

851591-3A

Outokumpu Stainless Plate, Inc.

OUTOKUMPU

Certificate of Analysis and Tests

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\* RE-CERTIFICATION \*
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OUR ORDER 0276301 - 01

HEAT & PIECE 851591-3A 07/20/11

SOLD TO: ROLLED ALLOYS
P O BOX 310

SHIP TO: ROLLED ALLOYS INC
9818 EAST HARDY ROAD
PH:713-691-4967
HOUSTON TX 77093

TEMPERANCE MI 48182

TX 77093

----- YOUR ORDER & DATE -----
J16507 5/17/11 TAG# 3903-4599-02-1

HEAT & PIECE 851591 - 3A
WEIGHT 12097
FINISH 1
GRADE 2205+2 / 2205 UNS-S32205 / UNS-S31803
DIMENSIONS 2.000 X 96.000 X 216.000 EXACT

----- SPECIFICATIONS -----
\*\*\* MFG IN NEW CASTLE, IN, USA FROM SLABS IMPORTED FROM BRITAIN
ASTM A240-11A ASME SA240-10E ASTM A480-11A ASMESA480 10ED
ASTM A 923-06 METH A,B,& C REFINED A.O.D. PROCESS
MELTED ELECTRIC ARC METHOD NACE MRO175-2003/ISO 15156
UHA 51 CHARPY @ -40F (-40C) ROLLED ALLOYS SPEC 2205+2
CONTAINS 40% TO 60% FERRITE E562 POINT CT FERRITE 40-50%
NAFTA CTRY ORIGIN= SLAB CTRY MEETS EU ELECTRICAL ROHS
LIST HEAT/PCE/SIZE ON INVCE EXXONMOBIL DSS1R10 R6 W/EXCP

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FAHRENHEIT MINIMUM.
THEN WATER QUENCHED
FREE FROM MERCURY CONTAMINATION AT CURRENT DETECTION LIMITS
HOT ROLLED, ANNEALED & PICKLED (HRAP)

----- MECHANICAL & OTHER TESTS -----

HARDNESS HRC 20
YIELD STRENGTH (PSI) 75329
TENSILE STRENGTH (PSI) 104300
ASTM A923 METHOD A OK
ELONGATION % IN 2" 40.6
REDUCTION OF AREA % 30.6
CHARPY TEST AT -40F (TRANS) 179 FT-LBS. SAMPLE SIZE FULL
A923 METHOD C CORROSION TEST M.D.D. - 0.00 @ 25 DEGREES C
CHARPY TEST AT -40F (TRANS) 208, 179, 209 FT-LBS. FULL SAMPLE SIZE
SHEAR % = 100%, 100%, 100% LATERAL EXPANSION = 97, 87, 97 (MILS)
ASTM E-562 POINT COUNT FERRITE = 47.00% AT 10% RELATIVE ACCURACY
ASTM E-562 POINT COUNT FERRITE = 47% AT 10% RELATIVE ACCURACY
CALCULATED E-LONG = 30.6%

----- CHEMICAL COMPOSITION -----

CARBON (C) .019
MANGANESE (MN) 1.42
PHOSPHORUS (P) .019
SULFUR (S) .001
SILICON (SI) .40
CHROMIUM (CR) 22.44
NICKEL (NI) 5.65
COBALT (CO) .18
COPPER (CU) .10
MOLY (MO) 3.15
NITROGEN (N) .18
COLUMBIUM (CB) .012
TITANIUM (TI) .003
ALUMINUM (AL) .022
TIN (SN) .009

ROLLED ALLOYS QUALITY ASSURANCE
APPROVED S. M...
DATE 11-08-11

TRACER # 240184
REVISED

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

Outokumpu Stainless Plate, Inc.
P.O. Box 370
New Castle, Indiana 47362

CERTIFICATE IN CONFORMANCE WITH EN10204-95 3.1.B/EN10204-2004 3.1