



Ancorbraze[®] 72

Ancorbraze 72 is the premiere sinterbrazed material for the joining of ferrous P/M parts to each other, or ferrous P/M parts to wrought substrates. Successful brazing can be done in the green or sintered condition. The chemical composition of the Ancorbraze 72 material – which can be utilized in the "as-atomized" or fluxed forms — effectively limits the penetration of the braze compound to the area immediately adjoining the desired interface. Each brazing application has unique characteristics due to variations in part composition and processing/ sintering parameters. The typical Ultimate Tensile Strength of a brazed joint is 55,000 – 60,000 psi.

Nominal Chemical Composition (w/o)

| | Copper | Nickel | Silicon | Manganese | Boron | Other |
|------|--------|--------|---------|-----------|-------|--------|
| AB72 | 40 | 41 | 1.8 | 15.0 | 1.5 | 1% max |

Apparent Density (g/cm³)

| | |
|-----------------|------|
| Virgin (40/200) | 2.00 |
|-----------------|------|

Operating Temperature (°C / °F)

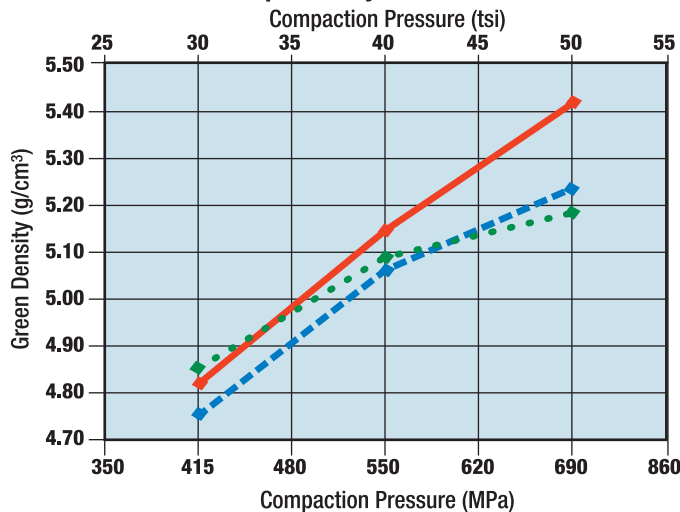
| | |
|----------|----------|
| Solidus | 899/1650 |
| Liquidus | 982/1800 |

Sieve Distribution (w/o)

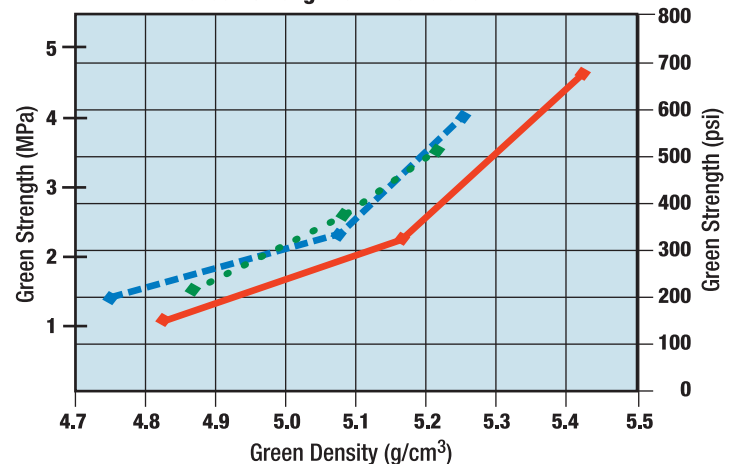
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|--------------------|-----------|-----------|
| Micrometers | +400 | -75 |
| U.S. Standard Mesh | (+40) | (-200) |
| | 5 maximum | 5 maximum |

| Key: | 0.5% Acrawax C | 0.5% Acrawax C+3% Fluxing Agent | 0.5% Acrawax C+5% Fluxing Agent |
|------|----------------|---------------------------------|---------------------------------|
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Compressibility of Ancorbraze 72



Green Strength of Ancorbraze 72



Ancorbraze® 72

Key Design Benefits:

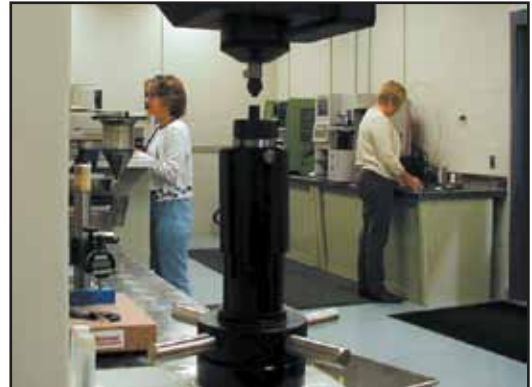
- Ancorbraze 72 can be tailored to meet each customer's requirements. For example, it can be utilized in the "As-atomized" form, or blended with a fluxing agent, depending upon the specific sintering conditions.
- Ancorbraze 72 is primarily utilized in a powder form, which facilitates ease of use, and enhances lot-to-lot consistency.
- Sinterbrazing can build mechanical strength into assemblies by utilizing overlaps, interlocks and flanges.
- P/M technology provides the ability to design parts with stand-off projections, and knurled diameters, channels, and chamfers to assist material flow. All of which can optimize braze performance.

Key Processing Considerations

- To ensure optimal metal flow into a joint, it is important to reduce oxides during the sintering cycle. Therefore, oil, dirt or free graphite on the surface may result in a less than optimal results.
- During the sinterbraze cycle, it is imperative to maintain uniform part temperature.
- It is important to recognize:
 - ⇒ The joint fill is related to capillary action and surface tension.
 - ⇒ Gap distance influences joint strength. Optimum gap distance for PM is typically 0.05–0.15 mm
- When designing a braze joint, it is necessary to consider the thermal expansion of the base materials utilized to maintain proper gap distance.
- It is necessary to utilize a sufficient amount of filler metal, as well as position the filler on shoulders, ledges or access hole for security and to maximize flow over the entire joint surface.
- Filler material should be placed on the thicker, slower heating component to ensure complete melting and flow toward thinner member.

Key Function / Requirements of Flux Agents:

- Incorporation of a fluxing agent enhances the sinterbond quality for specialized applications.
- Fluxing agents promote wetting, and support heat transfer, which enhances the "robustness" of the process.
- "Fluxed" brazing alloys tend to be less affected by natural processing variability — primarily variations in sintering temperature and atmospheres.
- The flux for GKN Hoeganaes premixes has an active range of 100°F below solidus — (1550°F/ 843°C), and 200°F above liquidus — (2000°F/ 1093°C) of the filler.
- Residual flux should be removed by tumbling or equivalent.



The information provided is general in nature. Please contact your GKN Hoeganaes representative to discuss your specific application and needs. Copyright 2018 GKN Hoeganaes.