



KIRKSITE

a technical service of eastern alloys, inc.

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Kirksite is a moderate strength zinc-base alloy that was developed primarily as a forming tool alloy. Dies cast from Kirksite provide low-cost tooling because the alloy can be accurately cast, requiring a minimum of finishing. In addition, Kirksite has been used as a general purpose casting alloy for non-stressed components.

Nominal Composition:

Zn - 4 Al - 3 Cu - .03 Mg

Typical Uses:

Press dies and punches for sheet metal forming.
Molds for ceramics and rubber.
Injection molding and compression molding dies.
Tube bending dies.
Mandrels for metal spinning.
Low stressed non-sparking tools and repair parts.

Properties:

Ultimate Tensile Strength	35,000 psi
Elongation in 2"	2.0%
Impact Strength	6.0 ft-lbs
Brinell Hardness	100
Density	0.25 lb/cu in
Solidification Shrinkage	0.14"/ft
Melting Range	717- 745 ⁰ F

Casting Practices:

Because of the alloy's excellent fluidity and low melting temperature, casting temperatures are low, 800-850⁰F. Higher casting temperatures should be avoided due to possible iron contamination from the cast iron kettles normally used to melt the alloy. Iron pickup can cause poor casting surface quality and brittleness. Melting in a silicon carbide crucible is preferred as a safeguard against iron pickup. The alloy is normally cast in permanent, plaster or sand molds.

General Comments:

Kirksite is readily machined and polished. Castings can be successfully plated following procedures used for zinc die castings. Kirksite can also be cast in rubber tooling as a replacement for slush casting alloy (ZA-5) when higher strengths are required, with a sacrifice in fluidity. For applications requiring additional strength such as stressed, engineered components it is recommended that EA's high strength ZA foundry alloys (ZA-12, ZA-27, ZA-8) be evaluated.