

01-08-'07 08:48 FROM-

T-486 P004/018 F-140

Outokumpu Stainless Plate, Inc.

OUTOKUMPU

Certificate of Analysis and Tests

OUR ORDER C254894 - 01

HEAT & PIECE 838588-3A 12/27/06

SOLD TO: A. M. CASTLE & COMPANY

SHIP TO: A. M. CASTLE METALS
3400 NORTH WOLF ROAD
847-455-7111
FRANKLIN PARK IL 60131

3400 NORTH WOLF ROAD
FRANKLIN PARK IL 60131

YOUR ORDER & DATE

01-22553 8/15/06

TAG# IAC 18467

ITEM DESCRIPTION

HEAT & PIECE 838588 - 3A
WEIGHT 9236
FINISH 1
GRADE 304L / 304
DIMENSIONS 2.750 X 96.000 X 120.000 EXACT
UNS-S30403 / UNS-S30400

SPECIFICATIONS

*** MFG IN NEW CASTLE, IN, USA
AMS 5511H EXCEPT LINE MARK
ASTM A240-06
ASTM A312-05A CHEMISTRY ONLY
ASME SA312 04ED05AD CHEM ONLY
ASTM A480/A480M-05
A M CASTLE S30403-66 REV 1
97/23/EC PKD #224/2004/MUC
CASTLE S30403-63 R2 W/EXCEPT
NO GRIPPER MARKS
ASTM A262-02A PRACTICE A

FROM SLABS IMPORTED FROM BRITAIN
- AMS 5513H EXCEPT LINE MARK
ASTM A276-05A CON A CHEM ONLY
ASME SA276-04 EDITION 05 ADD
ASTM A479-05A CHEM ONLY
ASTM A249-04 CHEM ONLY
ASTM A262-02A PRACTICE E
SLAB #224-1 PKD W/EXCEPTION
97/23/EC ANNEAL PARA 4.3
NO WELD REPAIRS

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FAHRENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR
FREE FROM MERCURY CONTAMINATION AT CURRENT DETECTION LIMITS
HOT ROLLED, ANNEALED & PICKLED (HRAP) #224/2004

MECHANICAL & OTHER TESTS

HARDNESS RB 80
GRAIN SIZE 5
YIELD STRENGTH (PSI) 37596
TENSILE STRENGTH (PSI) 81840
INTERGRANULAR CORROSION OK
ELONGATION % IN 2" 59.1
REDUCTION OF AREA % 69.9

CHEMICAL COMPOSITION

CARBON	(C)	.020
MANGANESE	(MN)	1.68
PHOSPHORUS	(P)	.029
SULFUR	(S)	.001
SILICON	(SI)	.35
CHROMIUM	(CR)	18.15
NICKEL	(NI)	8.59
COBALT	(CO)	.19
COPPER	(CU)	.39
MOLY	(MO)	.43
NITROGEN	(N)	.07
COLUMBIUM	(CB)	.006
TITANIUM	(TI)	.003
ALUMINUM	(AL)	.005
TIN	(SN)	.013
TANTALUM	(TA)	.002

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

James Douberman

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER