

Principles of Ferrous Materials | eLearning Course

Properties of Ferrous Metals and Steel Production - WXML201-XX01XEN-E2

Objective 18: Describe Four Groups of Alloy Steel

Carbon Alloy Steel

Carbon alloy steels, also known as low alloy steels, do not fit in with the parameters of carbon steel, yet they have less alloy content than other alloy steels.

Because of the added alloys, they are stronger than most carbon steels without being much more expensive and because of their strength, they can be made smaller to save weight.

Carbon alloy steels also have better resistance to the environment than carbon steel making them suitable for pressure vessels, submarine bodies, and automotive parts.

The image contains three main visual components: 1) On the left, several mechanical parts (a bent pipe, a flange, a gear, a shaft, and a bolt) are shown next to a grid of 30 red circles. The circles are arranged in five rows corresponding to the properties: Strength (6 circles), Corrosion Resistance (6 circles), Machinability (6 circles), Ductility (6 circles), and Hardenability (6 circles). 2) In the center, a bar chart displays the relative levels of alloying elements: C (Carbon), Cr (Chromium), Mn (Manganese), Mo (Molybdenum), Ni (Nickel), P (Phosphorus), Si (Silicon), and S (Sulfur). The bars vary in height, with Ni being the tallest. 3) At the bottom, a row of colored boxes represents the elements: C (Carbon), Cr (Chromium), Mn (Manganese), Mo (Molybdenum), Ni (Nickel), P (Phosphorus), Si (Silicon), and S (Sulfur).

Strength
Corrosion Resistance
Machinability
Ductility
Hardenability

Properties

Elements

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eLearning Course: MXML201

Principles of Ferrous Materials eLearning course introduces the properties, elements, and types of ferrous materials commonly employed in metal manufacturing. Learners gain an understanding of the basics of steel manufacturing, the elements used to create steel and steel alloys, the main types of ferrous materials and their properties, and the common tests used to measure metal properties.

Teach Ferrous Metal Properties, Uses, and Manufacturing Methods

What is Ferrous Metal?

Metal is a material that exhibits properties such as heat and electrical conductivity and hardness. A manufactured metal is made from ingredients mostly mined from ore in the earth. Metallurgy is the study of the properties, behavior, and structure of metals. Basically, it is the study of how to get the best use out of metals.

A ferrous metal consists primarily of iron. Ferrous metal can contain a variety of other elements, but its main content must be iron. Non-ferrous metals are those without iron or metals that contain very little iron. Ferrous and non-ferrous metals share many of the same properties. However, ferrous metal is less expensive and more corrosive than non-ferrous metal. The two most common ferrous metals in industry are steel and cast iron.

Interactive eLearning

Principles of Ferrous Materials eLearning Features Multimedia Curriculum

Amatrol's unmatched multimedia utilizes text, audio, and stunning 3D animations that engage learners in theoretical knowledge and concepts. This thorough, exceptionally detailed curriculum is built to begin with the basics and steadily advance to more complex concepts. Through partnerships with key industry leaders and leading edge educators, Amatrol developed the right balance of knowledge needed to train learners to work in their chosen field.

Additional Info

Requires:

- [Computer \(see Computer Requirements\)](#)
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