

Sensor-Based Ore Sorting Market Size, Share & Trends Analysis Report By Technology (X-Ray Transmission, Electromagnetics), By Application (Base Metals, Precious Metals), By Region, And Segment Forecasts, 2025 - 2033

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Abstracts

The global sensor-based ore sorting market size was estimated at USD 286.3 million in 2024 and is projected to reach USD 603.3 million by 2033, growing at a CAGR of 8.9% from 2025 to 2033. The market is expanding rapidly due to the growing need to improve ore processing efficiency and reduce operational costs in the mining industry.

Base metals are increasingly adopting automated sorting technologies to identify valuable minerals directly at the extraction site. This reduces the volume of waste material processed downstream and enhances the overall recovery rate. The cost savings associated with reduced energy and water consumption during mineral processing are encouraging wider adoption across both large-scale and mid-sized mining operations.

Rising concerns over resource depletion and environmental sustainability are crucial in driving the demand for sensor-based ore sorting systems. The technology helps minimize tailings generation and supports efficient utilization of natural resources. Governments and regulatory bodies are implementing stricter environmental norms, which encourage the adoption of eco-friendly technologies that lower the carbon footprint of mining activities. As a result, base metals are increasingly investing in advanced sorting systems that align with sustainability goals.

Technological advancements in sensor capabilities are another major factor supporting the growth of the sensor-based ore sorting industry. Modern systems integrate near-

infrared (NIR), X-ray transmission (XRT), and laser sensors that can accurately distinguish between ore and waste materials in real time. These advancements have improved precision and sorting speed, making the technology more suitable for a wider range of minerals, including gold, copper, tungsten, and diamonds. Continuous innovation in automation and machine learning algorithms further enhances detection accuracy and throughput efficiency.

Growing mining activity in emerging economies such as Australia, China, South Africa, and Chile also contributes to the market growth. These regions possess large mineral reserves and focus on upgrading existing infrastructure to optimize production. Local mining firms are adopting advanced sorting systems to increase yield quality and reduce operational inefficiencies. Integrating these technologies within regional mining operations has created new opportunities for sensor manufacturers and technology providers.

Additionally, the rising emphasis on reducing overall processing costs and improving ore grade control is accelerating the adoption of sensor-based ore sorting systems. Traditional processing methods often involve high energy consumption and large-scale material handling. In contrast, sensor-based sorting enables pre-concentration at the mine site, lowering transportation and processing costs. This efficiency gain, coupled with the growing trend toward digitalization and automation in the mining industry, is expected to continue strengthening the market outlook over the forecast period.

Global Sensor-Based Ore Sorting Market Report Segmentation

This report forecasts revenue growth at the global, regional, and country levels and provides an analysis of the latest industry trends in each of the sub-segments from 2021 to 2033. For this study, Grand View Research has segmented the global sensor-based ore sorting market report based on technology, application, and region:

Technology Outlook (Revenue, USD Million, 2021 - 2033)

X-Ray Transmission

Electromagnetics

Near Infrared

Others

Application Outlook (Revenue, USD Million, 2021 - 2033)

Base Metals

Precious Metals

Industrial Minerals

Others

Regional Outlook (Revenue, USD Million, 2021 - 2033)

North America

U.S.

Canada

Mexico

Europe

Germany

UK

France

Asia Pacific

China

India

Japan

Latin America

Brazil

Middle East & Africa

Saudi Arabia

UAE

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