


BGH Edelstahl Siegen GmbH

BGH Edelstahl Siegen GmbH Industriestraße 9 57076 Siegen

ASA Alloys Inc.
20 Challenger Crescent
T8H 2R1 Sherwood Park, Alberta
Kanada
Zeugnis-Nr. 402543 Rev.2 06.04.2021
Certificate no.
No. de certificat

 Bescheinigung über Werkstoffprüfung nach DIN EN 10204
 Certificate of material tests according to DIN EN 10204 **3.1**
 Certificat des essais des matériaux selon DIN EN 10204

 Die Lieferung entspricht den vereinbarten Lieferbedingungen.
 Delivery in accordance with the agreed terms of delivery.
 La livraison correspond aux conditions de livraison convenues.

 Zeichen des Lieferwerkes Stempel des Werkstoffverständigen
 Trade mark Inspector's stamp
 Signe du fournisseur Poinçon de l'inspecteur

 Kunden-Bestell-Nr. **P049165**
 Customer order no.
 Cde. no. du client

 BGH-Auftrags-Nr. **814388-001-01**
 BGH works no.
 BGH référence


| | | | | | | | | | | | |
|--|--------------------------------|--|----------------------------|--|-------------------------|--|--------|--|--|-------------------|--|
| Erzeugnisform Product | | Stab, rund, geschmiedet, geschält Round bars, forged, peeled | | | | | | | | | |
| Werkstoff / Quality | | UNS S31603 - Type 316/316L | | | | | | | | | |
| Anforderungen Requirements | | ASTM A 479 /A479M -19 ANSI/NACE MR 0175 /ISO15156-3 2015 ANSI/NACE MR 0175/ISO15156-1 2015 | | | | | | | | | |
| Besichtigung und Maßnachprüfung Inspection and dimensional control Inspection et contrôle de dimension ohne Beanstandung without objection | | | | Erschmelzung/Nachbehandlung Melting process/secondary refining Mode d'élaboration/traitement ultérieur E - AOD/LF | | | | Verwechslungsprüfung (spectroanalytisch) Identification test (spectral-analysis) examen d'identification (analyse spectrale) ohne Beanstandung without objection | | | |
| Pos. Item Poste | Anzahl Quantity Quantité | Abmessung Dimension Dimensions | | | | | | Gewicht Weight Poids | Schmelz-Nr. Heat-No. No. de coulée | | |
| 1 | 3 | 596.9 mm dia. x 1897 - 1900 mm (23.50" dia.) | | | | | | 12720 kg | 732218 | | |
| Schmelze Heat % | C | Si | Mn | P | S | Cr | Mo | Ni | | | |
| 732218 | 0,016 | 0,43 | 1,89 | 0,030 | 0,0010 | 17,00 | 2,04 | 11,17 | | | |
| Wärmebehandlungszustand Condition of heat treat | | lösungsgeglüht solution annealed | | | | | | | | | |
| Probe-Nr. Test-No. | Lage Loc. | Temp. °C | Rp0,2 N/mm ² | | Rm N/mm ² | A4 % | Z % | Kerbschlagarbeit Impact value | Probenform Shape of test piece | Härte Hardness | |
| Soll/Req. | L | RT | >=170 | | >=485 | >=30 | >=40 | | | | |
| 740R1 | L | RT | 283 | | 573 | 56,7 | 75 | | | | |
| <p>Grain size acc. ASTM E 112: 3</p> <p>The UT examination according to ASTM A 745 / ASME SA-745, QL 4 was done: without objection</p> <p>Visual surface control was done: without objection</p> <p>Radioactivity inspection without objection, the measured value is below the detection limit of 0.1 Bq/g.</p> | | | | | | | | | | | |
| Anlagen Encl. Annexe Hardness Testing Report - 292648 | | | | Siegen, den Place and date Lieu et date 18.09.2020 | | | | Abnahmebeauftragter Inspector representative Inspecteur de réception Langer | | | |
| Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig. | | | | | | This certificate was generated by data system and it is valid without signature as well. Ce certificat a été établi sur système informatique et est valable sans signature aussi. | | | | | |

CLIENT: **ASA ALLOYS INC.**
#100, 112 Strathmoor Drive
Sherwood Park, Alberta T8H 2B7

DATE: **March 23, 2021**
INVOICE #:
JOB #:
P.O. #: **PO49165**

EQUIPMENT OWNER: **ASA ALLOYS INC.**
LOCATION: **ASA ALLOYS INC.**

WORK ORDERS: **37905**

TECHNIQUE DETAILS

PROCEDURE #: **HTP-01, Rev.1**
TEST METHOD: **ASTM A1038-2017**
ACCEPTANCE STANDARD: **NACE MR0175**

EQUIPMENT

Manufacturer: **BAQ** Type: **alphadur mini** Serial #: **ADM-1423**
Last Calibration: **Jul-07-2020** Calibration Due: **Jul-07-2021**

SURFACE CONDITION: Bare Metal Ground Machined Blasted Painted Welded Loose Scale Removed
MATERIAL TYPE: **316 SS** MATERIAL THICKNESS: SURFACE TEMP:

ITEMS TESTED

Ultrasonic contact impedance hardness testing was performed on the following.

Qty 1 - 316 SS bar stock

| LOCATION | CN # | HEAT # | REMARKS | Accept | Reject |
|------------------------|--------|--------|--------------------|--------|--------|
| As per attached photos | 402543 | 732218 | BGH Edelstahl GmbH | ✓ | |

TEST RESULTS & COMMENTS

All readings were within the acceptable limit of < 237 BHN.

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SIGNATURES * Client representative's signature indicates acceptance of the reports and results. Nortech Advanced NDT Ltd. is liable for examination costs only.

CLIENT REPRESENTATIVE* (PRINT/SIGN) /

Technician (PRINT) Murray Nethery

CGSB:

CGSB REG#: 9638

SNT-TC-1A:

Technician (SIGN)



Bar OD



| Comments | Accept | Reject |
|--------------------------|--------|--------|
| Area 1: 222 BHN (20 HRC) | ✓ | |
| Area 2: 216 BHN (18 HRC) | ✓ | |
| Area 3: 198 BHN (15 HRC) | ✓ | |

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Technician (PRINT) Murray Nethery

CGSB:

CGSB REG#: 9638

SNT-TC-1A:

Technician (SIGN)

Bar radius



| Comments | Accept | Reject |
|---------------------------|--------|--------|
| Area 4: 176 BHN (<15 HRC) | ✓ | |

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Technician (PRINT) Murray Nethery

CGSB:

CGSB REG#: 9638

SNT-TC-1A:

Technician (SIGN)