

# Material Test Report

**COFFER®**  
an **AFGlobal** Company

Heat Code: **XXB**

An Ameri-Forge Group Company  
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Sales: (713) 868-4421 Fax: (713) 455-8366

ISO 9001:2008 Certified

|  |                                    |                        |         |
|--|------------------------------------|------------------------|---------|
| PLESA STEEL INC.<br>12700 NORTHBOROUGH DR<br>STE 646<br>Houston, TX 77067          | PO: 232                            | Sales Order: 136529    | Line: 5 |
|  | Item Code: 0601910180-0021F        | Qty Shipped: 20        |         |
|  | Item Desc: FLG 10.00 0600 WN RF 80 | Supplier Heat: 1030692 |         |
|  | Supplier: CMC                      |                        |         |
| Spec: ASTM A105/A105N-(13)/ASME SA 105/SA 105N-(13) Section II Part A - Normalized |                                    |                        |         |

| Element | (%wt)       | Ladle | Product | EPCRA | CAS#      | Element | (%wt)      | Ladle | Product | EPCRA | CAS#      |
|---------|-------------|-------|---------|-------|-----------|---------|------------|-------|---------|-------|-----------|
| C       | Carbon      | 0.19  |         |       |           | Ni      | Nickel     | 0.13  |         | ✓     | 7440-02-0 |
| Mn      | Manganese   | 1.06  |         | ✓     | 7439-96-5 | Cr      | Chromium   | 0.18  |         | ✓     | 7440-47-3 |
| P       | Phosphorous | 0.020 |         |       |           | Mo      | Molybdenum | 0.037 |         |       |           |
| S       | Sulphur     | 0.016 |         |       |           | V       | Vanadium   | 0.005 |         |       |           |
| Si      | Silicon     | 0.21  |         |       |           | Cb      | Columbium  | 0.001 |         |       |           |
| Cu      | Copper      | 0.28  |         | ✓     | 7440-50-8 | C.E.    |            | 0.43  |         |       |           |

| Mechanical Testing         |                   |  |  | Heat Treat         |         |  |  |
|----------------------------|-------------------|--|--|--------------------|---------|--|--|
| Test Lab                   | AFG               |  |  | Norm. Temp. (F)    | 1675    |  |  |
| Test Bar Size              | SACRIFICIAL PIECE |  |  | Norm. (Hrs)        | 4       |  |  |
| HBW                        | 156 - 156         |  |  | Norm. Cooling Type | AIR     |  |  |
| Elg (%)                    | 28                |  |  | Norm. Location     | AFG     |  |  |
| RA (%)                     | 56                |  |  | <b>Other</b>       |         |  |  |
| Tensile Specimen Size (in) | .492              |  |  | MILL               | CMC     |  |  |
| Tensile (ksi)              | 77.9              |  |  | MHC                | 1030692 |  |  |
| Yield (ksi)                | 47.9              |  |  | EF                 | Y       |  |  |
| Gauge Length               | 2                 |  |  | Fully Killed       | Y       |  |  |

Product compliant with NACE MR0175 / ISO 15156 and NACE MR0103 latest edition and dimensions to ASME B16.5 - 2013.  
\* No Weld repair performed.