

Heating of Metal by Forging

Equipment:

anvil
heavy sledgehammer
soft annealed piece of copper (having a volume of a few cubic centimeters) with handle

Chemicals:

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Safety:

Because hammers are notorious for causing thumb and finger injuries one should be very careful and wear protective gloves when working with this tool.

Procedure:

The piece of copper is put on the anvil and hit forcefully about 20 times with the sledgehammer.

Observation:

The piece of copper becomes so hot that it hisses when put into water.

Explanation:

The atomic structure of the copper is permanently disturbed by hitting it with the hammer. As main effect of the entropy generated during the process the piece of copper becomes hot.

Disposal:

The piece of copper can be reused after annealing and quenching in water.

Supplement:

In the entertainment television show “Wanna bet, that ... ?”, which was very popular in Germany, the blacksmith Torsten Becker made the bet that he together with four colleagues could heat a piece of iron with strong hits with heavy hammers to such an extent that it would be possible to prepare a fried egg on it. And he won the bet!

