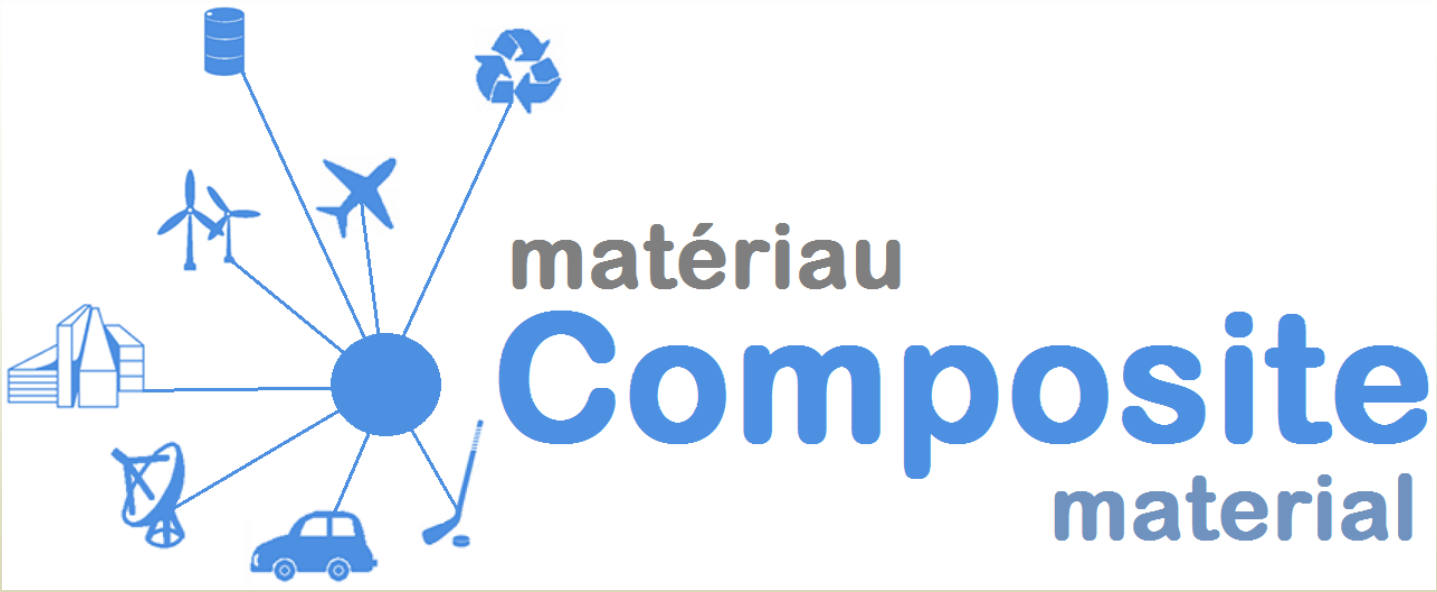
Vol. 1, no 2, Febr. 2014

Intell-Echo

Thematic Information Bulletin

Publication of The Economic Information Observatory (EIO) for Regional Cooperation between Atlantic Canada and Saint-Pierre and Miquelon, France



Saint-Pierre and Miquelon : p. 1 **Atlantic Canada : p. 5**

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Observatory of Economic Information (OBS-IE) for Regional Cooperation between Atlantic Canada and Saint Pierre and Miquelon

Intell-Écho : Thematic Information Bulletin

Are you looking for business opportunities in this sector?
CACIMA and CCFC-AN can facilitate your exploration and partnership initiatives.
(for specific information and network of contacts see page 4)

***Intell-Écho*, vol. 1, n° 2, 2014**

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The Economic Information Observatory is a regional cooperation project established between Atlantic Canada and Saint-Pierre and Miquelon. The publication of this information bulletin is made possible through the sponsorship of the Atlantic Canada Opportunities Agency and its various programs supporting research initiatives, linguistic minorities, business development, and the Province of New Brunswick as well as the University of Moncton, Campus of Shippagan.

Editorial Production :
Chambre d'Agriculture, de Commerce, d'Industrie, de Métiers et de l'Artisanat
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Information Policy: The aim of this project is to supply economic and industrial stakeholders with targeted strategic information that may be used in establishing lasting regional cooperation ties between Atlantic Canada and Saint-Pierre and Miquelon. information supplied herein may be used on the condition that the ***Intell-Écho*** bulletin be cited as a source.

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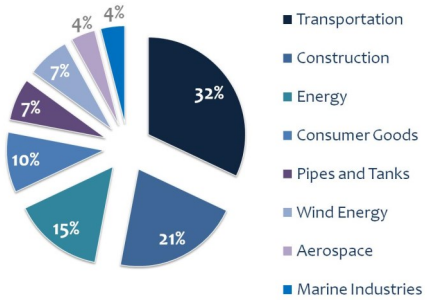
Composite Materials

The composites industry is...

- France is the **second largest European market**, with a volume of **300 000 tons in 2010** and a **total revenue of 2 billion Euros**.
- **15%** of the European production.
- Growth of **5% in value and 6% in volume** at the global level, **up to 2015**
- **500 to 550 businesses** have composites as their main activity (more than 2 000, if all those who work with composites occasionally are taken into consideration). 80% of these businesses are SMEs.
- Between **20 000** and **22 000** jobs

The opportunities



Source : JEC Composites

The main users of composites are the leaders in French industry : Dassault, Total, Bouygues, Renault or Bénéteau for marine industries.

The transportation sector is the leader in the use of composites in France with 32% of its production destined for automotive manufacturers and producers of industrial vehicles, compared to 30% for the rest of Europe.

The aeronautics sector is the largest consumer of composites, in value.

Strong growth factors

At a time when the first Boeing 787 and Airbus A350 models are arriving on the European market, **with rates of use of composite materials in the order of 50%** (allowing up to 20% fuel savings), the number of companies interested in composite materials and their use in production is increasing every day.

The growing market for wind turbines, supported by increased research in renewable energy, should also allow companies in this sector to consolidate their opportunities in this field.

.

Manufacturing a part by filament winding. © EADS Composites Aquitaine

The numbers speak for themselves

13 active technical centers: **École des Mines in Douai** the Composites Department of **ONERA**, **CETIM**, the **Compositec** and **Compositadour** platforms and four **Regional Centers of Innovation and Technology Transfer (CRITT).**

4 **Institutes of Technological Research (IRT): the Jules Verne IRT, and the M2P (materials, metallurgy, processes), Railenium and AESE (aeronautics, space and embedded systems) IRTs.**

28 **engineering degrees**, 20 bachelor's degrees and **15 master's**. Noteworthy schools include ENSCB in Pessac, IPSA in Alençon, the École des Mines in Douai, ITECH, ENSIL and Polytech Annecy-Chambéry.

+Composites Group

+Composites is a project that brings together 12 partners with the aim of reinforcing innovation and technology transfer in **composite materials** among **companies** in **North-West Europe** (NWE) by **providing support and assistance** through training, networking and market watch activities.

Among the tools available to businesses, there is, in particular, a business intelligence platform that provides extensive technical and business information.

http://watch.pluscomposites.eu

A word from an expert

EMC2, the leading French competitiveness cluster for composite structural elements, brings together all the players in innovation involved in key markets and technologies. Small and large companies, research organizations, training centres all are involved in collaborative R&D projects. EMC2 is directed towards the following markets: aeronautics, naval construction (civil and military), automobile, agricultural machinery, energy, the railway and engineering industry.

Key figures : from its origins to the present

- 225 projects approved
- overall budget for R & D of more than 1.3 billion Euros
- 142 projects funded
- more than 1 billion Euros funding with 337 million Euros of public share

Conversation with Laurent AUBERTIN, Director of Development for the EMC2 Competitiveness Cluster.

Can you give us your perspective on the dynamics of the French market for composites in 2013?

As an innovative player, the EMC2 Competitiveness Cluster has a rather limited view of the business side of the market. However, what we know is that France is a dynamic country in this sector, many projects are ongoing, particularly in the field of thermoplastics. Our vision of the French market is therefore that it is doing rather well, in any case, for companies in this cluster!

In your opinion, are there opportunities for Canadian companies in the French market for composites?

Again, as a stakeholder involved in innovation and research, our vision is oriented towards this area. So, when it comes to building technology and R&D partnerships, yes, these opportunities exist! Within the competiveness cluster, we are also very active with Canada since we are partners with CRIAQ (Consortium for Research and Innovation in Aerospace in Quebec). This partnership, which is based on an exchange of chargés de mission, is very interesting and innovative. Its objective is to facilitate relations between Canadian and French companies for R&D. But, to get back to the market, this type of partnership can be an important gateway for a foreign company. Our approach in this matter is as follows: technology takes precedence over business. If the technology is good, business will happen.

Are you aware of a Franco-Canadian partnership success story that you could give me as an example?

Within the cluster, I have several examples in mind. In terms of large investments in Canada, we can speak of CORIOLIS and AEROLIA which opened Canadian branches in order to be closer to their client, BOMBARDIER. But many SMEs have initiatives in progress. Examples include the LOIRETECH/VCI Composites partnership, two SMEs that are pioneers in this field (for more info, see below).

Additional Information

The EMC2 Competitiveness Cluster
http://www.pole-emc2.fr/

LOIRETECH / VCI Composites

http://www.pole-emc2.fr/loiretech-adherent-du-pole-de-competitivite-emc2-s-associe-a-composites-vci.html

Useful Information

Bio-sourced composites : an expanding market

According to experts, this market, stimulated by new regulations, **should see double-digit growth over the next few years, thanks to various factors:**

- these materials are innovative, lightweight, durable, potentially recyclable
- wide range of opportunities: automotive, aeronautical, marine industries, housing, sports and leisure
- rising prices of oil and petrochemical derivatives
- the interest of governments in products with a low environmental footprint
- the low cost of vegetal composites

National policies

- Creation in 2012 of **the Jules Verne Institute of Research Technology**, dedicated to composite materials. It is equipped with a budget of 450 million Euros.
- **"Nouvelle France Industrielle"**: consists of 34 sector-based initiatives. **The composites sector crosses over into many projects.** The economic potential of these 34 initiatives has been estimated at 45.5 billion Euros of value added (including 40% from export markets) and up to 480 000 jobs within 10 years. http://www.redressement-productif.gouv.fr/nouvelle-france-industrielle

Legislation

- The sector is impacted by **new environmental regulations** in the industry, as well as by **many new laws related to sustainable development**. These laws involve new constraints but also **create emerging opportunities such as the development of the market for bio-sourced composites (see text box opposite).**

Standards

- The standardization is **heterogeneous** (specific standards depending on the type of use). There are, to date, more than **200 standards and standardization documents relating to composite materials.**

Recycling

Waste materials represent **10%** of the annual French production, a volume of **30000T.**

End-of-life vehicles

With an average of **10 -15 kg** of composites per automobile, they represent an accumulation of **22500T a year.**

3 recovery methods are being explored

- Cement Works
- High temperature pyrolysys
- Solvolysis

Bio-sourced

The main french ressources : **flax, hemp, bamboo.**
The manufacturerd in the flax industry, grouped together in the FiMalin association, **are seeking to strengthen their position in the composites market.**

Ressources : 100000T of flax fibre produced in France in 2009.

Composites in Saint Pierre and Miquelon

The Saint Pierre company, DecoMarine, regularly works with composite materials in various fields: boat repair and construction (fishing boats and private crafts), tanks, and garbage collection bins. The owner, Denis Hurel, considers that there is potential for development in this field in Saint Pierre and Miquelon. For example, there is a real demand for products like tanks made from composites, which have a much longer life than products made from metal.

Deco Marine is investing in new facilities which will enable it to develop its activities and expand its customer base. It envisages participation in the JEC in order to develop new French and Canadian partnerships and to integrate new technologies into its business.

Déco Marine : decomarinespm@gmail.com

The major business events taking place in France in 2014

Event	Date	Location	Link
Salon JEC Europe	March 11-13	Paris	JEC Europe 2014
Transport Research Arena	April 14-17	Paris	TRA2014 Transport Research Arena 2014
4th International Composites Conference	May 12-14	Arcachon	4th International Carbon Composites Conference
Materiaux 2014	November 24-28	Montpellier	Materiaux2014

Source : Industrie & Technologies

Composites in the construction industry

Reproduction of a block of slate made from composite material © CRITT material

Just as in the marine sector, the construction industry is subject to European standards for construction materials.

Currently, this restriction hinders the arrival of composite-based materials from Canada.

Under the Europe Canada free trade agreement, the issue of the harmonization of standards has been included in the negotiation process.

An agreement on this point should facilitate the trade of certain products.

Composite materials are being used more and more in the construction industry, particularly for new applications. In the construction and civil engineering sectors, designers are becoming better at integrating the potential of these materials, in response to very concrete needs. Composite materials offer both great freedom of design and good mechanical qualities and find applications in many areas of the construction industry: sheathing/siding, structures, windows, insulation, fire protection etc. Thanks to their mechanical and chemical properties, they contribute to greater safety, due to a better resistance to shock and fire.

Although they generate additional costs, investing in these materials can be profitable in the long term: they offer better thermal and acoustic insulation and, for some materials, good electrical insulation.

Composites also increase design possibilities by allowing for lighter structures and for the creation of complex forms which are capable of performing multiple functions. These capacities are at the origin of innovative technological solutions.

Thus, the construction industry, which today represents 20% of the opportunities in the global market for composites could, in the long term, take first place from the aeronautics market (32%).

The following links and contacts may be of interest to you if you wish to

Export to France

- CACIMA : jeannette.boiret@cacima.fr
- CCFC-RA : direction@ccfcra.ca
- AFII : http://www.invest-in-france.org
- UCCIFE : http://www.uccife.org

Acquire French products or services

- Fédération de la plasturgie http://www.laplasturgie.fr/
- Groupement de la Plasturgie Industrielle et des Composites http://www.gpic.fr/00_koama/visu_gpic/index.asp?sid=302
- JEC Group http://www.jeccomposites.com
- L'Association pour les Matériaux Composites http://www.amac-composites.org

Main sources of information used in this bulletin:

http://www.industrie-techno.com ; http://www.pluscomposites.eu/fr ; http://www.jeccomposites.com ; http://www.afnor.org http://competitivite.gouv.fr/

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97500 Saint-Pierre & Miquelon
Du Canada : Tél : 0 11 508 41 05 30
De France : Tél : 05 08 41 05 30
Courriel : contact@cacima.fr
Site : www.cacima.fr

If you are seeking business opportunities in this area, the **CACIMA** and the **CCFC-RA** can facilitate your business prospection process and help with establishing new partnerships.

CHAMBRE DE COMMERCE FRANÇAISE AU CANADA
FRENCH CHAMBER OF COMMERCE IN CANADA

333, avenue Acadie Avenue
Dieppe (NB) E1A 1G9
Du Canada : 1 506 877 5014
De France : 00 1 506 877 5014
Courriel : direction@ccfcra.ca
Site : www.ccfcra.ca

Atlantic Canada – 4 provinces:
Prince Edward Island (PEI),
New Brunswick (NB),
Nova Scotia (NS),
Newfoundland and Labrador (NL)

The Economic Information Observatory (EIO) for Regional Cooperation between Atlantic Canada and Saint-Pierre and Miquelon

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(see contact details on page 8)

Intell-Echo, vol. 1, no. 2, 2014
ISSN 2292-518X

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The Composites Sector in Atlantic Canada: An Overview

Revenue from Plastics Industry

Plastic products (2009)	$ 1,356,300
Resin, rubber, synthetic fibres and filaments (2008)	$ 1,361,000
Other plastic products (2011)	$ 293,365,000

"A composite is a combination of two or more distinct materials whose combined properties create a new material with properties that cannot be achieved by any of the components acting alone and whose industrial application generates high added value."

Composites: A key resource for the aeronautics industry

Comparative aeronautics industry revenue (2012)

	(X $1000)
Nova Scotia	582 030
Atlantic Canada	805 693

50%
Composite materials make up 50% of the Boeing 787 Dreamliner

Composites are also used in these industries:

Revenue generated by other manufacturing industries (in $)

	Production of veneer, plywood and reconstituted wood products	Production of transportation equipment	Production of medical equipment
PEI	-	221,279,000	5,272,000
NB	150,000,000	139,976,000	15,370,000
NS	84,000,000	997,000,000	25,451,000
NL	17,000,000	57,165,000	5,645,000

Composite raw materials
- Aramid fibre
- Carbon fibre
- Epoxy resin
- Fibreglass
- High-temperature resin
- Unsaturated polyester
- Composite plastic lumber
- Cross-laminated timber

- 90% of the Atlantic Canada composites sector is based in NB and NS
- Atlantic Canada accounts for 3% of the Canadian composites sector
- The "All Other Plastic Products" sub-sector represents 63% of all Atlantic Canadian companies in the plastics and composites sector

Properties of composites
- Superior durability and resistance
- Adaptable to designing customized materials with complex shapes
- Low density
- Increased resistance to fire, moisture, corrosion and temperature variations (e.g. fibreglass)

Primary Applications

Aerospace & defence
Automotive industry
Construction and infrastructure
Transportation and marine sector
Alternative energies (wind power)
Medical applications (orthopedics, prosthetics and bone reconstruction)
Sports

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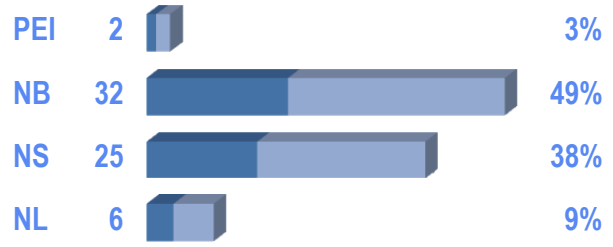
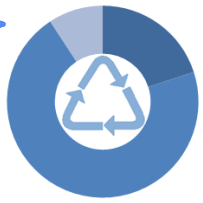
Key Figures

Atlantic Canadian companies in the plastics and composites sector by province (total: 65 companies)



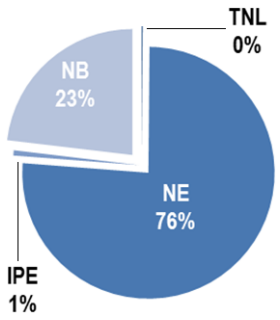
Composites play a leading role in the plastics industry



94% — exported to the United States (2012)

Micro (1-4)
13 companies
Small (5-99)
46 companies
Medium (100-499)
6 companies

Leading Exporters by Province (2013)



Distribution of Plastics Industry Companies in Atlantic Canada

Production sub-sector	Companies
Plastic packaging materials and unlaminated film and sheet manufacturing	10
Plastic pipe and pipe fittings	5
Laminated plastic plate, sheet (except packaging) and shape manufacturing	1
Polystyrene foam product manufacturing	3
Urethane and other foam products (excluding polystyrene)	1
Plastic bottle manufacturing	4
All other plastic products	41
Total	**65**

Demand for composites and the wind industry — **Installed capacity in Canada, 2013: 7 051 MW**
Growth over last 5 years: 200%

PEI	Installed power 173.6 MW	**NS**	Installed power 324 MW
	Monthly production 11 656 MW		Monthly production 38 073 MW
NB	Installed power 294 MW	**NL**	Installed power 54.7 MW
	Monthly production 47 099 MW		Monthly production 8 900 MW

International trade in plastics materials, including composites, in Atlantic Canada

The Composites Cluster in NB

The *business cluster* phenomenon is as old as the marketplace, but only recently have we recognized the enormous development power of industrial clusters. A cluster is defined as a group or association of companies that carry out similar activities and are located within a limited geographic area. In the case of New Brunswick, a relatively small province in terms of both population and area, it is logical to speak of establishment of a *provincial* cluster. *(One highly notable example of a cluster is the group of high-tech companies in Silicon Valley.)*

According to research, **companies that are part of a cluster are more competitive** in comparison to similar companies operating outside of a cluster. From the perspective of economic development, it has been established that strong clusters are associated with creation of well-paying jobs. Research has also shown that local economies containing effectively organized clusters are more innovative and have higher productivity, greater entrepreneurial spirit, more business start-ups and a higher export rate in addition to posting stronger growth. The opportunity that the heads of these companies have to meet and discuss issues of common interest plays a major role in this.

Raymond Arsenault, Coordinator
Grappe en composites NB / NB Composites Cluster Group

Experts' Corner: Maurice Guitton

An innovator and pioneer of the composites industry in Atlantic Canada, Maurice Guitton has acquired nearly 45 years of experience in this sector. In his role as a business leader in aeronautics and defence, Mr. Guitton has worked diligently to promote the composites industry in Atlantic Canada.

The expansion of composites continues as their use grows in all industrial and other business sectors worldwide at a pace of approximately 7% annually. Since the arrival of computers, manufacturing methods are becoming increasingly exacting, new fibres are evolving and increasingly advanced resins are being formulated to fulfil highly specific needs each year. New cores are being developed with enhanced mechanical properties to make structures lighter and address issues relating to material resistance. The invention of nanostructures and 3D printers will lead to further advances in product performance and reshape our expertise as we gain the capacity to execute directly from a CAD file and proceed with product manufacture in real time while maintaining target shapes and sizes.

We can consequently also anticipate dramatic technological advances and cost savings. A composites cluster was founded in Northern New Brunswick in response to demand from entrepreneurs seeking to diversify and keep up with the rest of the industry in terms of new techniques and products for the generations of tomorrow. Six companies to date are busy developing new products and already creating jobs. This initial approach will be extended to the provincial scale over the months to come, with community colleges and universities also playing a role in long-term development in this regard. Our province boasts a exceptionally high-quality workforce, and we do not foresee any problems in terms of delivering training to employees on new technologies in the composites sector.

Maurice Guitton

Useful Information:

R & D

Examples of innovative projects involving composites in Atlantic Canada	**Examples of future occupations related to composites:** Metallurgical and materials engineer Plastic products assembler, finisher or inspector Structural metal and platework fabricator or fitter Aircraft mechanic or aircraft inspector

Caraquet NB	The Tank Shop – first composite tank prototype launched late 2013
Edmundston NB	Corruven Canada Inc. investing $1.6 million toward expanding its production of lightweight panels, creating approximately 30 additional jobs
Fredericton NB	C-Therm Technologies Ltée has, with support from ACOA and the French National Centre for Scientific Research (CNRS), developed a new dilatometer for analyzing thermal exposure and measuring thermal expansion of objects
Shippagan NB	UMCS and CCNB – union of 2 post-secondary educational institutions to take part in establishing a composites cluster in New Brunswick
Bedford NS	Nova Advanced Composite Solutions Inc. manufacturing advanced composites and composite panels through an innovative resin infusion process for use in the construction, marine, defence and aerospace sectors
Lunenburg NS	Provincial government commitment in the form of $15 million in loans to enable Composites Atlantic Ltée to pursue contracts valued at $150 million
Lunenburg NS	Composites Atlantic Ltée awarded a contract with Bombardier to produce a component used in a new line of business aircraft
Lunenburg NS	Composites Atlantic Ltée building components for the Boeing 787 Dreamliner as well as solar panels for the Canadian Space Agency
Mt. Pearl NL	GFI Composites Ltée granted an $84,000 repayable loan from the province to produce fibreglass bathtubs and showers
Port-au-Port NL	The Research & Development Corporation of NL investing $10,300 in Magine Snowboard toward a project to produce a composite snowboard

Research Centres

PEI	• Department of Engineering, University of Prince Edward Island
NB	• Metals and composites assembly, Course, CCNB • Laboratoire FTIR et RAMAN, Univ. de Moncton – Shippagan • MRI Research Centre, University of New Brunswick (UNB) • Wood Science & Technology Centre, Wood Composite Lab, UNB
NS	• Institute for Research in Materials, Dalhousie University (DAL) • Nova Scotia Community College (NSCC) • Smart Materials Centre, DAL
NL	• Mechanical Engineering Research Facilities, Memorial University • Manufacturing Technology Centre, Materials and Nanotechnology Research Lab, College of the North Atlantic

Specialized Periodicals

- Atlantic Construction Journal <www.dailybusinessbuzz.ca>
- Canadian Construction Product Directory <www.reedconstructiondata.com>
- Canadian Metalworking <www.canadianmetalworking.com>
- Canadian Plant <www.canadianmanufacturing.com>
- Canadian Plastics <www.canplastics.com>
- Construction Canada <www.constructioncanada.net>
- Construction Innovation <www.nrc-cnrc.gc.ca/ci-ic>
- Daily Commercial News and Construction Record <www.dcnonl.com>
- Steel Design <www.dofasco.ca>

The Canadian Standards System

Standards Council of Canada Act
Standards Council of Canada (SCC)
National Standards System (NSS)
Canadian Council for Aviation & Aerospace (CCAA)

ISO and ASTM International
- standards for composite materials

ECC Standard (Composite Panel Association)
- certification program for composite wood panels

Upcoming Events in Canada

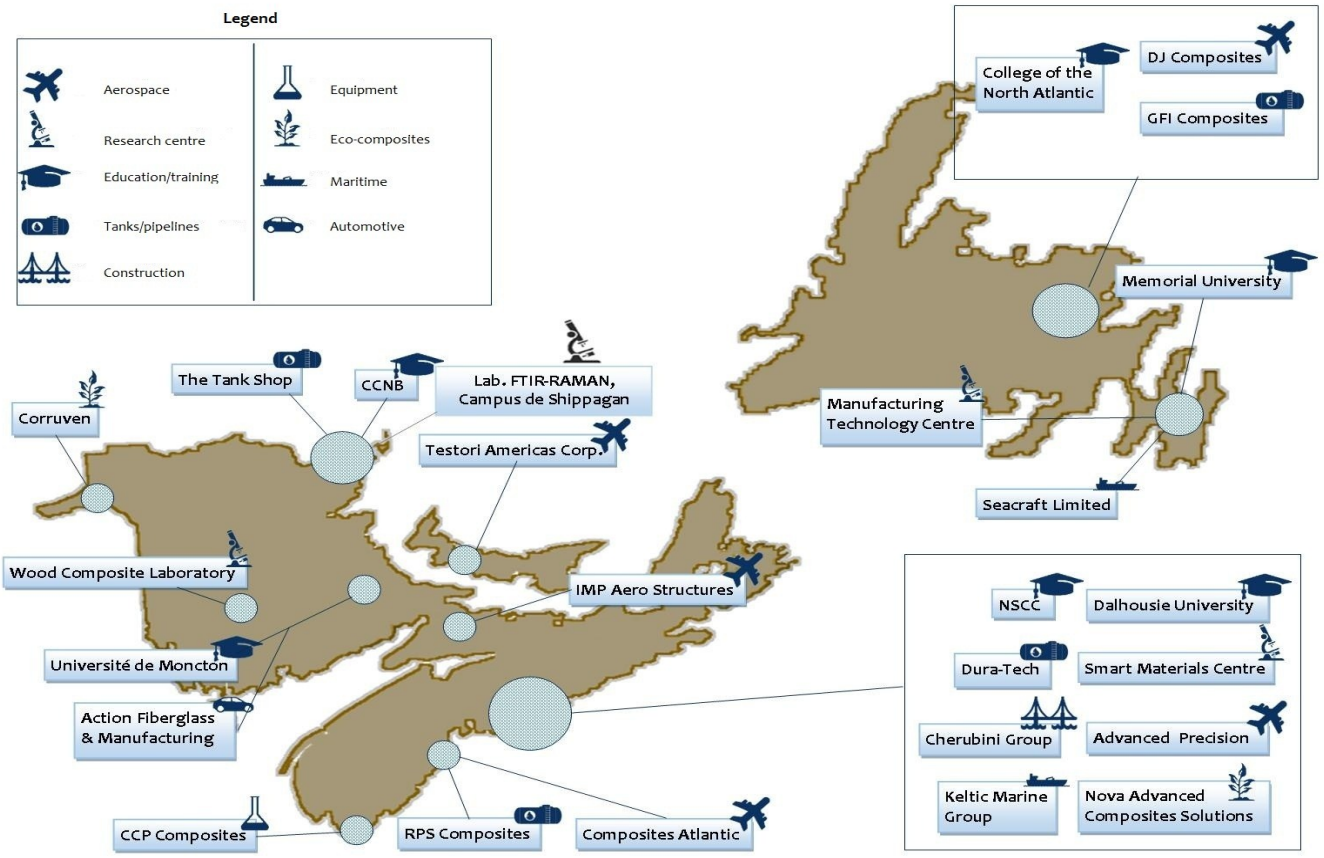
1st Alliance Monde sur les Polymères conference
Feb. 11-12, 2014 – Lévis, Québec
www.alliancemonde.com

13th International Symposium on Bioplastics, Biocomposites & Biorefining
Mar. 19-24, 2014 – Guelph, Ontario
www.isbbb.org

17th International Conference on Advances and Trends in Engineering Materials & Their Applications
AES-ATEMA 2014, June 16-20, 2014 –
McGill University, Montréal, Quebec
www.aestr2014.com

7th International Conference on Fiber Reinforced Polymer (FRP) Composites in Civil Engineering
August 20-22, 2014
CICE 2014, Vancouver, British Columbia
www.cice2014.ca

Atlantic Canada Composites Industry at a Glance



Links and Contacts of Potential Interest

Exporting to Canada	Purchasing Canadian Products or Services
ACOA/APECA. www.acoa-apeca.gc.ca	C-Therm Technologies Ltée. www.ctherm.com
Invest PEI. www.investpei.ca	Composites Atlantic Ltée. www.compositesatlantic.com
Invest NB. www.gnb.ca/INB	Corruven Canada Inc. www.corruven.com
It's Happening Here. www.nlbusiness.ca	Nova Advanced Composite Solutions Inc. www.nacsi.ca
Why Nova Scotia. www.business.novascotia.ca	The Tank Shop. www.thetankshop.ca

Principal sources of information utilized in this bulletin:
www.canada.ca; www.gnb.ca; www.gov.nl.ca; www.gov.pe.ca; www.novascotia.ca

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Web: www.cacima.fr

If you are seeking business opportunities in this region, **CACIMA** and **FCCC-AN** can facilitate your business prospection process and help with establishing new partnerships

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Web: www.ccfcra.ca

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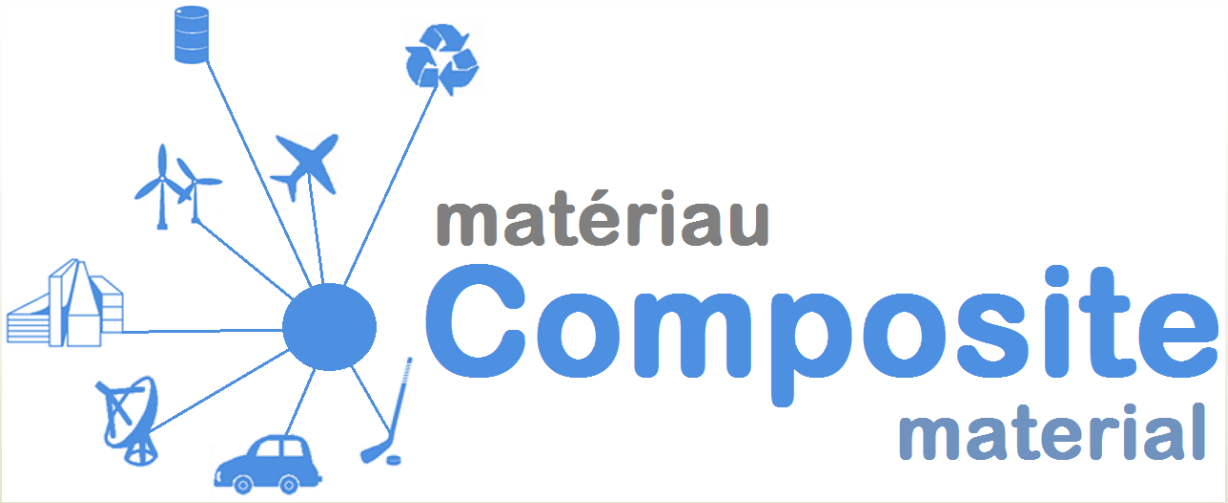

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