



Republic

401 ROSE AVE S E
MASSILLON, OH 446646

REPUBLIC ENGINEERED PRODUCTS

FAX 330-837-7017

January 24, 2008

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CERTIFICATE OF TESTS

OF 2

PURCHASE ORD: XJCX04866NA-45
PART NUMBER: 954R259046
ORDER NUMBER: 1355490 - 01
HEAT: 7547753

PURCHASE ORDER DATE: 10/31/2007
ACCOUNT NUMBER: 5162-1839-01
SCHEDULE: 5854-42
REVISION: 1

CHARGE ADDRESS

SHIP TO

CATERPILLAR INC
ACCOUNTS PAYABLE LD235
E PEORIA, IL 616300346

CATERPILLAR INC
PURCH DEPT
C/O PRESRITE OF JEFFERSON
322 SOUTH CUCUMBER ST
ASHTABULA COUNTY
JEFFERSON, OH 44047

MATERIAL DESCRIPTION

HOT ROLLED STEEL BARS ALLOY CATERPILLAR SPEC 1E 1801 REVISION ENG CHG NBR 03 CATERPILLAR SPEC 1E 9024A REVISION ENG CHG NBR 38 CATERPILLAR SPEC 1E 2661A REVISION ENG CHG NBR 10 EXC JK A'S CATERPILLAR SPEC 1E 1286 REVISION ENG CHG NBR 10 CATERPILLAR SPEC 1E 2700F REVISION ENG CHG NBR 14 MICROCLEAN** GRADE-51V30-MOD-RESUL FINE GRAIN VACUUM DEGASSED COLD SHEARING QUALITY B FIXED PRACTICE PART RESTRICTED CHEMISTRY RESTRICTED HARDENABILITY EXTRA TESTING 4.00 : 1 RED RATIO
SIZE: RDS 3.5000 DIAM X 240.8750 MIN/358.3750 MAX
IN MULTS OF 5.8750IN
RDS 88.9000MM DIAM X 6118.2250MM MIN/9102.7250MM MAX
IN MULTS OF 149.2250MM

LADLE CHEMISTRY

C	MN	P	S	SI	CU	NI	CR
0.31	1.08	0.011	0.067	0.30	0.04	0.02	1.10
V	MO	SN	AL	CB	PB	CA	N
0.084	0.05	0.004	0.110	0.001	0.0010	0.0002	0.0040
O	H	DI					
	0.00021	4.220					

CALCULATED TESTS

REDUCTION RATIO 18.6 TO 1

AUSTENITIC GRAIN SIZE 5 OR FINER BASED ON A TOTAL ALUMINUM CONTENT EQUAL TO OR GREATER THAN .020% PER ASTM A29.

SEMI - FINISHED RESULTS

MICROCLEANLINESS TEST	ASTM E45 METHOD A	ASTM E45 METHOD A	ASTM E45 METHOD A	ASTM E45 METHOD A	ASTM E45 METHOD A	ASTM E45 METHOD A	ASTM E45 METHOD A	ASTM E45 METHOD A
	SULFIDE	SULFIDE	ALUMINA	ALUMINA	SILICATE	SILICATE	OXIDE	OXIDE
	A-T	A-H	B-T	B-H	C-T	C-H	D-T	D-H
PCE T101	2.5	2.0	0.5	0	0	0	0.5	0
PCE T105	2.5	2.0	1.0	0	0	0	0.5	0
PCE T108	2.5	1.5	0.5	0	0	0	0.5	0
PCE T201	2.5	2.0	0.5	0	0	0	0.5	0
PCE T401	2.5	2.0	1.0	0	0	0	0.5	0
PCE T501	2.5	2.0	1.0	0	0	0	0.5	0
AVG	2.5	1.9	0.8	0	0	0	0.5	0

CAPABLE OF OXIDE/SILICATE ASTM E45 METHOD C SAE J422 OXIDE 3.0 MAX SILICATE 2.0 MAX

MICROCLEANLINESS TEST	ASTM E45 METHOD E	ASTM E45 METHOD E	ASTM E45 METHOD E
	B	D	
PCE 03	0	0	

C. P. ANDERSON
GEN. MGR. COLD FINISHED OPERATIONS

BY ALISON J. BLONDHEIM

OK
SE



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PURCHASE ORD: XJCK04866NA-45
PART NUMBER: 954R259046
ORDER NUMBER: 1355490 - 01
HEAT: 7547753
CAT 1E0024A/CAT 1E1286 ENG CHG 10

PURCHASE ORDER DATE: 10/31/2007
ACCOUNT NUMBER: 5162-1839-01
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----- FINISHED SIZE RESULTS -----
HARDNESS TEST ASTM E10/ASTM A370 HBW HT HBW
MID-RADIUS

PCE 01 197

NOTES

REPUBLIC ENGINEERED PRODUCTS HEREBY CERTIFY THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATIONS.

RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FED STATUES TITLE 18 CHAPTER 47.

THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURE DURING PROCESSING OR WHILE IN OUR POSSESSION.

NO WELD OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

THE RESULTS REPORTED RELATE ONLY TO THE ITEMS TESTED

----- SOURCE INFORMATION -----
MELT SOURCE: LORAIN BLOOM MELT COUNTRY: U.S.A HOT ROLL SOURCE: LORAIN 20in, U.S.A
MELT METHOD: BOF BLOOM RED. RATIO: 18.6

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FILE 1 COPY

C. R. ANDERSON
GEN. MGR. COLD FINISHED OPERATIONS

BY ALISON J. BLONDHEIM