Ghoshouni Industrial Co.

# Material Datasheet
# CuZn36Pb2As
# (CW602N)

# CuZn36Pb2As

## Dezincification resistant standard alloy for machining

CuZn36Pb2As alloy combines remarkably both machining and cold working properties, being commonly used for bending. For this reason, it suits all the applications where these two characteristics are required simultaneously. Furthermore, it also has excellent hot working properties, which makes it ideal for parts that need posterior machining operations.

| MATERIAL DESIGNATION | | | |
|---|---|---|---|
| International | EN | UNS | JIS |
| CuZn36Pb2As | CW602N | C35330 | - |

## Applications

Fluid handling systems, Water fittings, Hot formed and machined parts

## CORROSION RESISTANCE

Machining brass has a poor resistance to organic substances and also neutral or alkaline compounds. In comparison, homogeneous α-brass has a much more satisfactory corrosion resistance due to its microstructure. As for the stress corrosion cracking and dezincification, specially under conditions as warm, acidic waters and ammoniacal atmospheres, they should be taken into consideration, even morewhen the material is not under a stress relieved condition.

## Alloy Attributes

•Excellent dezincification resistance
• Good strength and ductility
• Good machinability and formability
• High corrosion resistance

| REFERENCE CHEMICAL COMPOSITION IN % | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| material | Cu | Pb | Fe | Ni | Sn | As | Al | Zn | Other |
| min | 61 | 1.7 | 0 | 0 | 0 | 0.02 | 0 | Rem. | 0 |
| max | 63 | 2.8 | 0.1 | 0.3 | 0.1 | 0.15 | 0.05 | Rem. | 0.2 |

| HEAT TREATMENT | |
|---|---|
| Melting Range | 880-910°C |
| Hot Working | 700-800 °C |
| Soft Annealing | 450-550 °C ,Duration: 1 – 3 h |
| Thermal Stress Relieving | 230-330°C ,Duration: 1 – 3 h |
| SOLUBILIZATION OF RESIDUAL β PHASE | STRESS RELIEVING |
| To optimise the material's corrosion resistance a thermal treatment between 500°C and 550°C for 2 hours and cooling within the furnace is required. This treatment following hot forging allows solubilization of the residual beta phase to render the material resistant to dezincification. The omission of this treatment does not allow the alloy to offer the anti-dezincification performance that it is designed for. | Allows for redistribution of tensions induced by mechanical processing, reducing the risk of stress corrosion cracking. The treatment consists of heating the items to 200°C - 250°C for 2 hours and cooling within the furnace |

## FABRICATION PROPERTIES

| FORMING | |
|---|---|
| Forgeability Rating | 95% |
| Machinability | 80% |
| Cold Workability | Good |
| Hot Workability | Good |

| POLISHING | |
|---|---|
| Mechanical | Good |
| Electrolytic | Poor |
| Electroplating | Excellent |

| Microstructure |
|---|
| Alpha with undisolved lead |

| Physical properties | | | |
|---|---|---|---|
| Thermal Expansion Coefficient [10-6/K] | Electrical Conductivity[% IACS] | Thermal Conductivity[W/(m.K)] | Density [g/cm3] |
| 20.4 | 24 | 116 | 8.47 |

| Mechanical properties | | | |
|---|---|---|---|
| Tensile strength(Mpa) | Yield strength(Mpa) | Elastic modulus(Gpa) | Elongation in 2 inch |
| 350 | 140 | 113 | 45 |

| Weldability | | | |
|---|---|---|---|
| Soldering | Brazing | Friction welding | All other welding processes |
| excellent | good | good | not recommended |