

# Summary for IS 12658: 1989 - Grinding Media Rolled/Forged Carbon and Carbon-Chromium Steels

## **Title and Standard Number:**

IS 12658: 1989 - Grinding Media Rolled/Forged Carbon and Carbon-Chromium Steels

## **Scope:**

This standard specifies the requirements for rolled and forged carbon and carbon-chromium steel grinding media, used in various industrial grinding applications. The standard covers chemical composition, hardness, and mechanical properties required for durability and efficiency in grinding processes.

## **Applications:**

Grinding media conforming to IS 12658 are primarily used in industries such as mining, cement, and metallurgy where ball mills and other grinding equipment require high-strength media to grind ores and materials effectively.

## **Key Specifications:**

The standard outlines the following:

- **Material Composition:** Grinding media are made of carbon steel or carbon-chromium steel to enhance hardness, toughness, and wear resistance.
- **Mechanical Properties:** The standard specifies minimum hardness and impact resistance to ensure durability under continuous impact and abrasion.
- **Dimensions and Tolerances:** Grinding media are available in various sizes, typically from 20 mm to 150 mm in diameter, with tight tolerances to maintain consistency.

## **Physical and Technical Specifications:**

IS 12658 mandates specific technical characteristics, such as:

- **Hardness:** Grinding media must meet minimum hardness levels, generally measured in Rockwell or Brinell hardness, to resist deformation and wear during grinding.
- **Microstructure:** A fine, uniform microstructure is required to ensure consistency in performance, with special attention to prevent defects like cracks or inclusions.
- **Testing:** The grinding media undergo rigorous testing for hardness, impact resistance, and wear resistance to verify compliance.

## **Safety and Handling:**

The standard advises careful handling to avoid surface damage, which could compromise grinding efficiency. Proper storage is recommended to prevent contamination and corrosion.

## **Marking and Packaging:**

Each batch of grinding media is marked with the manufacturer's details, material grade, and compliance with IS 12658. Packaging should ensure protection during transit and prevent exposure to moisture.

## **Example of Grinding Media Specification:**

For example, a 50 mm diameter forged grinding ball made from carbon-chromium steel, with a hardness of 60 HRC and a uniform microstructure, would meet IS 12658 standards for applications in ball mills for mineral processing.

This summary highlights the essential specifications, physical characteristics, and safety requirements for rolled and forged grinding media as defined in IS 12658: 1989, ensuring optimal performance in industrial grinding applications.