

TEST REPORT

No. : SHIN1509042847ML

Date : Sep 23, 2015

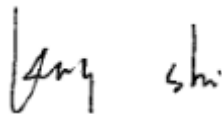
Page: 1 of 5

CUSTOMER NAME: GOOD METALS CORPORATION
ADDRESS: STAR HOUSE, GREENHILLS INDUSTRIAL ESTATE, SAM GREEN ROAD, TUNNEY EXT 6, EDENVALE, JOHANNESBURG, REPUBLIC OF SOUTH AFRICA

The following sample(s) was/ were submitted and identified on behalf of the client as:

Sample Name : DIA. 125MM FORGED GRINDING BALLS
SGS Ref. No. : IN-SH-5802-15105-8
Product Specification : Dia. 125mm
Product or Lot No. : Order No. 187800
Buyer : GOOD METALS CORPORATION
Test Required : Chemical Composition Analysis , Impact Test, Hardness Test, Metallographic Analysis
Date of Receipt : Sep 17, 2015
Testing Start Date : Sep 17, 2015
Testing End Date : Sep 23, 2015
Test result(s) : For further details, please refer to the following page(s)

Signed for
SGS-CSTC Standards Technical
Services (Shanghai) Co., Ltd.



Kelly Shi
Authorized signatory



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1. Chemical Composition Analysis:

Test Method: GB/T 4336-2002

Element	C	Si	Mn	P	S	Cr
Result ,%	0.62	1.87	0.77	0.013	0.005	0.85

2. Impact Test:

Test Method: GB/T 229-2007

Test item	Test condition	Result (J)			
		1	2	3	Average
Absorbed energy	Charpy non-notch Dim. of specimens: 55mm×10mm×10mm Temperature: Ambient	95	90	94	93



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3.Hardness Test:

Test Method: GB/T 230.1-2009

Test item	Test position	Result
HRC	5mm from the surface	60.4
	10mm from the surface	60.3
	15mm from the surface	60.7
	20mm from the surface	60.7
	25mm from the surface	60.8
	30mm from the surface	60.5
	35mm from the surface	59.8
	40mm from the surface	60.5
	45mm from the surface	59.4
	50mm from the surface	60.3
	55mm from the surface	60.0
	60mm from the surface	59.8
	65mm from the surface	59.6



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4. Metallographic Analysis:

Reference Standard: GB/T 13298-1991

Etching Reagent: 3% nitric acid alcoholic solution

Step 1. Sampling from main body of material;

Step 2. Mounting, Cleaning, polishing and etching;

Step 3. Observing with the microscope.

Test result(s):

Microstructure of the sample
Tempered martensite and a little residual austenite ,see Fig.1

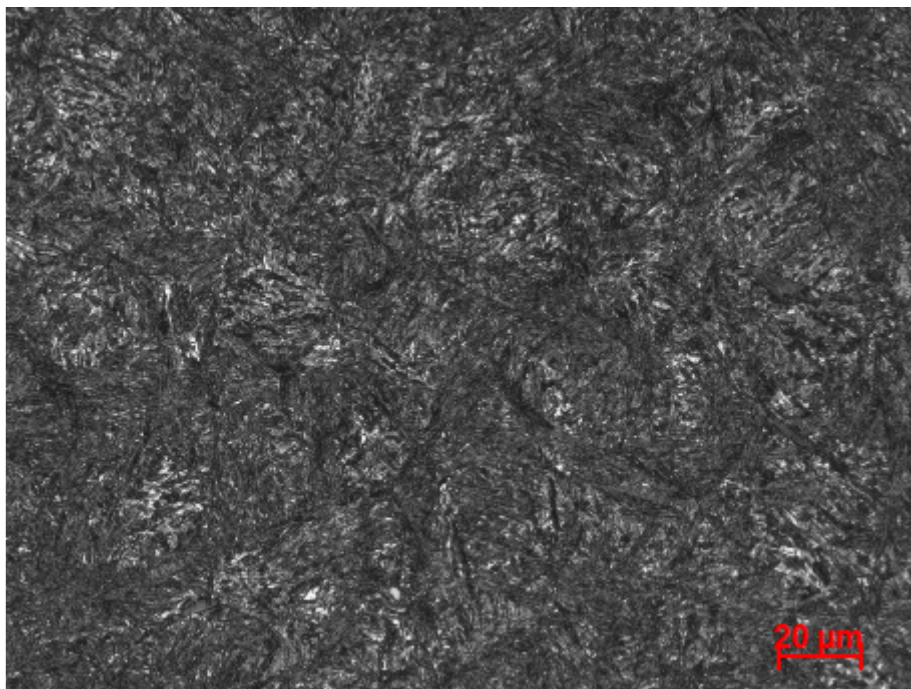


Fig. 1 Microstructure of the sample 500×

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Sample photo

***** End of report*****



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