

851106-3A.

Outokumpu Stainless Plate, Inc.

OUTOKUMPU

Certificate of Analysis and Tests

* RE-CERTIFICATION *

OUR ORDER 0275888 - 03

HEAT & PIECE 851106-3A 10/17/12

SOLD TO: ROLLED ALLOYS - CANADA
2283 ARGENTIA ROAD, UNIT 6

SHIP TO: ROLLED ALLOYS
6810 RUE ERNEST CORMIER

00000

LAVAL QC H&C 2T5

00000

M12031

4/04/11

YOUR ORDER & DATE

HEAT & PIECE 851106 3A
WEIGHT 12125
FINISH 1
GRADE 2205+2 / 2205
DIMENSIONS 3.000 X 96.000 X

ITEM DESCRIPTION

UNS-S32205 / UNS-S31803
144.000 EXACT

*** MFG IN NEW CASTLE, IN, USA
ASTM A240-12 ASMESA240-11ED
ASTM A 923-06 METH A, B, & C
MELTED ELECTRIC ARC METHOD
UHA 51 CHARPY @ -40F (-40C)
SYNCRUDE W-21 REV 1 W/EXCEPT
NAFTA CTRY ORIGIN= SLAB CTRY
EXXONMOBIL DSS1R10 R7 W/EXCP
NO WELD REPAIRS

SPECIFICATIONS

FROM SLABS IMPORTED FROM BRITAIN
ASTM A480-11A ASMESA480 11ED
EXXON DSS1R05 REV 4 W/EXCEPT
NACE MRO175-2003/ISO 15156
ROLLED ALLOYS SPEC 2205+2
5562 POINT CT FERRITE 40-50%
LIST HEAT/PCB/SIZE ON INVCE
NO GRIPPER MARKS

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)

HARDNESS HRC 17
YIELD STRENGTH (PSI) 75145
TENSILE STRENGTH (PSI) 105970
ASTM A923 METHOD A OK
ELONGATION % IN 2" 36.0
REDUCTION OF AREA % 73.0

MECHANICAL & OTHER TESTS

REFINED A.O.D. PROCESS
NACE MRO175-2005
A923 METHOD C CORROSION TEST M.D.D. - 3.90 @ 25 DEGREES C 24HRS.
CALCULATED E-LONG = 31.4%
CHARPY TEST AT -46F (TRANS) 179, 239, 186 FT-LBS. FULL SAMPLE SIZE
SHEAR % = 100%, 100%, 100% LATERAL EXPANSION = 82, 92, 83 (MILS)
ASTM E-562 POINT COUNT FERRITE = 41.88% AT 10% RELATIVE ACCURACY
CALCULATED E-LONG = 31.4%

CARBON (C) .021
MANGANESE (MN) 1.41
PHOSPHORUS (P) .025
SULFUR (S) .001
SILICON (SI) .42
CHROMIUM (CR) 22.43
NICKEL (NI) 5.67
COBALT (CO) .09
COPPER (CU) .29
MOLY (MO) 3.20
NITROGEN (N) .17
COLUMBIUM (CB) .009
TITANIUM (TI) .003
ALUMINIUM (AL) .017
TIN (SN) .011
TANTALUM (TA) .007

CHEMICAL COMPOSITION

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.

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

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

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