Orthomanufacture – Lyon 22.04.2026

Strategic view of metallurgy suppliers for implants and instruments

Bruno Jacquemin

General Delegate / A3M – Alliance des Minerais, Minéraux et Métaux

Abstract

In a context of increasing geopolitical tensions and supply chain fragmentation, the medical device industry faces growing challenges regarding the security of supply for critical alloying elements. This presentation provides a structured overview of the global metallurgy landscape underpinning implants and surgical instruments.

It will map the geographic distribution of key metals used in medical applications—titanium, nickel, cobalt, chromium, as well as niobium, vanadium, molybdenum, magnesium and tantalum—highlighting the distinction between mining locations and the often far more concentrated refining and primary transformation capacities. Particular attention will be paid to the strategic concentration of refining activities in specific regions, and the resulting exposure of downstream medical manufacturers.

Beyond raw material extraction, the presentation will analyze the critical stages of alloy elaboration and first transformation, including vacuum remelting technologies, medical-grade certification requirements, and traceability standards, which significantly narrow the pool of qualified global suppliers.

A dedicated focus will be placed on Europe and France (including New Caledonia), assessing existing industrial capabilities in specialty metallurgy, alloy production, and high-value transformation. The objective is to provide a realistic yet forward-looking perspective on Europe's strengths, vulnerabilities, and strategic levers.

The core message is that security of supply in medical metallurgy depends not only on access to resources, but on preserving advanced metallurgical expertise, diversification strategies, recycling, and coordinated industrial policy.