



# VERIFICATION STATEMENT

## FOR ALUMINUM ALLOY ANODE

Statement No:  
**N1425R66-0**

Valid for products not subject to DNV classification requirements.

### Particulars of Product

Product Name:	<b>ALUMINUM ALLOY ANODE</b>
Type designation:	<b>ANODE AQS-90</b>
Application/context:	
ID/Serial/Tag no:	<b>MSB123/20</b>
The product is intended for:	<b>STOCK</b>
Requirements are based on:	<b>DNVGL-RP-B401 – Cathodic Protection Design, Jun. 2017</b>

Deviations and limitations, if any, are stated on page 2 onwards.

### Particulars of Vendor and Purchaser

Vendor:	<b>METAL SALES COMERCIO E INDUSTRIA DE METAIS LTDA</b>
Vendor reference:	<b>1-1DKDS8D-O-AB-TAA-2 Rev.0</b>
Purchaser:	
Purchaser reference:	

Issued at **Verification & Inspection Services** on **2021-06-07**



for **DNV**

This document has been digitally signed and will therefore not have handwritten signatures

**Massari, Henrique**  
**Surveyor**

Except for any liability caused by DNV's gross negligence or wilful misconduct, DNV's maximum cumulative liability arising out of or related to the use of or reliance on this document shall be limited to USD 300 000.



Form code: 71.07a

Revision: 2021-03

www.dnv.com

Page 1 of 2

**Verification extent and result**

**Verification extent:**

This Verification Statement covers the following phases:

- Traceability and identification of anodes;
- Verification of chemical analysis certificates of raw material;
- Visual and dimensional inspection of test coupons;
- Witness of electrochemical measurements and weight loss;
- Monitoring and witness of the data treatments.

**Verification result/comments:**

The above mentioned product has been tested in accordance with DNVGL-RP-B401 - Cathodic protection design - APPENDIX C, for a test period of more than 12 (twelve) months.

**Report**

**Product description:**

Anodes to be welded on the structure to be protected with chemical composition and electrochemical efficiency described below.

Element	Nominal	Guaranted Values
Zn	3,46%	2,5 - 5,75%
In	0,034%	0,016 - 0,040%
Si	0,030%	0,12% max.
Fe	0,05%	0,09% max.
Cu	<0,001%	0,03% max.
Cd	<0,001%	0,002% max.
Others (each)	0,02% max.	0,02% max.
Aluminium	Balance	Balance

Specimen	Initial mass (g)	Final mass (g)	Mass loss (g)	Total Current (mA.h)	Electrochemical Efficiency (mA.h/kg)
03	260,32	215,18	45,14	108,389	2.401,18
04	260,31	214,55	45,76	112,107	2.449,88
07	260,77	214,79	45,98	109,188	2.347,69
09	262,00	220,02	41,98	105,970	2.524,30
10	263,43	215,42	48,01	115,414	2.403,95

AVERAGE ELECTROCHEMICAL EFFICIENCY: 2.430,8 mA.h/kg