



**PRESENTATION TO THE GENERAL GOVERNMENT COMMITTEE
ON BILL 167**

Queen's Park, Legislative Assembly
May 25, 2009

The Ontario BioAuto Council

- My name is Craig Crawford. I am the President and CEO of the Ontario BioAuto Council and I am here to support the government's general direction on toxic chemical reduction.
- The Ontario BioAuto Council is an industry-led, not-for-profit, organization that represents stakeholders from renewable resource sectors (like agriculture, forestry), chemical and plastics industries, auto-parts suppliers and other manufacturers, and automotive assemblers. The companies we represent are well known industry leaders like Ford, Magna, Woodbridge, DuPont Canada, Tembec, etc.
- The Council also includes representation from Canada's leading research institutions including universities (like Toronto, Waterloo, Windsor), the Ontario Centres of Excellence, NCE Auto21, the National Research Council, FPIInnovations, Bodycote, etc.
- Although our name references automotive we represent many industry sectors including construction, packaging, and consumer products like furniture and bedding.
- The Council is also active globally. Many of our industry members have operations throughout the world. We have a growing number of new members, and requests for membership, from other parts of Canada and the world.
- The Council is actively involved in bringing new, less toxic and lighter-weight products to market. By March of 2010 we expect to commercialize up to 300 new product formulations in the automotive, construction, furniture, and consumer products areas that will reduce both chemical toxicity and greenhouse gas emissions.
- We are recognized as global leaders in the commercialization of bio-based products.

Position on Bill 167

- The public wants industry to develop safer, less toxic chemicals and products. Our organization recognizes that market demand, and we are pro-actively commercializing new and safer production processes and products that are globally competitive.
- We support the approach the government is taking, i.e. mandatory material accounting and toxic chemical reduction planning; voluntary implementation; public transparency; and a phased-in approach. If linked properly with public investments in research and innovation, the government's strategy could successfully link toxic chemical reduction to the creation of a green industry in Ontario.
- However, we believe the \$24 million allocated by the Ministry of Environment for industry support is not sufficient, and that other ministries, especially the Ontario Ministry of Research and Innovation (MRI), need to be pro-active in supporting the government's toxic chemical reduction strategy.
- We encourage the Government to support efforts by the Ontario Ministry of Research and Innovation to increase resources for university and industry research, including support to existing industries to accelerate the commercialization and marketing of new products that reduce the use of toxic chemicals.

Business Opportunities

- The use of renewable (bio-based) raw materials is a fundamental principle of green chemistry and green engineering, and a key strategy for reducing the toxicity of industrial chemicals and products.
- Opportunities for job and wealth creation using bio-based chemicals and bio-plastics are significant. According to the National Research Council, "the global market for bio-chemicals and bio-plastics was US\$60 billion in 2003, and McKinsey & Associates and the US Department of Energy estimate this market will be US\$140-210 billion by 2010 (which amounts to 10-15% of the US\$1.4 trillion global chemicals market)".
- There are now at least 40 companies around the world selling bio-based plastics ranging from low value added biodegradable packaging (e.g. garbage bags, agricultural film) to higher value added durable products for the more demanding automotive and electronics industries.
- There is a large plastics and chemical industry in Canada that could benefit from moving to less toxic, renewable-based bio-chemicals and bio-plastics.
- According to Statistics Canada (2007) there were 1,510 establishments employing 92,220 people shipping \$19.69 billion in plastics products in Canada. About half of these companies are located in Ontario.
- Resin suppliers are also an important sector. In 2005 there were 121 resin suppliers in Canada employing 9,718 people shipping over \$8 billion in products. About 2/3 are located in Ontario.

Importance of Research and Innovation

- Advanced technologies like biotechnology, nanotechnology, green chemistry and material science can help improve the global competitive position of Canada's manufacturing sector.
- As these new technologies evolve, they will allow manufacturers to make less expensive, better performing, and safer products for workers, consumers and the environment.
- It is important that universities, government labs, and private industry all receive funding support for research and innovation.
- It is especially important that industry receive assistance for new product and process development in areas where Ontario and Canada can become global leaders. This recommendation is consistent with a number of reports from expert panels including Joseph Rotman's Expert Panel on Commercialization in 2005; Dr. Howard Alper's Federal Science, Technology and Innovation Council report in 2008; and Dr. Alastair Glass's Steering Committee Review of the Ontario Commercialization Network in 2009.
- Funding assistance for industry is required to help offset the costs and risks associated with the commercialization of new products and process technology, including (but not limited to): molds and other state-of-the-art tools, material costs, test-cell equipment, product quality and safety testing, production trials, quality control systems, and staff training.

APPENDIX A

REDUCING THE USE OF TOXIC CHEMICALS: EXAMPLE OF ETHYLENE & PROPYLENE OXIDE

There are bio-based alternatives to the use of toxic chemicals.

This Appendix describes two bio-chemical platforms that are ready for commercialization that offer practical ways to reduce the use of ethylene and propylene oxide used in conventional chemical production processes.

The Ontario BioAuto Council is working closely with both Cargill and DuPont to expand product offerings using these new bio-based materials.

Although these bio-based alternatives are price and performance competitive, there are still many barriers to their adoption including:

- A focus on cost reduction through outsourcing jobs and manufacturing to low wage developing countries.
- Branch plant operations where new product development is conducted at, or closer, to company headquarters.
- Inertia due to lack of leadership and/or highly skilled workers versed in new emerging technologies.
- The complexity involved in trying to meet multiple product design criteria including: acceptable price/performance and simultaneously addressing various environmental objectives (toxic chemical reduction, GHG emissions reduction, end of life uses like recycling and/or energy and chemical recovery).
- Poor cash flow due to the economic downturn and industry restructuring.
- Institutional resistance.

The Ontario BioAuto Council has established a small Commercialization Fund that strategically targets funding to assist companies over-come these barriers. This funding has been used to make major in-roads in the reduction of ethylene and propylene oxide and can provide a model for tackling other toxic chemicals and substances of concern.

Cargill - Vegetable oil-based polyols

- Polyol is a key chemical building block used in the manufacture of polyurethane (PU). PU is used to make many different types of plastic foam products.
- Polyols are typically manufactured from petroleum products. Cargill makes their BiOH™ polyol from renewable, biological sources such as vegetable oils.
- Cargill won the US President's Award for Green Chemistry in 2007. Not only does Cargill not use ethylene or propylene oxide in its production process, but their process also reduces total energy use by 23% and carbon dioxide emissions by 36%. Each million pounds of BiOH™ saves nearly 700,000 pounds (2,200 barrels) of crude oil.
- Cargill's BiOH™ polyol also sets new standards for performance including consistent quality, low odour, good colour, and high reactivity.
- The benefits to industry are significant. In addition to a lower environmental footprint, Cargill's BiOH™ polyols diversify an industry's supply options and help mitigate the effects of uncertainty and volatility of petroleum supply and pricing.
- The BioAuto Council has helped to accelerate the commercialization of new Ontario-made products using Cargill's BiOH™ polyol by providing funding assistance to the Woodbridge Group (to develop automotive applications); Valle Foam (to develop furniture applications); and Carpenter Company (to develop new, high performance bedding applications). Each of these companies is the dominant market leader in their respective polyurethane foam market segments. The three companies account for well over half the total market share in the automotive, furniture and bedding markets. The Council is also working with a fourth company in Ontario to introduce BiOH™ polyol to the home insulation market, and several companies are interested in developing carpet underlay applications.

DuPont – Starch-based 1,3 – propanediol (Bio-PDO)

- In 2003 DuPont and Genencor International (now owned by Danisco) developed a key chemical building block called 1,3-propanediol (Bio-PDO) using a biocatalytic production process. For the first time, a highly engineered microorganism was used to convert a renewable feedstock (glucose, derived from corn starch) into a high volume chemical.
- This biotechnology process for producing Bio-PDO won the US President's Award for Green Chemistry in 2003.
- DuPont's Bio-PDO is used in the cost-effective manufacture of DuPont's Sorona® polyester, which can be used to produce automotive upholstery and home textile fabrics with enhanced performance qualities including softness, stretch and recovery, easy care, stain resistance, and colour fastness.
- DuPont's Sorona® can also be used as an engineering resin to provide better strength, stiffness, toughness, heat resistance, impact resistance, and excellent surface finish and gloss.
- Applications for Sorona® include: electrical and electronic parts, automotive components, industrial and consumer products, appliance and power tools, office furniture and sporting goods
- DuPont's Bio-PDO can also be converted to Cerenol™ - a high performance polyol.
- The Cerenol™ production process does not use either of the toxic chemicals ethylene or propylene oxide. It is also very environmentally friendly because it has low volatility, low flammability, low toxicity, biodegradability, low energy inputs, and significantly reduced greenhouse gas emissions. For some target applications (i.e., PTMEG) Cerenol™ reduces fossil energy use by 42% and GHG emissions by 40% compared to the industry average.
- Application areas include: functional fluids (heat transfer fluids, hydraulic fluids, lubricants, brake fluids, transmission fluids, and gear oils); additives (for industrial coatings, auto-finishes and adhesives including hot melts); engineering thermoplastic elastomers (including molded parts for airbag doors, CVJ boots, dashboards, slush molding, under hood manifolds, tubing, wire and cable, adhesives and films); and polyurethane foams (including rigid, flexible and microcellular PU foams in which polyol is the major component).
- The total addressable global market for Bio-PDO, Sorona® and Cerenol™ is in the billions of dollars. DuPont is working with the BioAuto Council to expand markets in Ontario for Bio-PDO, Sorona® and Cerenol™.