

ABSTRACT

Aluminum alloys are provided that have improved fluidity and elongation, as well as freedom of die soldering. The aluminum alloys are particularly suitable for die-casting of structural components. The aluminum alloy includes silicon at from about 8 weight % to about 11 weight %, manganese at from about 0.8 weight % to about 1.9 weight %, iron at from about 0.1 weight % to about 0.5 weight %, magnesium at from about 0.2 weight % to about 0.7 weight %, boron at from about 0.002 weight % to about 0.15 weight %, strontium at from about 0.006 weight % to about 0.017 weight %, less than about 0.25 weight % copper, less than about 0.35 weight % zinc, less than about 0.25 weight % titanium, and a balance of aluminum. Methods related to the aluminum alloys are also provided.

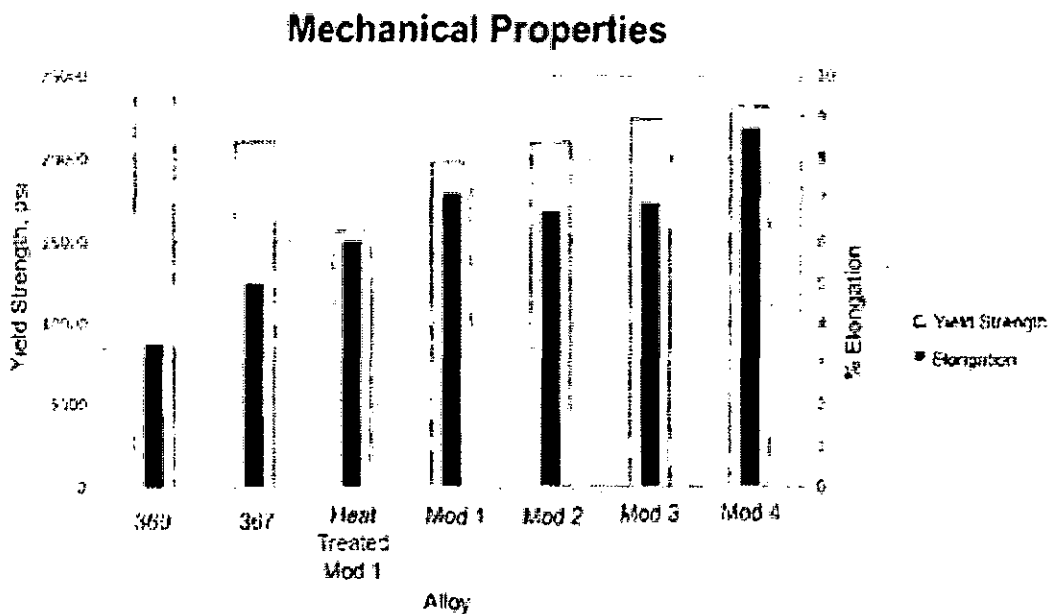


FIG. 2

- c. iron at greater than or equal to about 0.1 weight % to less than or equal to about 0.5 weight % of the aluminum alloy;
- d. magnesium at greater than or equal to about 0.2 weight % to less than or equal to about 0.7 weight % of the aluminum alloy;
- e. boron at greater than or equal to about 0.002 weight % to less than or equal to about 0.15 weight % of the aluminum alloy;
- f. strontium at greater than or equal to about 0.006 weight % to less than or equal to about 0.017 weight % of the aluminum alloy;
- g. less than or equal to about 0.25 weight % copper of the aluminum alloy;
- h. less than or equal to about 0.35 weight % zinc of the aluminum alloy;
- i. less than or equal to about 0.25 weight % titanium of the aluminum alloy; and
- j. a balance of aluminum.

20. The aluminum alloy of claim 19, wherein the silicon is present at greater than or equal to about 9 weight % to less than or equal to about 10 weight % of the aluminum alloy.

21. The aluminum alloy of claim 19, wherein the manganese is present at greater than or equal to about 0.8 weight % to less than or equal to about 1.2 weight % of the aluminum alloy.

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