

Iron and Steel: Introduction

Iron is cheap and strong and the most used metal in the world. Iron, as produced in the blast furnace is called pig iron. This is brittle because it contains about 4% carbon and other non-metal impurities. Most of this iron is converted into a variety of steels by removing nearly all the carbon, and adding small quantities of different metals. The different steels are alloys which are mixtures of metals. They have different properties such as toughness, hardness, corrosion resistance, etc.



Some background

The method of using carbon to reduce iron oxide to iron was very probably discovered accidentally in prehistoric camp fires. Here, charcoal would have been the source of carbon. The iron was used to make tools and weapons and gave its name to the Iron Age.

Early in the 18th century, Abraham Darby in Shropshire discovered a method of converting coal to coke as a source of carbon. This led to the modern blast furnace.

In the mid-19th century, Henry Bessemer developed a steel-making process that used oxygen to burn off some of the carbon in cast iron. The Basic Oxygen Steelmaking process was introduced in the 1950s and now accounts for about two-thirds of steel production.

Did you know?

Stainless steel contains about 18% chromium.

About three-quarters of food and drinks cans are made of steel.

A car tyre contains over $\frac{1}{2}$ kg of steel wire.

About 400 million tonnes of steel are recycled every year worldwide.