PSS

File Test

The fastest & easiest method of testing the carbon content of an unknown type steel without the use of chemicals or special equipment is by using any workshop file.

Steel Type	Carbon Content	File Reaction
Mild	less than 0.15%	Bites metal easily
Medium Carbon	0.15% to 0.25%	Bites with pressure
High Alloy	0.26 to 0.35 %	Bites only with force
Tool	0.36 to 0.45%	Bites with difficulty
Hardened Tool	Over 0.45%	Slides over metal

Chipping Test

Another method of finding an unknown metal's composition is to use a chisel to remove a small piece of the metal.

Metal Type	Reaction
Grey Cast Iron	Chips are smooth and brittle
Cast Steel	Easily chipped, can be continuous if desired
Aluminum	Chips are continuous but leave a saw edge
White Cast Iron	Metal is brittle and breaks into small fragments
Malleable Iron	Rough chips
High Carbon Steel	Lighter color at edges than mild steel, chips can be continuous

Color Test

Some metals can be easily identified by color

Metal Type	Color
Copper	Reddish Brown
Manganese Steel	Bluish in service; copper-color in storage
Zinc, Magnesium, Aluminum, Tin & Lead	Whitish
Brass	Yellow if high zinc content, otherwise reddish
White Cast Iron	White and silvery
Grey Cast Iron	In a fractured state, grey Will deposit grey graphite streak on contact

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