

MERCOSUR–EUROPEAN UNION (EU) AGREEMENT: PROSPECTS, ADVANTAGES, AND BENEFITS FOR BRAZIL IN THE STRATEGIC AND CRITICAL MINERALS AGENDA

**ACORDO MERCADO COMUM DO SUL (MERCOSUL) E UNIÃO EUROPEIA
(UE): PERSPECTIVAS, VANTAGENS E BENEFÍCIOS PARA O BRASIL NA
AGENDA DOS MINERAIS ESTRATÉGICOS E CRÍTICOS**

Ciências Sociais Aplicadas • 21/10/2026

REGISTRO DOI: [10.70773/revistatopicos/792460157](https://doi.org/10.70773/revistatopicos/792460157)

Márcio Carneiro Barbosa¹

ABSTRACT

The Mercosur–European Union Agreement establishes new prospects for trade and economic relations between the two blocs, particularly in the mineral sector, with emphasis on strategic and critical minerals, and may contribute to Brazil's economic development through cooperation and economic complementarity. This study aims to analyze the potential gains for Brazil, particularly for the Brazilian mineral sector and the national economy, arising from the Mercosur–European Union Agreement, considering the historical formation, regional integration process, and mineral agenda of Mercosur and the European Union, as well as the prospects, advantages, and benefits associated with the agreement. The research adopted a qualitative approach aimed at understanding the possibilities for enhancing national development resulting from the expansion of trade relations and economic cooperation with Europe within a framework of economic complementarity. The methodological procedures comprised a literature review and documentary research based on sources organized into three categories: (1) sources addressing the historical development, regional integration process, and mineral agenda of Mercosur and the European Union; (2) sources evaluating the Mercosur–European Union Agreement and its respective mineral agenda; and (3) sources presenting the prospects, advantages, and benefits of the agreement for Brazil's development. The studies indicated favorable prospects for mutual benefits arising from transactions involving strategic and critical minerals, highlighting opportunities to expand economic, trade, and mineral cooperation between Brazil and the European Union within the framework of the Mercosur–European Union Agreement.

Keywords: Mercosur-European Union Agreement; Mercosur; European Union; Strategic minerals; Critical minerals.

RESUMO

O Acordo Mercosul–União Europeia estabelece novas perspectivas para as relações comerciais e econômicas entre os dois blocos, especialmente no setor mineral, com destaque para os minerais estratégicos e críticos, e pode contribuir para o desenvolvimento econômico do Brasil por meio de relações de cooperação e complementaridade. Este trabalho tem como objetivo geral analisar os possíveis ganhos para o Brasil, especialmente para o setor mineral brasileiro e para a economia nacional, decorrentes do Acordo Mercosul–União Europeia, considerando a formação histórica, o processo de integração regional e a agenda mineral do Mercosul e da União Europeia, bem como as perspectivas, vantagens e benefícios associados ao acordo. A pesquisa adotou uma abordagem qualitativa, orientada à compreensão das possibilidades de incremento do desenvolvimento nacional decorrentes da ampliação das relações comerciais e das cooperações econômicas com a Europa, em uma perspectiva de complementaridade econômica. Como procedimentos metodológicos, foram utilizadas a revisão da literatura e a pesquisa documental, mediante consulta a fontes organizadas em três categorias: (1) fontes que caracterizassem o histórico, o processo de integração regional e a agenda mineral do Mercosul e da União Europeia; (2) fontes que avaliassem o Acordo Mercosul–União Europeia e sua respectiva agenda mineral; e (3) fontes que apresentassem as perspectivas, vantagens e benefícios do acordo para o desenvolvimento do Brasil. Os estudos apontaram perspectivas favoráveis de benefícios mútuos decorrentes das transações relacionadas aos minerais estratégicos e críticos, evidenciando possibilidades de ampliação da cooperação econômica, comercial e mineral entre o Brasil e a União Europeia no contexto do Acordo Mercosul–União Europeia.

Palavras-chave: Acordo Mercosul-União Europeia; Mercosul; União Europeia; Minerais estratégicos; Minerais críticos.

1. INTRODUCTION

The Second World War, which took place between 1939 and 1945, had several consequences, including the complete destruction of cities across the European continent, the collapse of the economic infrastructure of numerous countries, including agriculture, livestock farming, industry, and trade, and severe damage to the social fabric of several nations, particularly in terms of housing, healthcare, education, and employment. On a comparable scale, many of these societies had experienced similar consequences during the First World War, from 1914 to 1918, also fought in Europe. Cities were reduced to rubble, and tens of millions of people were killed, wounded, mutilated, or reported missing.

With the beginning of the second half of the twentieth century, the international community faced the task of restoring world peace, rebuilding societies, and reconstructing devastated cities, providing the conditions necessary for socioeconomic recovery and the well-being of affected populations.

Several initiatives were undertaken to rebuild Europe, most notably the Marshall Plan, led by the United States of America. Implemented between 1947 and 1951, the plan provided economic assistance to European countries affected by the war. The United Kingdom, France, West Germany, and other allied countries received substantial financial resources to support investment and reconstruction within their respective territories. In subsequent years, institutions such as the International Monetary Fund, the

World Bank, and the World Trade Organization became key components of the international economic system, contributing to the establishment of frameworks for economic stability and trade governance.

In this context, the international community recognized the need to promote economic integration among nations as a means of reducing the likelihood of new regional or global conflicts. Under these circumstances, international trade assumed a prominent role through the exchange of commodities, goods, and services, facilitating the recovery of previously devastated economies, promoting development, and contributing to social stability.

Soon afterward, several countries outside Europe, following diplomatic negotiations and often building on geographic proximity, established economic blocs whose institutional arrangements enabled the creation of free trade areas, preferential tariff regimes, customs cooperation, and the reduction of trade barriers. These blocs facilitated the consolidation of business relationships across various sectors, fostering economic development, strengthening mutual trust, and, in principle, reducing the risk of future armed conflicts.

Within this broader context, Europe witnessed the establishment of the European Union (EU). In South America, recognizing the importance of economic integration as a means of promoting development and stability, the countries of the Southern Cone established the Southern Common Market (Mercosur).

The Atlantic Ocean, which had historically connected European metropolises, particularly the Iberian monarchies, with their South

American colonies from the sixteenth to the nineteenth centuries under the colonial pact, thereby sustaining a predominantly unequal, winner-loser relationship, would subsequently become a strategic link between Europe and South America through an increasingly integrated economic relationship based on the principle of win-win cooperation.

This context raises the following research question: Is it possible to strengthen integration between the two economic blocs through trade in strategic and critical minerals and, in doing so, generate direct benefits for Brazil's economic development?

Accordingly, the general objective of this study is to analyze the prospects, advantages, and benefits for Brazil arising from trade in strategic and critical minerals following the conclusion of the Mercosur–EU Agreement. Based on this analysis, the study also seeks to provide political and economic institutions with information to support a comprehensive understanding of the agreement's potential implications for Brazil's development within the geopolitical context of the twenty-first century.

To achieve this objective, the specific objectives are as follows: to characterize the historical formation, regional integration process, and mineral agenda of Mercosur; to characterize the historical formation, regional integration process, and mineral agenda of the EU; to assess the Mercosur–EU Agreement and its associated mineral agenda; and, finally, to identify the prospects, advantages, and benefits that Brazil may derive from the strategic and critical minerals agenda as a result of the agreement.

Regarding the methodology, a qualitative approach was adopted. In terms of research procedures, the study was based on bibliographic and documentary research drawing on national and international publications, scientific articles, Brazilian government agencies, international organizations, multinational institutions, and websites. The examination and consolidation of these sources made it possible to identify and discuss the main issues related to the subject under investigation.

To address the research objectives, this article is structured into four sections designed to provide a comprehensive analysis of the relationship between Mercosur, the EU, and Brazil's development. The first section, the Introduction, presents the central theme of the study. The second section, Methodology, describes the research approach, including the data collection and analysis strategies. The third section, Theoretical Framework, examines the historical formation, integration processes, and mineral agendas of Mercosur and the European Union; assesses the Mercosur–EU Agreement, including aspects related to the mineral sector; and discusses the potential benefits for Brazil arising from trade in strategic and critical minerals under the agreement. The final section, Final Considerations, synthesizes the main findings of the research and provides political and economic institutions with information to support a better understanding of the prospects, advantages, and benefits that Brazil may obtain through the industrialization and commercialization of strategic and critical minerals.

2. THEORETICAL FRAMEWORK

This theoretical framework is organized into four subsections. The first seeks to characterize Mercosur's historical formation, integration

process, and mineral agenda. The second aims to characterize the EU's historical formation, integration process, and agenda. The third assesses the Mercosur–EU Agreement, including issues related to strategic and critical minerals. The final subsection seeks to demonstrate the potential benefits for Brazil arising from the commercialization of strategic and critical minerals within a win-win relationship among the member countries of Mercosur and the EU.

2.1. Historical Formation, Integration Process, And Mineral Agenda Of Mercosur

Historically, from the period of Luso-Spanish colonization in South America and even after the independence of the countries from their former Iberian metropolises, various developments across South America were marked by antagonisms, political crises, social instability, and wars.

During the nineteenth century, the Southern Cone was the scene of numerous territorial disputes, including the Colonia del Sacramento conflict between the Portuguese and Spanish; the Cisplatine War (1825–1828), fought between the Empire of Brazil and the United Provinces of the Río de la Plata (Argentina) over control of the Cisplatine Province, corresponding to present-day Uruguay; the campaign against Oribe (1851, involving Brazil and Uruguay); the campaign against Rosas (1852, involving Brazil and Argentina); the campaign against Aguirre (1864, involving Brazil and Uruguay); and the War of the Triple Alliance (1865–1870), involving Argentina, Brazil, Paraguay, and Uruguay. These events illustrate the political and military instability experienced across the South American subcontinent (Silva; Bastos, 1976).

In the second half of the twentieth century, however, Argentina, Brazil, Paraguay, and Uruguay, countries that had previously been involved in armed conflicts in the Southern Cone, began to pursue closer political relations, regional cooperation, and economic and commercial integration. This process contributed to stronger interstate relations, greater mutual trust, and the development of institutional mechanisms for cooperation, creating the historical and political conditions that would eventually lead to the establishment of the Southern Common Market (Mercosur).

The origins of this process can be traced to the Latin American Free Trade Association (LAFTA), established in the 1960s and succeeded by the Latin American Integration Association (ALADI) in the 1980s. During this period, Argentina and Brazil made significant progress in bilateral relations by signing the Declaration of Iguazú in 1985. The Treaty on Integration, Cooperation, and Development, signed by both countries in 1988, established the goal of creating a common market to which other Latin American nations could subsequently accede. Paraguay and Uruguay later joined the initiative, becoming signatories to the Treaty of Asunción in 1991, which established Mercosur as a regional trade bloc intended to stimulate economic activity through the movement of goods, labor, and capital among its member countries (Novo, 2017).

The establishment of this organization should be understood as a response by the four countries to the search for political and economic alternatives amid the highly restrictive conditions prevailing in the early 1990s. Its objective was to prepare the Southern Cone for an increasingly competitive trade environment shaped by globalization. In this context, the creation of a common

market modeled, in its underlying logic, on the European integration process was considered fundamental (Mariano and Menezes, 2021).

In Brazil, then-President Fernando Collor de Mello (1990–1992) expressed optimism regarding the initiative. Executive Message No. 137, through which the Executive Branch submitted the Treaty of Asunción to Congress for approval, indicated that the establishment of Mercosur would contribute to modernizing the productive structures of the four countries, stimulating investment, and strengthening the international competitiveness of their economies (Brazil, 1991 apud Mariano; Menezes, 2021).

Mercosur is regarded as the largest integration initiative implemented in Latin America, founded on principles that include democracy. Furthermore, a shared understanding emerged that economic development should be accompanied by improvements in the quality of life of the region’s populations (Brazil, 2023).

Since its establishment, Mercosur has sought to create a common area that generates trade and investment opportunities through the competitive integration of its member economies into international markets. As a result, it has concluded multiple political, trade, and cooperation agreements with countries and organizations across all five continents (Mercosur, 2026).

Table 1. Chronology of the Main Mercosur Agreements and Institutional Acts

Year	Mercosur Acts
1991	Treaty of Asunción: Establishment of Mercosur
1994	Ouro Preto Protocol: Institutional Basis of Mercosur

1998	Ushuaia Protocol: Democratic Commitment
	Mercosur Declaration as a Zone of Peace and Free of Weapons of Mass Destruction
2002	Olivos Protocol: Dispute Settlement
2003	Establishment of the Commission of Permanent Representatives of Mercosur (CRPM)
	Regulations of the Olivos Protocol: Establishment of the Permanent Review Tribunal (TPR)
2005	Constitutive Protocol of PARLASUR
2006	Establishment of the Structural Convergence Fund of Mercosur (FOCEM)
	Venezuela's Accession to Mercosur
2007	Establishment of the Mercosur Social Institute (ISM)
2009	Establishment of the Mercosur Institute for Public Policies on Human Rights (IPPDH)
2015	Bolivia's Accession to Mercosur
2017	Mercosur Protocol on Cooperation and Facilitation of Investments
2018	Launch of the Mercosur Foreign Trade Statistics System (SECEM)
2021	Presentation of the Mercosur Citizenship Statute
2024	Launch of the Mercosur Training Platform
	Panama's Entry as an Associated State of Mercosur
2026	Association Agreement between Mercosur and the European Union

Source: Mercosur (2026).

From an economic perspective, Mercosur would assume the characteristics of a customs union, involving the free movement of services and productive factors through the elimination of customs duties and non-tariff restrictions on the movement of goods, as well as any other measures having equivalent effects (Novo, 2017).

By 2023, intra-bloc trade, excluding Bolivia, had increased more than tenfold, rising from US\$ 4.5 billion in 1991 to US\$ 49 billion. Meanwhile, total trade reached US\$ 684.5 billion, of which US\$ 379 billion corresponded to exports. The main export destinations were China (29%), the European Union (14%), and the United States (12%), while the leading exported products were soybeans (13%), petroleum (12%), and iron ore (6%). Regarding imports, China accounted for 26% of the total, followed by the European Union (20%) and the United States (17%). The main imported products included potassium chloride, used as a fertilizer, petroleum oils, and crude petroleum (Brazil, 2025).

The bloc is the leading recipient of foreign investment in the region. According to available data, in 2023, Mercosur received 47.9% of foreign direct investment in Latin America and the Caribbean and 64.8% of foreign direct investment in South America (Brazil, 2025).

Regarding the mineral sector, this study focuses on strategic and critical minerals, which are considered essential to national sovereignty, economic activity, and the energy transition. Their supply may be exposed to risks arising from the geographic concentration of production, external dependence, geopolitical instability, or technological constraints (ANM, 2026).

In this context, Mercosur has a Working Subgroup on Mining and Geology, designated SGT-15. In August 2025, during its 32nd Ordinary Meeting, the 2025–2026 Work Plan was approved, establishing technical and strategic guidelines to strengthen regional integration in the mineral sector and enhance the bloc's competitiveness in response to growing global demand for sustainable inputs. During the meeting, an agenda comprising five action areas was defined: mapping the region's mineral potential; projecting long-term global demand for strategic minerals; promoting research and development cooperation; assessing regulatory frameworks and public policies; and defining strategic projects with regional impact (Lima, 2025).

SGT-15 had been inactive since 2023 and resumed its activities in 2025, repositioning mining as a structuring element of regional integration, with a focus on the energy transition, geological mapping, and the development of value chains (Brazil, 2026). Priority minerals included lithium, nickel, copper, and rare earth elements, which are essential inputs for technologies such as batteries, wind turbines, solar panels, and electric vehicles (Lima, 2025).

Finally, in addition to holding reserves of minerals prioritized by Mercosur, Brazil possesses significant deposits of graphite, niobium, and other minerals essential for batteries and clean energy systems. Brazil's strategy is based on expanding geological knowledge, fostering production, and developing industry through value addition (Chiappini, 2025).

2.2. Historical Formation, Integration Process, And Mineral Agenda Of The EU

Following the severe and tragic political, economic, and social consequences experienced during the first half of the twentieth century, primarily as a result of the two World Wars (1914–1918 and 1939–1945), European nations became increasingly aware of the importance of lasting peace, mutual cooperation among countries, and coordinated efforts to promote development across the continent. During the Second World War, the signing of the Benelux Treaty by Belgium, Luxembourg, and the Netherlands in 1944, which entered into force in 1948, laid the foundations for what is now known as the European common market.

The establishment of a major economic bloc on the Old Continent represented one of the most significant integration efforts undertaken in Europe since 1945. Accordingly, several nations sought to strengthen their economic, social, and political ties to promote economic growth, military security, and reconciliation between France and Germany. It was under these circumstances that, in 1951, leaders from West Germany, Belgium, France, Italy, Luxembourg, and the Netherlands signed the Treaty of Paris, which entered into force in 1952 and established the European Coal and Steel Community (Gabel, 2026). Since then, Europe has sought to deepen its integration, a process that culminated in the signing of the Maastricht Treaty in 1992. Subsequently, under the Treaty of Lisbon, signed in 2007, the bloc's 27 member states agreed to share aspects of their sovereignty and delegate decision-making powers to the EU (CFR, 2022).

Table 2. Main Historical Milestones in the Formation of the European Union

Year	Act	Notes
1950	Schuman Declaration	- Presented by French minister Robert Schuman, proposing the creation of a European Community for Coal and Steel, whose members would share their national production.
1951	Treaty of Paris	- Creation of the core of the European Union; - Establishment of the European Coal and Steel Community.
1957	Treaty of Rome	- Creation of the European Economic Community (European Common Market) and the European Atomic Energy Community.
1972 to 1995	Enlargement of the bloc	- In 1972, accession of Denmark, Ireland, Norway and the United Kingdom; - In 1973, Ireland; in 1981, Greece; - In 1986, Portugal and Spain; and in 1995, Finland, Sweden and Austria.
1979	Direct elections	- Election of members of the European Parliament by universal suffrage in all Member States.
1985	Schengen Agreement	- End of border controls between participating countries and common visa rules for citizens of third countries; - Some Member States chose not to participate.
1986	European Community	- Approval of the Single European Act; - Creation of the European Community; - Official recognition of the European Parliament.
1992	Maastricht Treaty	- Signed in Maastricht (Netherlands), establishing the European Union; - Opened the way for the creation of a single currency, the 'euro'; - Establishment of an independent European Central Bank.
1999	Single currency	- Fixed exchange rates between 12 national currencies; - Adopted by other Member States, replacing the national currencies in 20 Member States.
2004 to 2013	Enlargement of the bloc to the east and south	- Cyprus, Slovakia, Slovenia, Estonia, Hungary, Latvia, Lithuania, Malta, the Czech Republic and Poland became EU members; - Three years later, Bulgaria and Romania; - In 2013, Croatia was the last country to join the bloc.
2007	Treaty of Lisbon	- Creation of the position of President of the European Council; - Creation of the position of High Representative for Foreign Affairs; - Abandonment by the EU of unanimity voting for adoption by qualified majority in more than 40 policy areas.
2020	Brexit	- In 2016, referendum in the United Kingdom on leaving the European Union; - In 2020, the United Kingdom became the first and only country to leave the bloc.

Source: Council on Foreign Relations (2022); Gabel (2026) and European Union Watch (2026)

The bloc is currently organized around seven official institutions: the European Council, the European Commission, the European Parliament, the Council of the European Union, the Court of Justice of the European Union, the European Central Bank, and the European Court of Auditors. These institutions perform executive, legislative, judicial, and financial functions (CFR, 2022).

Figure 1. Main Institutions of the European Union



Source: Council on Foreign Relations (2022).

From an economic perspective, the EU is characterized by a unified trade policy arising from its customs union, which establishes a common external tariff for the entire bloc. This framework enables the uniform treatment of trade in goods and services and gives the EU responsibility for conducting trade negotiations within the World Trade Organization (CFR, 2022).

In the mining sector, the EU stands out for the scope of its public policies addressing critical raw materials, reflecting its economic growth and the limited availability of domestic reserves of metallic minerals. Discussions on security of supply began in 1975 and, more recently, have advanced through the Raw Materials Initiative, which seeks to ensure access to these resources through international markets (Castro; Peiter; Góes, 2022).

In response to challenges associated with secure and sustainable supply chains, the European Parliament and the Council of the European Union adopted the Critical Raw Materials Act in 2024, establishing clear and ambitious targets for 2030. These include ensuring that 10% of the EU's annual consumption of critical raw materials is extracted within Europe, that 40% of processing takes place domestically, and that 25% of supply needs are met through recycling technologies (Sambruno, 2025).

The European Commission publishes a list of critical raw materials, updated every three years, to help governments and industries make better-informed decisions and develop strategies to address the associated risks (IEA, 2022).

Table 3. List of Critical Raw Materials Identified by the European Commission

Feldspar	Rare Earth Elements		Arsenic	Fluorspar
Helium	Platinum Group Metals		Cobalt	Copper
Bauxite	Coking Coal	Lithium	Phosphorus	Antimony
Magnesium	Silicon Metal	Barite	Gallium	Manganese
Strontium	Beryllium	Germanium	Natural Graphite	Tantalum
Bismuth	Hafnium	Niobium	Titanium Metal	Boron/Borate
Phosphate Rock	Vanadium	Nickel	Scandium	Tungsten

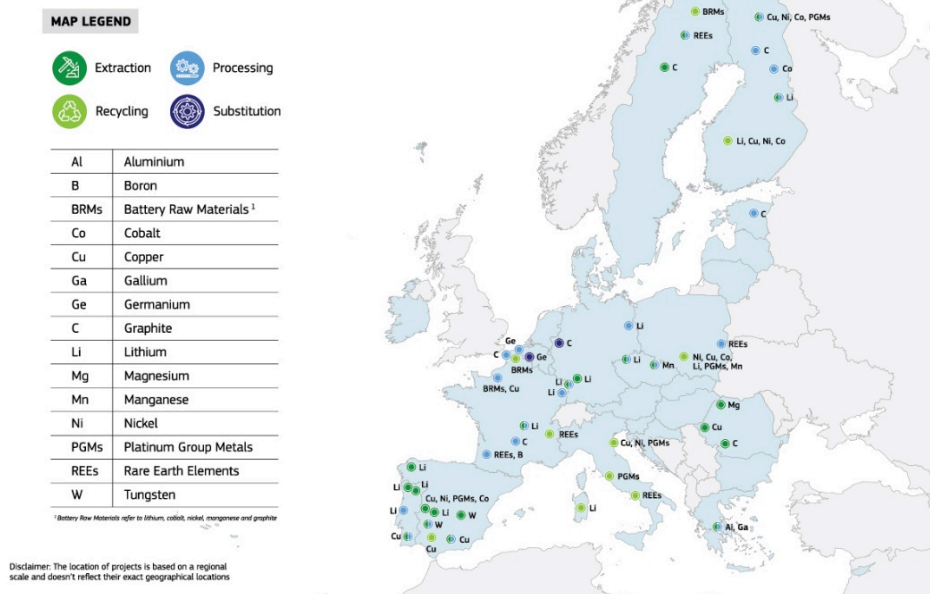
Source: European Commission (2023).

In 2025, the European Commission adopted, for the first time, a list of 47 strategic projects (Figure 2) to strengthen domestic strategic raw material capabilities, reinforce value chains, and diversify sources of supply. Located in Germany, Belgium, Spain, Estonia, Finland, France, Greece, Italy, the Czech Republic, Poland, Portugal, Romania, and Sweden, these projects are expected to contribute to Europe's green and digital transitions while supporting the defense and aerospace industries (Ec, 2025).

With an estimated investment of €22.5 billion, these projects would enable the EU to fully meet its 2030 benchmarks for the extraction, processing, and recycling of lithium and cobalt, while making substantial progress in the corresponding capacities for graphite, nickel, and manganese. Similarly, projects involving magnesium and tungsten would contribute to strengthening the resilience of the defense industry (Ec, 2025).

Figure 2. 47 Strategic Projects for Critical Raw Materials in the EU.

Strategic Projects for the EU



Source: European Commission (2025).

Finally, growing global demand, combined with limited supply within the continent, has placed the European Union in a particularly complex position. On the one hand, it seeks to develop its strategic autonomy and expand industrial capacity in key sectors. On the other hand, the extraction and recycling of critical materials remain challenges to be overcome (Sambruno, 2025).

These factors, among others, explain why the EU seeks to establish multilateral agreements, partnerships, and international cooperation arrangements to secure access to minerals essential to its economic, industrial, and technological development amid intensifying geopolitical competition.

2.3. The Mercosur–EU Agreement And The Mineral Agenda

In June 2019, Mercosur and the European Union (EU) concluded an agreement to establish a free trade area. At the time, the agreement was considered far-reaching because it covered areas that had previously been excluded from negotiations due to Mercosur's resistance to certain concessions. The EU had consistently sought

greater access to the Mercosur market for manufactured goods through tariff reductions, whereas the Southern Cone countries sought to improve access to the European market for agricultural and livestock products (Sarti; Castilho, 2021).

In terms of international trade, the EU was Mercosur's second-largest trading partner, accounting for nearly 17% of the bloc's trade in 2024 alone. Mercosur, in turn, ranked as the EU's tenth-largest trading partner in terms of trade flows. Trade between the two blocs exceeded €111 billion, comprising €55.2 billion in exports and €56 billion in imports. Between 2014 and 2024, trade in goods increased by more than 36%, with imports rising by over 50% and exports increasing by 25% (Ceua, 2026).

The EU–Mercosur trade agreement, which provisionally entered into force on May 1, 2026, established a major trade area with the potential to stimulate the European economy, strengthen global partnerships, remove trade barriers, and create jobs and business opportunities (Ec, 2026). The agreement brings together two blocs that, combined, represent approximately 718 million people and a gross domestic product (GDP) of US\$ 22.4 trillion, equivalent to approximately R\$ 120 trillion (Conexão Mineral, 2026).

According to the European Commission, the main advantages of the agreement include the following (Ec, 2026):

- a. Facilitating investment by EU companies in Mercosur;
- b. Improving access to raw materials, thereby strengthening the EU's economic security;
- c. Creating opportunities to shape global trade rules;

- d. Strengthening intra-bloc trade through mechanisms designed to counter protectionism;
- e. Integrating value chains across the two regions, helping industries on both sides remain competitive in global markets; and
- f. Promoting European values through commitments to sustainable development, climate action, and labor rights.

It is important to emphasize that the manufacturing industries of the two blocs exhibit substantial asymmetries in scale and competitiveness. Considering the 27 EU economies, manufacturing value added amounted to US\$ 2.3 trillion in 2019, eight times the US\$ 282 billion recorded by Mercosur. Even when the associated countries of Bolivia, Colombia, Chile, Ecuador, and Peru are included, the combined figure would reach US\$ 391 billion, representing a six-to-one ratio in favor of the EU (Sarti; Castilho, 2021).

Consequently, for Brazilian industries, changes in market access conditions would not necessarily represent significant gains, given the low competitiveness of Brazilian manufactured exports to the EU, except for food products and automobiles, the latter benefiting from the strategies of European multinational companies in the sector. Furthermore, the customs duties applied by the EU are relatively low, particularly when compared with those imposed by Mercosur. Therefore, the benefits arising from trade liberalization would be expected to remain limited (Sarti; Castilho, 2021).

It is also noteworthy that the Mercosur–EU Agreement could establish the first binding legal framework aimed at reducing China's dominance in critical mineral processing and shifting part of

that activity to South America. In other words, if South American countries succeed in attracting capital investment for local processing of minerals destined for Europe, they could take advantage of newly opened markets to strengthen their economic relations (De Bolle, 2026).

Niobium provides a prominent example. The EU already imports more than 80% of its niobium from Mercosur, particularly from Brazil. However, most production has historically been exported in raw form. The agreement could therefore change this situation by making local processing financially viable and establishing legal commitments that reduce the risks that have discouraged long-term capital investment in South American mining (De Bolle, 2026).

Moreover, Mercosur is already a significant supplier of materials essential to Europe's green and digital transitions (Ec, 2026). Accordingly, the EU has identified access to critical minerals from the South American bloc as one of the agreement's central pillars. In this context, Kristina Grutschreiber, the EU's chief negotiator, emphasized that Europe would "desperately need" these raw materials to sustain its energy transition (Ígnea, 2026).

The underlying reasons include the fact that digitalization, automation, and sustainable mobility are among the principal objectives of the global economy in the twenty-first century. Consequently, the EU aims to achieve a net-zero greenhouse gas emissions economy. Progress toward this objective depends, in parallel, on the availability of a range of critical minerals and raw materials, only a small fraction of which is produced within Europe (Sambruno, 2025).

This European demand for critical minerals will require a careful assessment of Brazil's industrial sector, which must determine whether to industrialize its domestic production chains or accelerate commodity exports amid intensifying global competition. According to the Federation of Industries of the State of Minas Gerais, although the signed agreement safeguards the possibility of establishing a Brazilian industrial policy, reductions in trade tariffs could favor exports of unprocessed minerals (Rigueira, 2026).

One opportunity for Brazil and Mercosur lies in the EU's dependence on China for more than 90% of its rare earth supplies. This dependence exposes the EU to significant risks, as reliance on a single external source leaves Europe vulnerable to unilateral measures and disruptions in supply chains (Chiappini, 2015).

A few days after the agreement between the two blocs provisionally entered into force, the EU Ambassador to Brazil, Marian Schuegraf, stated that Mercosur and the EU shared common interests in strengthening supply chains, accelerating decarbonization, and expanding economic integration. According to her, beyond technical matters such as tariffs, quotas, rules of origin, and customs procedures, the agreement also encompasses investment and productive integration between the two blocs (Canal Rural, 2026).

Finally, while the EU acknowledges that it is not self-sufficient in critical raw materials and depends on imports to sustain its energy transition and expand its industrial and defense capabilities, Mercosur remains dependent on foreign machinery and technologies. In this context, the agreement could foster a complementary win-win relationship by meeting Europe's demand

for minerals while addressing the Brazilian mining sector's need for specialized machinery and technologies (Maia, 2026).

2.4. Prospects, Advantages, And Benefits For Brazil In The Strategic And Critical Minerals Agenda Under The Mercosur–EU Agreement

The mineral sector plays a strategic role in the Brazilian economy, accounting for a significant share of the country's exports. In 2024, the sector recorded revenues of R\$ 270.8 billion and a trade surplus of US\$ 34.9 billion, contributing to a positive trade balance for Brazil. The mineral economy's contribution to the country's gross domestic product (GDP) has ranged from 2.5% to 4% over recent decades (Cebri, 2025).

In 2019 alone, the EU ranked as Brazil's fifth-largest mineral export market, with Brazilian exports of iron, niobium, copper, manganese, nickel, aluminum, vanadium, tin, zinc, and chromium reaching US\$ 2.87 billion (Castro; Peiter; Góes, 2022).

These macroeconomic indicators reflect Brazil's significant role in the production of lithium, nickel, copper, niobium, manganese, and graphite, as well as its considerable geological potential for rare earth elements. Deposits are concentrated mainly in the states of Minas Gerais, Goiás, Pará, Bahia, and Amazonas (ANM, 2026). This advantageous position stems from Brazil's geological diversity and extensive territory, which also contain natural reserves of iron, gold, nickel, aluminum, and other minerals (Cebri, 2025).

The Brazilian Mining Institute considers the recently signed trade agreement a significant opportunity for Brazil's mining sector and national economy. According to the institute, the agreement would

expand access to the European market and create conditions for attracting investment amid growing global demand for strategic minerals (Conexão Mineral, 2026). It is worth noting that rare earth elements are in growing global demand because of their importance to modern technologies, particularly electronic products and renewable energy systems. China currently dominates their production and refining, whereas Brazil holds the world's second-largest rare earth reserves, most of which are located in Minas Gerais (Rigueira, 2026).

South America possesses vast mineral resources that remain largely unexplored. In Brazil, for example, less than 30% of the national territory has been surveyed for these resources. Nevertheless, the country is a major producer of bauxite, copper, iron ore, manganese, natural graphite, niobium, silicon metal, and tantalum. Argentina, in turn, is recognized as one of the world's leading lithium producers, while Paraguay has significant lithium and manganese reserves, among other mineral resources (De Bolle, 2026). The advantages for Brazil's mining sector would extend beyond tariff exemptions under the Mercosur–EU Agreement. They would also include supply chain integration and the attraction of European investment focused on extraction and processing technologies (Table 4).

Table 4. Advantages and Benefits for the Brazilian Mineral Sector

Area	Advantages and Benefits for Brazil
Market diversification	- Reduced dependence on Asian markets; and - An alternative amid trade tensions between the United States and China.
Investment attraction	- Projected 1.49% increase in foreign investment flows; and

	- Greater European interest in sustainable mining projects.
Value addition	- Greater flexibility to impose restrictions and taxes on exports, stimulating the domestic processing of critical minerals.
Technology transfer	- Promotion of partnerships in sustainable mining, processing techniques, and energy-transition technologies.
Green Steel	- Brazil's energy mix, composed of 85% renewable energy, would position the country as a supplier of low-carbon steel products.
Preferential access	- Elimination of 100% of EU industrial tariffs within 10 years; and - An advantage over competitors without an agreement.
Institutional cooperation	- Strengthening of bilateral dialogues on mining, renewable energy, and biodiversity.
Government procurement	- Participation of Brazilian companies in European procurement processes on equal terms.

Source: Ígnea, 2026 apud Brasil Mineral, 2026.

The EU views the trade agreement with Mercosur as a key instrument for securing access to critical minerals essential to the energy transition, digital technologies, and the bloc's strategic autonomy. The European Parliament and the European Commission have emphasized that the agreement would create an opportunity to reposition relations between the two regions, with Brazil at the center of the strategy for supplying strategic raw materials (Chiappini, 2025).

According to a European Commission report published in 2023, Brazil currently accounts for approximately 13% of the EU's natural graphite supply and around 12% of its aluminum/bauxite supply. The agreement would therefore facilitate investment by European companies in Brazilian supply chains, including those involving critical raw materials and related goods. This could play a key role in advancing the green and digital economic transformations of both regions while ensuring predictable and stable supply chains (Conexão Mineral, 2026).

Table 5. Brazilian Critical Minerals of Interest to the European Union

Mineral	Main Applications	Brazil's Position
Lítio	Batteries for electric vehicles and energy storage.	- 6th-largest reserves worldwide; and - Expanding production.
Nióbio	High-strength steel alloys, superconductors.	- Global leader (90% of global production).
Grafite	Batteries, refractory materials, electrodes.	- Significant reserves; and - Expansion potential.
Níquel	Batteries, stainless steels, special alloys.	- Increasing production; and - New deposits under exploration.
Terras Raras	Permanent magnets, electronics, wind energy.	- Large reserves; and - Low current production.
Cobre	Electrical conductors, renewable energy.	- Moderate production; and - Potential in Carajás.
Manganês	Batteries, steel production.	- Among the world's largest producers.

Source: Brasil Mineral (2026).

Under the agreement signed in 2026, following 25 years of negotiations, Brazil retained the right to adopt industrial policies in the mineral sector, including the possibility of restricting or taxing exports of critical minerals at rates of up to 25%, in order to encourage domestic processing, refining, and beneficiation. In practice, this provision creates opportunities for Brazil to compete in the more profitable stages of the value chain, such as the production of battery inputs, permanent magnets, and energy transition technologies, rather than limiting itself to the sale of raw ore (Rigueira, 2026).

Finally, it is worth noting that the agreement also provided for legal and regulatory certainty for European investments in Mercosur countries, allowing EU companies to establish branches, subsidiaries, joint ventures, or industrial plants in Brazilian territory. This provision could unlock investment, particularly in long-term mining projects, by combining preferential access to the European market with legal and regulatory predictability (Maia, 2026).

3. METHODOLOGY

The approach adopted in this study was qualitative, as its main objective was to analyze the gains achieved by Brazil in relation to strategic and critical minerals as a result of the Mercosur–EU Agreement (Creswell, 2014).

This approach is widely recognized in the scientific community for its ability to provide contextual analyses. In this study, it enabled an understanding of the direct relationship between the advantages and benefits accruing to Brazil from the implementation of the

agreement by the two regional economic blocs. Furthermore, qualitative research focuses on interpreting and understanding dynamic phenomena, making it particularly relevant in geopolitical contexts involving mineral resources that act as catalysts for countries' economic, industrial, scientific, and technological development (Creswell, 2014).

Regarding methodological procedures, the study was classified as bibliographic research. This type of research is based on the careful analysis of previously published scientific works, which constitute one of the foundations of scientific knowledge development. According to Pereira et al. (2018), bibliographic research can consolidate theoretical and methodological frameworks by compiling and interpreting significant contributions on a specific topic. Yin (2016) further argues that this method strengthens analytical rigor by grounding discussions in established theories.

To conduct this review, the research sources were selected and classified into three categories: (1) sources describing the historical background, integration process, and mineral agenda of Mercosur and the EU; (2) sources assessing the Mercosur–EU Agreement and its corresponding mineral agenda; and (3) sources presenting the prospects, advantages, and benefits for Brazil's development arising from the agreement between the two economic blocs.

The classification of these sources provided a broader understanding of the potential gains for Brazil and its mineral sector resulting from international cooperation in the field of strategic and critical minerals under the agreement between the two economic blocs. The bibliographic and documentary reviews drew on domestic and international publications, scientific articles, Brazilian government

agencies, international organizations, multinational institutions, and websites, ensuring a broad knowledge base that reflected the importance of international cooperation in the mineral sector.

4. FINAL CONSIDERATIONS

Two major world wars fought on the European continent during the first half of the twentieth century left a substantial legacy of destruction across numerous cities affected by the conflicts. The scale of devastation was so extensive that much of the socioeconomic infrastructure of these societies had to be rebuilt. Meanwhile, throughout the twentieth century, the Southern Cone was also marked by military campaigns and political disputes that directly involved Argentina, Brazil, Paraguay, and Uruguay. For decades, diplomatic relations among these countries were characterized by instability and historical antagonisms associated with disputes in the Río de la Plata region.

In this context, the need to promote development, stability, and mutual trust contributed to the gradual establishment of processes of rapprochement and regional integration. In Europe, this movement led to the development of mechanisms for political cooperation and economic and trade integration, culminating in the creation of the European Union (EU). In the Southern Cone, a similar process of political and economic rapprochement among Argentina, Brazil, Paraguay, and Uruguay led to the establishment of the Southern Common Market (Mercosur). Although these processes emerged under different historical circumstances, both demonstrate the importance of cooperation and regional integration in consolidating economic and diplomatic relations among states.

In May 2026, following an extended period of negotiations, Mercosur and the EU consolidated an agreement that would encompass approximately 718 million people and a combined economic area with an estimated gross domestic product (GDP) of US\$22.4 trillion. These indicators illustrate the economic and commercial significance of the agreement and provide a basis for understanding the scale of the relations that may develop between the two blocs.

Among the various sectors covered by this cooperation, the mineral sector stands out, particularly with regard to strategic and critical minerals. The importance of this segment is associated with the current geopolitical context and the growing demand for mineral resources required for the energy transition, digital transformation, and scientific and technological development. In this scenario, secure access to these resources and the development of more resilient supply chains are becoming increasingly important to industrialized economies.

For Europe, the need to advance the energy and digital transitions and strengthen its scientific and technological capabilities is associated with demand for a wide range of mineral commodities. Despite its high level of economic, technological, and industrial development, the European Union faces limitations in the domestic availability of certain mineral resources, particularly in relation to the requirements of its productive system. This asymmetry between domestic supply and industrial demand may increase the bloc's dependence on external sources and its exposure to geopolitical disputes over access to strategic natural resources. In this context, minerals such as bauxite, magnesium, rare earth elements, vanadium, lithium, niobium, nickel, graphite, and copper are important to various European industrial and technological sectors.

Conversely, the countries that make up Mercosur possess reserves and deposits of several minerals of strategic interest to the European Union. This complementarity between mineral resource availability and industrial demand provides one of the foundations for strengthening economic and trade relations between the two blocs. In Brazil's case, the research findings indicate prospects for advantages associated with market diversification, investment attraction, technology transfer, institutional cooperation, and the development of the mineral sector's value chain.

The findings suggest that the Mercosur–EU Agreement provides favorable conditions for expanding cooperation on strategic and critical minerals and generating potentially mutual benefits for the parties involved. For Brazil, the expansion of trade relations with the European Union may facilitate the entry of minerals such as lithium, niobium, graphite, nickel, rare earth elements, copper, and manganese into international markets. However, the economic benefits associated with this market access will depend on the country's ability to advance value addition and develop the production chains associated with these resources.

From this perspective, two main opportunities can be identified for Brazil's mineral sector. The first, which is of greater strategic interest, involves strengthening the value chain of mineral commodities through investments in processing, transformation, and industrialization, thereby increasing the value added to exports. The second involves expanding exports of mineral commodities to the European market. This alternative may contribute to strengthening the trade balance and generating revenue, although it offers less capacity to capture economic and technological value along the production chain.

The research also highlighted the importance of strategic and critical minerals to the decarbonization of the economy. The availability of these resources is associated with the development of renewable energy generation technologies, energy storage, electrification, and other solutions related to the energy transition. In this regard, Brazil may contribute directly and indirectly to global decarbonization by increasing its participation in the production chains associated with low-carbon technologies, provided that it simultaneously advances value addition, technological innovation, and the sustainability of its mining activities.

In the current geopolitical landscape, the findings analyzed reinforce the importance of multilateral agreements, international cooperation, and the establishment of strategic partnerships as instruments for promoting economic, commercial, industrial, scientific, and technological development. Within the framework of relations between Mercosur and the European Union, cooperation in the mineral sector may foster interstate relations based on mutual trust and complementary interests, creating conditions for mutually beneficial outcomes.

Within this international context, mineral diplomacy assumes particular relevance under the Mercosur–EU Agreement by contributing to expanded access to mineral resources, stronger supply chains, and greater value addition to mineral commodities. This dynamic may benefit both exporting countries, such as Brazil, and industrialized importing economies, such as those within the European Union, provided that trade relations are accompanied by mechanisms for technological cooperation, productive investment, and value chain development.

The qualitative approach, combined with a literature review and documentary analysis, made it possible to examine the interdependent relationship between Mercosur and the European Union in the mineral sector and identify prospects for strengthening economic, industrial, and technological ties between producers and consumers of strategic and critical minerals. The findings therefore suggest that the Mercosur–EU Agreement may serve as an important instrument for expanding opportunities for mineral-sector cooperation, provided that its implementation is accompanied by national strategies capable of promoting greater value addition and enhancing Brazil's technological integration into global strategic and critical mineral value chains.

Finally, future research is recommended to examine in greater depth the relationship between strategic and critical minerals and the ongoing global energy transition, with particular attention to Brazil's participation in international supply chains, technological development, value addition, and the mineral sector's contribution to reducing greenhouse gas emissions. Subsequent studies may also empirically assess the effects of implementing the Mercosur–EU Agreement on trade flows, investment, industrial capacity, and Brazil's integration into global value chains associated with strategic and critical minerals.

REFERENCES

ANM – Agência Nacional de Mineração. *Minerais Críticos e Estratégicos*. Publicado em: 24 abr. 2026. Disponível em: <https://www.gov.br/anm/pt-br/acesso-a-informacao/perguntas-frequentes/minerais-criticos-e-estrategicos>. Acesso em: 16 mai. 2026.

Brasil Mineral. *Acordo UE-Mercosul: Oportunidades para a mineração brasileira*. Geopolítica. Publicado em: 09 jan. 2026. Disponível em: <https://www.brasilmineral.com.br/noticias/acordo-ue-mercosul-oportunidades-para-a-mineracao-brasileira>. Acesso em: 17 mai. 2026.

BRASIL. Ministério das Relações Exteriores. *Dados de Comércio do Mercosul*. Publicado em: 28 mai. 2025. Disponível em: <https://shre.ink/3P5o>. Acesso em: 23 mai. 2026.

BRASIL. Ministério das Relações Exteriores. *Mercosul*. Publicado em: 16 jan. 2023. Disponível em: <https://www.gov.br/mre/pt-br/embaixada-bogota/setor-economico/mercosul>. Acesso em: 23 mai. 2026.

BRASIL. Ministério de Minas e Energia. *Integração no MERCOSUL*. Publicado em: fevereiro de 2026. Disponível em: <https://shre.ink/3PqM>. Acesso em: 3 mai. 2026.

BRASIL. República Federativa do. *Diário do Congresso Nacional*. Ano 46, n. 41, 16 abr. 1991. Brasília, DF, 1991. Disponível em: <https://bit.ly/3tFqqZB>. Acesso em: 12 mai 2026.

Canal Rural. *UE destaca cadeias de abastecimento e agronegócio no acordo com o Mercosul*. Comércio Exterior. Publicado em: 19 mai. 2026. Disponível em: <https://www.canalrural.com.br/economia/ue-destaca-cadeias-de-abastecimento-e-agronegocio-no-acordo-com-o-mercosul/>. Acesso em: 24 mai. 2026.

CASTRO, F. F. de; PEITER, C. C.; GÓES, G. S. Minerais estratégicos e críticos: Uma visão internacional e da política mineral brasileira. *Textos para Discussão 2768*. Instituto de Pesquisa Econômica Aplicada. Brasília, 2022. Disponível em:

https://portalantigo.ipea.gov.br/portal/images/stories/PDFs/TDs/220526_217116_td_2768_web.pdf. Acesso em: 25 mai. 2026.

CEBRI – Centro Brasileiro de Relações Internacionais. O papel do Brasil na Agenda Global de Minerais Críticos e Estratégicos. *Relatório Técnico*. 1. ed. Rio de Janeiro, 2025. Disponível em: https://cebri.org/media/documentos/arquivos/CEBRI_MCE_Relatorio_Final.pdf. Acesso em: 18 mai. 2026.

CEU - Council of the European Union. *EU-Mercosur trade: facts and figures*. Atualizado em: 6 mai. 2026. Disponível em: <https://www.consilium.europa.eu/en/infographics/eu-mercotur-trade/>. Acesso em: 15 mai. 2026.

CFR - Council on Foreign Relations. *How Does the European Union Work?* Atualizado em: 11 mar. 2022. Disponível em: <https://www.cfr.org/backgrounders/how-does-european-union-work>. Acesso em: 11 mai. 2026.

CHIAPPINI, G. Europa vê urgência em acordo com Mercosul para fornecimento de minerais críticos. *Agência Eixos*. Publicado em: 10 dez. 2025. Disponível em: <https://eixos.com.br/internacional/europa-ve-urgencia-em-acordo-com-mercotur-para-fornecimento-de-minerais-criticos/>. Acesso em: 17 mai. 2026.

CONEXÃO MINERAL. *Acordo Comercial Mercosul – União Europeia é considerado positivo para a mineração brasileira*. Publicado em: 16 jan. 2026. Disponível em: <https://shre.ink/3P55>. Acesso em: 8 mai. 2026.

CRESWELL, J. W. *Investigação qualitativa e projeto de pesquisa: Escolhendo entre cinco abordagens*. São Paulo: Penso, 2014.

DE BOLLE, M. *The EU-Mercosur agreement could tap a new source of critical minerals for the West*. The Peterson Institute for International Economics. Publicado em 7 abr. 2026. Disponível em: <https://www.piie.com/blogs/realtime-economics/2026/eu-mercosur-agreement-could-tap-new-source-critical-minerals-west>. Acesso em: 17 mai. 2026.

EC – European Commission. *Commission selects 47 Strategic Projects to secure and diversify access to raw materials in the EU*. Presse Release. Publicado em: 24 mar. 2025. Disponível em: https://ec.europa.eu/commission/presscorner/detail/en/ip_25_864

EC – European Commission. *Critical raw materials*. EC, 2023. Disponível em: https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en. Acesso em: 29 mai. 2026.

EC – European Commission. *The EU-Mercosur trade agreement*. Atualizado em: 30 abr. 2026. Disponível em: https://commission.europa.eu/topics/trade/eu-mercosur-trade-agreement_en. Acesso em: 19 mai. 2026.

EU Watch - European Union Watch. *Milestones in the history of the European Union, 2026*. Disponível em: <https://www.euwatch.be/timeline-of-the-eu/>

GABEL, M. J. European Union. *Britannica History*. Publicado em: 21 mai. 2026. Disponível em: <https://www.britannica.com/topic/European-Union>. Acesso em: 22 mai. 2026.

GUIMARÃES, L. R. *Trajectoria do Mercosul e União Europeia: reflexo das crises internacionais?* Trabalho de Conclusão de Curso. Universidade de Brasília (UnB). Brasília, 2017. Disponível em: <https://pdfs.semanticscholar.org/d853/290665910c083d895e0e997d58bbea405eee.pdf>. Acesso em: 15 mai. 2026.

IEA - International Energy Agency. *The 2020 EU Critical Raw Materials List*. Atualizado em: 26 out. 2022. Disponível em: <https://www.iea.org/policies/15274-the-2020-eu-critical-raw-materials-list>. Acesso em: 20 mai. 2026.

ÍGNEA. Acordo Mercosul-UE e Minerais Críticos Brasileiros. *Geologia e Meio Ambiente*. Publicado em: 09 jan. 2026. Disponível em: <https://www.igneabr.com.br/en/noticias/informative/mercosur-eu-agreement-and-brazilian-critical-minerals/>. Acesso em: 19 mai. 2026.

LIMA, R. Mercosul aprova plano regional para mineração estratégica e transição energética. *Agência de Notícias da Mineração Brasileira Minera Brasil*. Publicado em: 2 set. 2025. Disponível em: <https://minerabrasil.com.br/mercosul-aprova-plano-regional-para-mineracao-estrategica-e-transicao-energetica/2025/09/02/>. Acesso em: 21 mai. 2026. MAIA, R. Acordo Mercosul-União Europeia trará benefícios e desafios a médio prazo. *Radar Mineração*. Publicado em: 26 jan. 2026. Disponível em: <https://radarmineracao.com.br/acordo-mercosul-uniao-europeia-trara-beneficios-e-desafios-a-medio-prazo/>. Acesso em: 19 mai. 2026.

MARIANO, K. L. P; MENEZES, R. G. Três décadas de Mercosul: institucionalidade, capacidade estatal e baixa intensidade da integração. *Lua Nova: Revista de Cultura e Política*, n. 112, p. 147-179, 2021. Disponível em:

<https://www.scielo.br/j/ln/a/Bpkz3gLvhVxrjsfTg4t4Tq/?lang=pt>.

Acesso em: 12 mai. 2026.

NONNENBERG, M. J. B; RIBEIRO, F. J. da S. P. Análise preliminar do acordo Mercosul-União Europeia. *Carta de Conjuntura*. Instituto de Pesquisa Econômica Aplicada Ipea (Ipea). N° 44, 2019. Disponível em: <https://repositorio.ipea.gov.br/server/api/core/bitstreams/9b7ffcba-8ebb-4f06-b0ab-60a953c05ea0/content>. Acesso em: 18 mai. 2026.

NOVO, B. N. A importância do Mercosul para o Brasil. *Scientiam Juris*, v. 5, n. 1, p. 17-26, 2017. <https://doi.org/10.6008/SPC2318-3039.2017.001.0002>.

PEREIRA et al. *Metodologia da Pesquisa Científica*. Santa Maria: Universidade Federal de Santa Maria, 2018.

PESSOA, L. O; DE SOUZA, L. E. S. A integração fronteiriça no Mercosul: Histórico, balanço e perspectivas nos 30 anos do bloco. *Brazilian Journal of International Relations*, v. 10, n. 1, p. 222-252, 2021. <https://doi.org/10.36311/2237-7743.2021.v10n1.p222-252>.

RIGUEIRA, M. *Acordo União Europeia e Mercosul estimulará política industrial brasileira de minerais críticos*. Federação das Indústrias do Estado de Minas Gerais. Publicado em: 21 jan. 2026. Disponível em: <https://www.fiemg.com.br/noticias/acordo-uniao-europeia-e-mercosul-estimulara-politica-industrial-brasileira-de-minerais-criticos/>. Acesso em: 20 mai. 2026.

SAMBRUNO, I. Europe's challenges in ensuring the supply of Critical Minerals. *Institute of Environmental Assessment and Water Research*. Publicado em: 3 abr. 2025. Disponível em:

<https://www.idaea.csic.es/europes-challenges-in-ensuring-the-supply-of-critical-minerals/>. Acesso em: 10 mai. 2026.

SARTI, F; CASTILHO, M. Impactos do Acordo Mercosul e União Europeia sobre a indústria brasileira. V *ENEI–Encontro Nacional de Economia Industrial e Inovação*. Universidade Federal de Minas Gerais, 2021.

SILVA, F de A; BASTOS, P. I de A. *História do Brasil*. Série Sinopse. Colônia, Império e República. 1 Ed. Editora Moderna, 1976.

YIN, R. K. *Qualitative Research from Start to Finish*. 2ª ed. New York: The Guilford Press, 2016. ISBN: 978-1-4625-1797-8. 386 pp.

¹ Graduated in Military Sciences from the Agulhas Negras Military Academy (AMAN); graduated in International Relations from the University of Southern Santa Catarina (UNISUL); graduated in Higher Technology in Foreign Trade from UNISUL; postgraduate MBA in Business Logistics from the Getulio Vargas Foundation (FGV); postgraduate MBA in Renewable Energy Management from FBUi/IEL; postgraduate qualification in Higher Education Teaching from the Federal University of Rio de Janeiro (UFRJ); postgraduate qualification in Public Administration from the Catholic University of Brasília (UCB); specialization in National Logistics from the Superior War College (ESG); specialization in Marketing Management from the University of Vale do Acaraú (UVA); Master of Science (M.Sc.) in Military Sciences from the Army Command and General Staff College. Author of the book *The Energy Transition and the Global Decarbonization of the Economy: Ceará's Contribution and Strategic Role in the Production and Export of Green Hydrogen to Europe*.

