

# Canada's



Photo: © Masterfile

# Plastics Industry in an Uncertain World

BY DENNIS AND SANDI JONES

**The very first plastic made its public debut at London's Great International Exhibition in 1862. Trademarked Parkesine, it was the invention of a British chemist named Alexander Parkes, who touted it as the ideal material for small items such as "medallions, salvers, knif handles, pierced work and pen holders."**

**P**arkes won a bronze medal for his invention, and although Parkesine was never a marketplace success, it did signal the dawn of the plastics age. By the 1930s, plastics were being used in everything from billiard balls to electronic components. By the end of the Second World War, they had become an indispensable part of everyday life.

Canada's plastics industry hit its stride in the 1960s, and since then we have become the world's ninth-largest exporter of plastics manufacturing machinery, the eighth-largest exporter of plastic products and the third-largest exporter of moulds.

Most of the companies in these three subsectors are small and medium-sized enterprises that are wholly Canadian-owned and have their head offices in Canada. The fourth subsector is resin manufacturing, which provides the raw materials from which plastics are made and is dominated by large transnationals such as Dow Chemical, Imperial Oil and NOVA Chemicals.

The industry, even when resin manufacturing is excluded, is an important contributor to Canada's economy. In 2007, Canada's output of plastic products accounted for 4.2 per cent of GDP and 5.3 per cent of total manufacturing employment, with exports worth \$8.6 billion.

The machinery subsector employed more than 5,000 people and shipped \$1.1 billion worth of equipment and parts abroad – a full 87 per cent of its total production. Canada's mould makers had about 8,400 employees and their products accounted for \$870 million in exports. Our largest market for these goods has always been the United States but we also have customers in China, Mexico, Japan and Italy, who tend to buy more moulds and machinery than plastic products.

## Plastics prominence

There are several reasons for Canada's high profile in the global plastics sector, according to Serge Lavoie, President of the Canadian Plastics Industry Association (CPIA).

"Canada got a good start in the industry because we came quite early to the petrochemical business and to the manufacture of synthetic resins. By taking advantage of our resin supply, and by maintaining a very high level of R&D, we've been able to create a wide variety of products for a large range of markets – not just plastic products, but also the moulds and machines to make them."

John Margeson, a Plastics Specialist in Industry Canada's Resource Manufacturing and Value-added Products Directorate, agrees. "We have a strong cluster of all four plastics subsectors right here in Canada, with all the advantages of geographical concentration and a highly skilled labour force. And because our domestic market is relatively small, our plastics companies have always seen exports as part of their business plan and have been selling their products abroad for decades. This depth of experience has given them important survival skills, which is a major advantage when they need to diversify their markets."

Diversification is a key factor in maintaining the industry's competitiveness abroad. It helps considerably that Canadian companies occupy the entire plastics value chain, from resins to end-products, because this opens up niches in a lot of other supply chains as well.

And those niches can turn into good business opportunities, as Montreal's Transco Plastic Industries knows from its long experience in the American market.



**Ninth-largest exporter of plastics manufacturing machinery**

**Eighth-largest exporter of plastic products**

**Third-largest exporter of moulds**

**5.3 per cent of total manufacturing employment**

**4.2 per cent of GDP**

**Exports worth \$8.6 billion**



Photo: Courtesy of Transco Plastic Industries

▲ Transco was careful to reinvest in itself during the good times, which means it is better prepared for the bad.

Transco, which has been in the packaging business since the 1930s, manufactures both plastic films and retail and industrial packaging, and was never a complete stranger to the United States. But its exports jumped sharply when NAFTA opened the border and the company discovered a market gap between the major U.S. packaging manufacturers and their much smaller competitors.

“The middle of the market was wide open,” says Transco President Mitch Herman, “and nobody in the United States was filling it. But like a lot of Canadian companies, we’ve always had to be flexible to survive, and we found that our skill set made us a perfect fit for that particular niche. For the big American packagers it was just a nuisance segment of the market, but for us it was very rewarding.”

Similarly, Brampton Engineering (BE) has made a success of its export business because of its ability to diversify. The company now builds machines for producing highly advanced, multilayer films, and sells its equipment to film manufacturers around the globe. But BE didn’t start out that way.

“We began in 1973 as a supplier of components and dies for blown film systems,” says President and CEO Bud Smith, “and since then we’ve evolved into a supplier of complete systems. We specialize in equipment that can produce films containing up to 11 layers of different plastics, with each layer serving a specific purpose. Manufacturing these film systems is very much a niche market, and there aren’t enough customers in Canada for a company of our size. As a result, we’ve always sold most of our equipment to buyers outside Canada.”

### **From resins to recycling**

Maintaining Canada’s position in the global plastics sector is not easy. A current problem, especially for manufacturers of plastic products, is the unpredictable fluctuation of resin prices.

Until late 2008, resins were expensive because of the high price of the oil and gas used to make them, and while the raw materials costs have fallen since that time, they are certain to rise again when the global commodity market recovers.

The price of resins will rise with them, but it’s often impossible for a plastic products company to pass its increased costs along to its customers as quickly as prices go up. The lag inevitably erodes profits.

### **Environmental pressures**

The whole question of plastics and the environment is another major challenge. Public anxiety about the environmental impact of the industry is very high, and many questions are being asked about some of the chemicals it uses (such as bisphenol A) and about some of its products (such as plastic bags). This is a huge concern for the packaging industry in particular, since this subsector tends to have the highest environmental profile with the public.

“The biggest challenge we’re facing now is the issue of the environment,” says James Downham, President and CEO of the Packaging Association of Canada.

“Most plastics come from oil and gas, which are non-renewable resources, and this worries many people, so that’s a concern to many people. Another big concern is what to do with plastic products when they reach the end of their lives. If you can get them into the waste stream so they can be separated, most can be reclaimed and recycled, which is what everybody wants. But making that happen on a large scale can be extremely difficult.

“The few plastic products that are manufactured from renewables like corn and starch are also under suspicion, because of the perception that farmers are diverting food crops into plastics production.”

For Lavoie, the non-renewable issue stems at least partly from public misunderstanding. “The manufacture of all plastic products accounts for no more than 4 per cent of oil and gas usage, compared to the 88 per cent used for fuel. This fact, along with the understanding that plastics are eminently suited to recycling, can help alleviate the public’s concern about our use of non-renewable resources.”

But environmental pressure doesn’t always come directly from the public; some originates with retailers anxious to demonstrate corporate social responsibility. When a major buyer of packaging such as Wal-Mart asks its suppliers to reduce their packaging weight by 5 per cent, the packagers have to decide very quickly how they’re going to do this.



If a government abruptly outlaws plastic bags in a hasty response to public demand, for example, a whole chunk of a market can disappear overnight.

Fortunately, plastic packaging is well suited to weight reduction, and manufacturers have been pursuing this approach for years; bags and bottles, for example, tip the scales at less than half their original weights. Still, manufacturers have little choice about doing so, regardless of the source of the pressure, and they also do need contingency plans to cope with what may be arbitrary environmental decisions. If a government abruptly outlaws plastic bags in a hasty response to public demand, for example, a whole big chunk of a market can disappear overnight.

The industry is trying hard to respond to the environmental issues. Many companies are looking at their supply chains and exploring new technologies to find out how they can reduce the amount of plastic in their products.

Other firms are trying to help with the establishment and maintenance of recycling programs. But recycling standards and strategies across Canada are fragmented and inconsistent; Nova Scotia, for example, diverts most of its domestic plastic waste into recycling streams, but not all provinces use such a comprehensive approach. This makes it hard for the plastics industry and its allies to present a clear, consistent environmental message to the public.

### Performance pressures

Other problems are emerging to join the environmental challenge. The migration of North American manufacturing to Asia has already affected the industry, with Canadian markets on this continent dwindling as both American and domestic companies shift their operations to firms in Asia.

There is deep concern in the industry that these Asian companies may swamp Canada's current export markets with cheaply produced plastics and equipment, making it difficult or impossible



Photo: © REUTERS/Emmy Nuraheni

▲ The migration of North American manufacturing to Asia has already affected the industry, with Canadian markets on this continent dwindling as many companies shift their operations to firms in Asia.

for our companies to compete. China, for example, is busily developing its own plastics and packaging sector and clearly wants its industry to become a world player. It is already achieving this in some segments of the U.S. market, where imports of Chinese plastic goods have displaced formerly competitive Canadian products.

This is not to say that foreign competition is a new experience for the Canadian industry. Germany, Italy, Portugal and Japan have always been among our rivals in the machinery and mould subsectors. But the European and North American markets have matured, so the greatest growth opportunities lie in the emerging economies. And it's exactly in those economies where the competition is most ferocious.

Asia, moreover, isn't the only potential source of rivalry. Natural gas is far cheaper in the Middle East than anywhere in North America, and this abundant, inexpensive supply of feedstock has created huge growth in the region's resin manufacturing sector. As a result, countries such as Saudi Arabia, Iran, Turkey and Egypt

are already becoming low-cost production zones for plastics products.

Most of their markets are in Europe and they don't yet pose a major threat to Canada's plastic products industry, but that may change before long.

On the machinery side, China has begun to manufacture a variety of processing equipment. These systems are now displacing Canadian sales in North America, even though Canadian machines (like European ones) tend to be superior to the Asian versions.

In Lavoie's opinion, "this is because North American manufacturers are looking for deals, so they tend to buy the inexpensive Chinese equipment. But elsewhere in the world, and even in Asia, companies see cost as less of a factor, so they still look to Europe for the high-quality machinery they prefer."

This suggests, of course, that Canada should be pursuing these customers as well. Some are, which explains the success of Canadian companies such as Brampton Engineering, Macro Engineering, Mold Masters and Husky Injection Molding.

As for Canadian mould manufacturing, this subsector's exports have been very strong for the past 30 years. The market is eroding now, not as yet from Asian competition but because of the problems in the North American automotive industry, which normally absorbs a great deal of the subsector's production. These problems will probably last for some time and will become much worse if the Detroit Three continue their precipitous decline, so this segment of the plastics industry is coming under tremendous pressure to adapt and diversify.

Moreover, the situation for both mould and machinery companies is aggravated by a looming labour shortage. Both subsectors need personnel who are highly skilled in a variety of trades, and this trained talent is in increasingly short supply as experienced people retire. It is by no means clear who will replace them.

Lavoie sees three great challenges ahead for the industry. "First, because our export growth has been almost exclusively the result of NAFTA, we've committed almost all our efforts to the U.S. market. But the economic problems there mean that a lot of our American market is evaporating, and we have to find ways to deal with that.

"Second, we have to retool ourselves for the future, and that means we have to reinvest in the industry, which is hard to do when markets are flat or shrinking. Third, China and India are already dissatisfied with being low-cost producers and are moving up the technological value chain, so we'll soon be facing even tougher competition."

### Slips and slides

The current global economic downturn is adding to the industry's unease. Sector associations like the CPIA are concerned about the slump, but what are things actually like for companies on the front line?

"They're difficult," says Transco's Mitch Herman. "We're seeing lower consumption in all three of our major North American markets. One is the beverage industry, which has been our biggest customer. Another is the courier sector – its business is falling off so it's not buying as



Photo: Courtesy of Brampton Engineering

▲ Brampton Engineering has made a success of its export business because of its ability to diversify.

much packaging for shipping. And retail sales are down, which is eroding the need for packaging in that sector.

"All these pressures are being compounded by the huge volatility in the cost of our raw materials. We've shifted a lot of our production overseas during the past several years, but commodity pricing is as unpredictable there as it is here. That makes it hard to forecast costs for yourself or prices for your customers, and you start to wonder whether your buyers will be able to pay their bills. One bright spot at the moment, though, is that the Canadian dollar is coming back down."

Transco, fortunately, was careful to reinvest in itself during the good times, which means it is better prepared for the bad. "We've constantly upgraded our equipment, notes Herman, "not just because newer machines let you run at a lower cost, but also because they allow you to do things your competitors can't. It's generally true in our business that profit margins diminish as a market matures, so you always have to be reinvesting in new technology that will give you new opportunities while bringing your costs down."

At Brampton Engineering, the product is different but the emphasis on reinvestment is similar. In the case of BE, this includes an extremely active research program: the company has two full-scale R&D production lines, one at its factory and a second, off-site one that it uses through an agreement with a customer that bought the equipment.

The company's R&D strength has made it a world leader in multi-layer film

production systems, and it competes very successfully with the far larger German companies that are its major rivals.

"Our relatively small size can be an advantage," says Smith. "We can respond very quickly to problems a customer may have in the field, and we're much more adaptable than the big German firms in designing custom systems and coming up with innovations to meet specialized needs."

BE's tradition of flexibility and personal service are proving to be an advantage during the downturn, but the company isn't relying solely on those virtues.

"Our customers have been postponing their next purchases because of the economic situation, so we've been talking to them about increasing the capabilities of their existing equipment without committing a lot of capital. For example, if we help make some relatively small changes to their production systems, they may be able to manufacture a broader range of products or increase output, either of which will strengthen their bottom line with a modest investment."

### Moulding opportunities

If the industry gets its strategies right, there will be plenty of opportunity for future growth. Smith, for one, sees very substantial possibilities ahead.

"All industries are going through difficult times now," he observes, "but the plastics industry is going to be one of the fastest-growing sectors of the global econ-

Making a multi-layer film that will keep food fresh for five months is a much better way to find customers.



Photo: © Andrew Paterson / Alamy

**The industry is trying hard to respond to the environmental issues. Many companies are looking at their supply chains and exploring new technologies to find out how they can reduce the amount of plastic in their products. Other firms are trying to help with the establishment and maintenance of recycling programs.**

omy for the next 30 years. Even though companies may stop buying equipment during a recession, the successful ones start purchasing very quickly once the bottom of the market is reached, because the technology keeps changing and they have to keep up with it. So huge new opportunities will appear as innovations in engineering and design allow plastics to replace glass, cardboard, aluminum and other metals. This means that companies with good technology and a good market position can take full advantage of the value and flexibility of plastics, and will be very well placed to meet the global demand both for equipment and for the products that are made with it.”

That demand is likely going to grow at 2 to 3 per cent in North America and 5 per cent globally, but in India, China and the developing world, it will be expanding at a pace of 10 per cent annually, or even more.”

What needs to happen, to help make this bright future a reality, is laid out in a technology roadmap developed in 2006 by the CPIA and industry stakeholders. The roadmap, as Lavoie summarizes it, proposes four key strategies:

First, Canada’s manufacturers of plastic products need to move away from mass-produced commodities and toward customization; the emphasis should be on manufacturing short-run, niche products that are highly customized and can be brought to market very quickly. Canada can’t compete with Asia in the long-run, mass production market, and trying to do so is a recipe for failure.

Second, developing and producing hybrid polymer materials is essential. These new hybrids, made from traditional petrochemical supplies or from plastics combined with metals, natural products or other substances, offer new directions and new possibilities. Aerospace is one example; aircraft manufacturers want higher fuel efficiency in their products, and lightweight, plastics-based composites are of great interest to them. The same is true of the auto industry.

Third, Canada must start making many more high-value-added products, especially in the packaging subsector.

One specific need, for example, lies in food safety; consumer worries about it are increasing, and improved plastics are the only realistic means of protecting food more effectively from contamination.

Fourth, there’s the enormous, barely explored field of sustainable plastic products. This has tremendous promise in light of the public’s concerns about the environment, and sustainability in particular is going to be an important part of the industry’s future. Manufacturing plants must become environmentally responsible “good neighbours,” and their products will need to be not only highly sustainable in themselves, but also promote sustainability in other value chains.

All that said, the global economic turmoil that began in late 2008 is going to have unpleasant effects on the industry, at least in the short term, some of them lasting. Even the best-financed, best-organized, most adaptable and most innovative companies are having a difficult time and will need all the support they can get.

Enter EDC, which has a long history with the export side of the plastics sector. “We work with about 170 Canadian exporters from the plastics sector every year,” says EDC Sector Advisor Keith Thompson, “and support about \$500 million worth of annual business for the industry. Our services for the sector have tended to concentrate on various types of insurance and bonding, but we’re now getting more and more calls from Canadian customers who want to use our working capital and financing tools as well. We’ve also been encouraging our customers to diversify into new markets in Mexico, South America, China, India and Russia, which will help them ride out the global downturn.”

Brampton Engineering is one of those customers, and the company has worked with EDC for a long time.

“BE has used EDC’s services to leverage additional financial capacity so it can meet growing export sales,” notes EDC

Account Manager Richard Ross. “Most recently, we’ve helped BE with buyer financing and documentary credits for customers in India and Eastern Europe.”

Transco too has enjoyed EDC support for many years. “We look at EDC as a protection against the unseen,” observes Herman. “Since we’re a custom producer, we make our credit decisions when we start manufacturing an order, not when we ship it. So EDC’s benefit to us is that it insures not only our receivables but also our orders, which means we’re covered from the moment we start production. That’s very important for smaller suppliers like us, especially these days when even huge corporations can go bankrupt and take their suppliers down with them. So EDC insurance has been a real boon to us, not because we’ve ever made any significant claims on it, but because it lets us sleep at night.”

Canadian plastics companies have developed a reputation for producing high-quality products that compete very effectively around the world. Our future is not in low-cost, low-margin commodity goods, but is rather with products whose value lies in advanced design, sophisticated technology and very high levels of sustainability.

Canada’s industry is not the only one following this path, though, and we will need to harness all our energies and abilities to maintain our existing markets and reach into new ones. But we have a vibrant industry with a treasury of good ideas and new technologies, and that will make all the difference. ■

#### FOR MORE INFORMATION

- [tlcabanillas@edc.ca](mailto:tlcabanillas@edc.ca)
- [rross@edc.ca](mailto:rross@edc.ca)
- [kthompson@edc.ca](mailto:kthompson@edc.ca)
- [jdd@leaderlinx.com](mailto:jdd@leaderlinx.com)
- [mharvey@be-ca.com](mailto:mharvey@be-ca.com)
- [mherman@transco.net](mailto:mherman@transco.net)
- [slavoie@cpi.ca](mailto:slavoie@cpi.ca)
- [john.margeson@ic.gc.ca](mailto:john.margeson@ic.gc.ca)