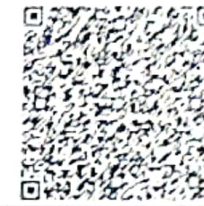


**MUKAND SUMI SPECIAL STEEL LIMITED.**  
Hospet Road, Kanakapura Village, Koppal, Karnataka, 583228  
**Tel : 91-08539-286603-08 (6 lines)**  
**TEST CERTIFICATE**



CUSTOMER : SSB ENG ALWAR			Invoice.No: 9023153837		PROCESS ROUTE			TC NO. K197218 DATE: 04.03.2025		
					EOF-LRF-VD-CCM(EMS + AMLC)-R MILL			TRUCK NO: RJ02GC5242		
CUSTOMER SPECIFICATION NO		HEAT NO	GRADE	SECTION ( IN mm )	COLOR CODE	SUPPLY CONDITION	LENGHT ( IN Mtrs. )	OVALITY ( IN mm )	NO OF PILES	QUANTITY (MIS)
MET-W-04, ISSUE NO 17, Dt: 01.09.2015		M197218	SAE 8620ALN	70 ROUND	White Strip in between Half Blue & Half	AS ROLLED	4.60 TO 4.50	AS PER IS 3739	218	29.750

**CHEMICAL COMPOSITION**

	%C	%Si	%Mn	%P	%S	%Ni	%Mo	%Cr	%Cu	%Al	%Sn	%V	N <sub>2</sub> ppm	O <sub>2</sub> ppm	H <sub>2</sub> ppm	%Ti	CaPPM	Bppm	%As	%Sb	%In
REQ	0.180/0.230	0.150/0.300	0.700/0.900	0.035Max	0.035Max	0.400/0.700	0.150/0.250	0.400/0.600	0.300Max	0.020Min		0.010Max	80.0/110.0	20.0Max	2.00Max	0.010Max	15.000Max	5.000Max			
ACT	0.2060	0.2400	0.8830	0.0150	0.0320	0.4570	0.1930	0.5100	0.0130	0.0280		0.0030	98.000	14.000	1.600	0.0020	12.0000	1.0000			

**MECHANICAL PROPERTIES**

	TENSILE VALUES				IMPACT STRENGTH (IZOD/CHARPY)	HARDNESS (BHN)	JOMINY VALUES (HRC)								DI VALUE
	YS	UTS	%EL	%RA			J13mm								
REQ						241 BHN MX	23/28								
ACT						175	26.0								

**METALLURGICAL PROPERTIES**

	SPARK/ SPECTRAL TEST	STEP DOWN TEST	MACRO ETCH RESULTS(ASM E-381)	INCLUSION RATING (ASTM - E - 45 ) Method 'A' Plate I(Worst Fields)								GRAIN SIZE (ASTM E-112)	SURFACE DEFECT LEVEL (mm)	CORE HARDNESS (OILQUENCH (HRC)	UPSET TEST RESULTS	TOTAL DEPTH OF DICARBURIZATION IN mm
				A		B		C		D						
				T	H	T	H	T	H	T	H					
REQ	OK	OK	C2R2S2Max	20	20	10	10	10	10	15	15	5 or finer	OK	NA	NA	1% of the Dia. Max
ACT	OK	OK	<C2/R2/S2	20	05	05	00	00	00	10	05	70	OK	NA	NA	0.38

REMARKS 1 BLOOM SIZE 240X280MM2 REDUCTION RATIO 1:17.46  
2 MPI TEST 100% DONE & FOUND OK  
3 ULTRASONIC TEST OK AS PER 20/80 METHOD  
4 MICROSTRUCTURE OK

5 MACRO STREAK FLAW TEST OK AS PER JIS G0556  
6 "MATERIAL IS FREE FROM RADIO ACTIVE ELEMENTS"  
7 REQ AL/N2 2.0 TO 3.0 ACT 2.85



**PREPARED BY**

QF.NO.HS / QA/ 10.01 DG.Rev.01 Dtd : 23.02.2015

**AUTHORISED SIGNATORY**

K.POMESH(Sr.GM-QAD)