

# TUFMET 1Ni.B

## 1%Ni MMA ELECTRODE FOR GOOD LOW TEMPERATURE TOUGHNESS

### PRODUCT DESCRIPTION

MMA electrode with a basic, metal powder, type flux on high purity low carbon core wire.

Moisture resistant coating giving very low weld metal hydrogen levels.

Recovery is about 120% with respect to core wire, 65% with respect to whole electrode.

### SPECIFICATIONS

|                  |                    |
|------------------|--------------------|
| AWS A5.5M        | E8018-C3 H4        |
| BS EN ISO 2560-A | E 46 6 1Ni B 42 H5 |
| BS EN ISO 2560-B | E5518-N2 A U       |
| Conforms with    | NACE MR0175        |

### ASME IX QUALIFICATION

|       |         |
|-------|---------|
| QW432 | F-No 4  |
| QW442 | A-No 10 |

### WELDING POSITIONS (ISO/ASME)



PA/1G



PB/2F



PC/2G



PF/3Gu



PE/4G

### CHEMICAL COMPOSITION (WELD METAL WT %)

|         | C    | Mn   | Si   | S     | P     | Cr   | Ni    | Mo  | V    | Nb    | Cu   |
|---------|------|------|------|-------|-------|------|-------|-----|------|-------|------|
| min.    | --   | 0.80 | --   | --    | --    | --   | 0.80  | --  | --   | --    | --   |
| max.    | 0.10 | 1.20 | 0.80 | 0.030 | 0.030 | 0.15 | 1.00* | 0.2 | 0.05 | 0.05  | 0.3  |
| Typical | 0.05 | 1.0  | 0.4  | 0.015 | 0.015 | 0.05 | 0.9   | 0.1 | 0.01 | <0.05 | 0.05 |

\* BS and AWS 1.10%Ni max.

### ALL-WELD MECHANICAL PROPERTIES

| As welded                 | Min.    | Typical |
|---------------------------|---------|---------|
| Tensile strength [MPa]    | 550-680 | 610     |
| 0.2% proof strength [MPa] | 470-550 | 520     |
| Elongation (%) 4d         | 24      | 27      |
| 5d                        | 20      | 25      |
| Reduction of area (%)     | --      | 70      |
| Impact ISO-V(I) - 20°C    | --      | 150     |
| - 40°C                    | 47      | 120     |
| - 50°C                    | --      | 80      |
| - 60°C                    | 47      | 65      |

### OPERATING PARAMETERS, DC +VE OR AC (OCV: 70V MIN)

| Diameter [mm] | 2.5 | 3.2 | 4.0 | 5.0 |
|---------------|-----|-----|-----|-----|
| min. A        | 70  | 80  | 100 | 140 |
| max. A        | 110 | 140 | 180 | 240 |

### PACKAGING DATA

| Diameter [mm] | 2.5  | 3.2  | 4.0  | 5.0  |
|---------------|------|------|------|------|
| Length [mm]   | 350  | 350  | 450  | 450  |
| kg/carton     | 12.0 | 13.5 | 16.8 | 16.2 |
| Pieces/carton | 627  | 390  | 258  | 162  |

### STORAGE

3 hermetically sealed ring-pull metal tins per carton, with unlimited shelf life. Direct use from tin will give hydrogen <5ml/100g weld metal during working shift of 8h.

For electrodes that have been exposed:

**Redry** 250 – 300°C/1-2h to ensure H<sub>2</sub> <10ml/100g, 300-350°C/1-2h to ensure H<sub>2</sub> <5ml/100g. Maximum 420° C, 3 cycles, 10h total.

**Storage** of redried electrodes at 50 – 200°C in holding oven or heated quiver: no limit, but maximum 6 weeks recommended.

Recommended ambient storage conditions for opened tins (using plastic lid): < 60% RH, > 18°C.

### FUME DATA

Fume composition (wt %) typical

| Fe | Mn | Ni    | Cr    | Cu  | Pb    | F  | OES (mg/m <sup>3</sup> ) |
|----|----|-------|-------|-----|-------|----|--------------------------|
| 14 | 5  | < 0.5 | < 0.1 | 0.2 | < 0.1 | 18 | 5                        |