

## The New IP Ontario “Mining Technology Patents” Report and Your Patent Strategy

*Kassandra Shortt, Mariana Furneri, Jen Hansen*

**September 3, 2024**

Intellectual Property Ontario recently released the [Snapshot Report: Mining Technology Patents](#) (the Report), providing an overview of patent rights within the global mining sector with a particular focus on stages of mining, critical minerals, and support services. The Report specifically focused on patent applications related to electric vehicles (EVs) and integrated circuit (IC) chips, and aimed to identify opportunities for Canadian businesses in the mining sector by identifying potential technology gaps and providing actionable recommendations for developing an IP strategy.

### Global Players and Mining Patent Trends

In the last ten years, innovators have filed approximately 12,300 unique patent families in the mining category, with the number of filings growing exponentially since 2018. This signals significant exploration and investment in this sector, especially among innovators based in China (which hold 72% of the total patent publications), followed by innovators in the United States, Australia, Canada, Japan, and Europe.

According to the Report, the top filers in Canada include Joy Global, Epiroc Rock Drills, Vale, Komatsu, Sandvik Mining, and Sumitomo Metal Mining (the second most prolific filer in the world, with a total of 145 filings). Filings in Canada account for 2.1% of total mining filings globally, with most Canadian filings belonging in the domain of support services in the subcategory of automation and transport services that assist with daily mining operations.

The Report analyzed patent filings in three categories:

- **Stages of mining** (i.e., exploration and prospecting, development, mine operations, metallurgy, and closure/reclamation): Canada’s patent activity is relatively low in this category, with only about 160 patents filed from 2013 to 2023.
- **Critical minerals** (i.e., critical minerals used to make EV battery packs and IC chips, including aluminum, boron, cobalt, copper, iron, nickel, manganese, graphite, lithium, silicon, and more): Canada’s patent filings comprise only 2% of total filings related to mineral mining.
- **Support services** (i.e., support systems and services technology to aid daily mining operations for minerals associated with EVs and IC chips): Apart from China, Canada has filed a similar number of patents in this category as other jurisdictions. Canadian filings are generally focused on machines

and automation and transport systems.

## Developing Your Patent Strategy

The Report concludes with a series of patent strategy considerations:

1. Although centred on its own market, China's patent filings are strong and strategic, and must be considered when developing an IP strategy in this space.
2. Companies active in robotics, automation, drones, wearable devices, Internet of Things (IoT), artificial intelligence (AI) and machine learning (ML), and 5G in mining should carefully monitor the field, as these areas have recently seen increased patent filings.
3. Consistent patent filings from 2013 to 2023 in all three categories (stages of mining, critical minerals, and support services) indicate progress and opportunity for partnerships, especially for small- to medium-sized enterprises.
4. Demand for materials needed for EVs and IC chips is only expected to increase in the coming decades, presenting a significant opportunity in this area.
5. Although patent filings related to metallurgy are lower than in other areas, it is an active area of innovation in Canada, with various companies developing new technologies.
6. As with any area of innovation, it is important to continuously monitor the patent rights of significant mining industry competitors. Searches to assess freedom to operate and patentability will help manage risk.
7. Across the three categories analyzed in the Report, the most significant sub-areas of innovation were iron mining, exploration and prospecting, and machinery and automation. With rapid development in these areas, conducting patent searches to ensure freedom to operate and identify risks is critical.

In conclusion, Canada attracts approximately 19% of global exploration budgets, with Ontario among the top 10 jurisdictions globally. Canada continues to be a leading country in the global mining ecosystem.

For more information and guidance on mining technology patents, from freedom to operate to enforcement, please contact [Kassandra Shortt](#) in our [Intellectual Property Group](#). The Cassels [Mining Group](#) has distinguished itself in the vanguard of the industry, offering the largest and most experienced dedicated group of any major Canadian law firm.