

## QUESTION

**Can I hot-dip galvanize copper or steels that have copper in them?**

## ANSWER

Of all the factors during the hot-dip galvanizing process and materials selection, steel chemistry has the biggest influence on the growth and appearance of the galvanized coating. Some steel chemistries allow for much better results than other chemistries. (See ASTM A 385 for recommended steel chemistries for hot-dip galvanizing.)

Many architects and engineers ask if copper-containing steels can be galvanized. They may have heard galvanizing copper-containing steels can damage galvanizing kettles. In most cases this is untrue as there is only concern for kettle damage when the copper level in the kettle exceeds 0.23%.



Though copper usually does not cause any problems in the galvanizing kettle, there are some practical limitations when choosing materials for galvanizing. Pure copper cannot be galvanized because there is no iron for the zinc to metallurgically react with. Without a metallurgical reaction, a galvanized coating cannot develop.

Some steel chemistries with small amounts of copper can be successfully galvanized. One example of a copper-containing steel that can be galvanized is weathering steel, which is actually galvanized quite frequently. The galvanized coating that develops on weathering steel tends to be thicker and darker than galvanized coatings on steel with recommended chemistry. Thicker and darker galvanized coatings are normal for steels containing copper.

If you would like to know if the steel in a specification you are considering for a particular project will galvanize successfully, please contact the AGA Technical Department at **[technical@galvanizeit.org](mailto:technical@galvanizeit.org)**.

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