



ON GUARD FOR CANADA

Chemicals and Plastics Essential to Canada's Defence Industry

Chemistry and plastics are indispensable allies of Canada's defence industry, enabling the development of advanced materials that enhance durability, performance, and protection.

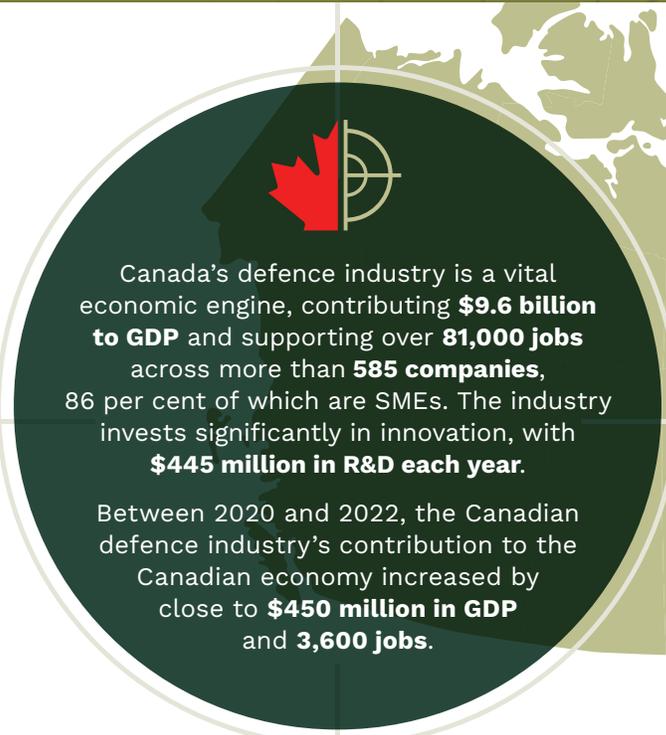
The nation's defence industry is a cornerstone of national security and technological advancement, driven by a highly skilled workforce and a strong presence across the country. This sector designs and manufactures cutting-edge, high-precision systems that support domestic defence objectives and international commitments. From land systems and naval technologies to advanced electronics and mission-critical components, Canadian defence products exemplify technical excellence and operational reliability.

Central to the success of this industry is the critical role played by chemistry and plastics.

- Specialized chemicals and high-performance plastics are not just supporting elements—they are **foundational to the functionality, safety, and resilience** of modern defence equipment.
- **Advanced materials science, rooted in chemistry, enables the creation of lightweight composites** that reduce vehicle weight and increase fuel efficiency.
- **Flame-retardant polymers** enhance operational safety in high-risk environments, while **corrosion-resistant coatings** ensure the longevity of systems exposed to severe weather, saltwater, and other corrosive conditions.
- From the earliest stages of material innovation to the final integration of complex defence systems, **chemistry and plastics are embedded in every aspect of production**. Their contributions are pivotal in enhancing performance, reliability, and strategic effectiveness, reinforcing Canada's position as a global leader in defence technology and manufacturing.



CANADIAN DEFENCE BY THE NUMBERS



Canada's defence industry is a vital economic engine, contributing **\$9.6 billion to GDP** and supporting over **81,000 jobs** across more than **585 companies**, 86 per cent of which are SMEs. The industry invests significantly in innovation, with **\$445 million in R&D each year**.

Between 2020 and 2022, the Canadian defence industry's contribution to the Canadian economy increased by close to **\$450 million in GDP** and **3,600 jobs**.

Ontario employs the largest share — **36 per cent** — with companies leading in **combat vehicle manufacturing, airborne sensors and warning systems, and aircraft and parts manufacturing**.

Quebec follows with **24 per cent** of the employment, where firms are focused on **ammunition and munitions, aircraft MRO (maintenance, repair, and overhaul), and aircraft parts manufacturing**. Both regions demonstrate strong capabilities in aerospace and land systems.



Western and Northern Canada, along with Atlantic Canada, each account for **20 per cent** of the industry's workforce. In Western and Northern Canada, firms specialize in aircraft MRO, naval shipbuilding and design, and naval vessel MRO. In Atlantic Canada, companies concentrate on naval shipbuilding and design, aircraft MRO, and naval mission systems, highlighting robust maritime defence capabilities. These regional leaders developed specialized industrial niches within Canada's broader defence sector.

CHEMICALS AND PLASTICS: DEFENDING CANADA

Chemicals and plastics are essential to all aspects of defence equipment; some of the areas chemicals and plastics are used include:

Radar Avoidance

Certain polymers are designed to be radar-absorbing materials (RAM), helping reduce the radar cross-section of stealth vehicles like aircraft and ships.

Weapons

Nitrocellulose, nitroglycerin, RDX, and HMX are key energetic materials in military-grade explosives and propellants.

Survivability

Military equipment uses chemical coatings for anti-corrosion, anti-fouling, and camouflage purposes.

Ballistics Protection

High-performance plastics like aramids (e.g., Kevlar) are used in body armour and vehicle armour plating.

Lightweighting

Plastics enable lightweight and durable components for autonomous military systems.

Sensor and Radar Systems

Plastics and dielectrics protect sensitive radar components without signal interference.

