUND

Condition

HOT ROLLED

Colour

Code

BLUE+WHITE+RED

CHEMICAL COMPOSITION

Element	%C	%Mn	%Si	%P	%S	%Cr	%Ni	%Cu	%Mo	%Al	%Pb	%V	%Ti	%Ca
		0.025												
	0.08	0.40		0.040	0.050									
Actual	0.05	0.32	0.25	0.013	0.003	0.01	0.01	0.01	0.0011	0.030				

OTHER ELEMENTS

%Sn	%As	%Sb			
Actual					

GAS LEVEL

	O ₂ PPM	H ₂ PPM	N ₂ PPM
MIN			
MAX			
ACTUAL			

MECHANICAL PROPERTIES

Requirement	Hardness (BHN)	Impact Strength (IZOD/CHARPY) (Joules)	Yield Strength (Kg/mm ²) / Mpa	UTS (Kg/mm ²) / Mpa	%E	%RA
Min						
Max						

JOMINY HARDENABILITY (HRC)

	Min.	Max.	Actual

METALLURGICAL PROPERTIES

Requirement	Depth of Decarb (mm)	Macro Etch (ASTM E 381)	Max. Depth of Surface Defect(%)	Grain Size (ASTM E 112)
		C2R2S2		
Actual		C2R1S1		

INCLUSION RATING AS PER ASTM-E-45

A		B		C		D	
T	H	T	H	T	H	T	H

Micro & Spectral Test/PMI	100%
Surface Inspection:	100% as per Spec.
Sonic Test:	

Other Tests:

1. Magnafux:	100%
2. Step Turn:	2
3. Blue Fracture:	
4. Upset Test:	

Hardness after Heat treatment of sample.

Requirement	
Actual in BHN	

REDUCTION RATIO : 7.96 : 1 , SIZE TOLERANCE-- (+0.90) (-0.0)

, OUT OF ROUNDNESS --0.60

Length of Bar :- 3.0 MTR TO 6.0 MTR

Test certificate meets TDC.
Results based on sample testing

Officer QA

Corporate Office: 2 A, Shakespeare Sarani, Kolkata: 700 016.



OK as per 26-615 in 1008

Signature and date 10/11/15