The Sarnia-Lambton Petrochemical and Refining Complex

Sarnia-Lambton Ontario Canada

www.sarnialambton.on.ca

November 2011

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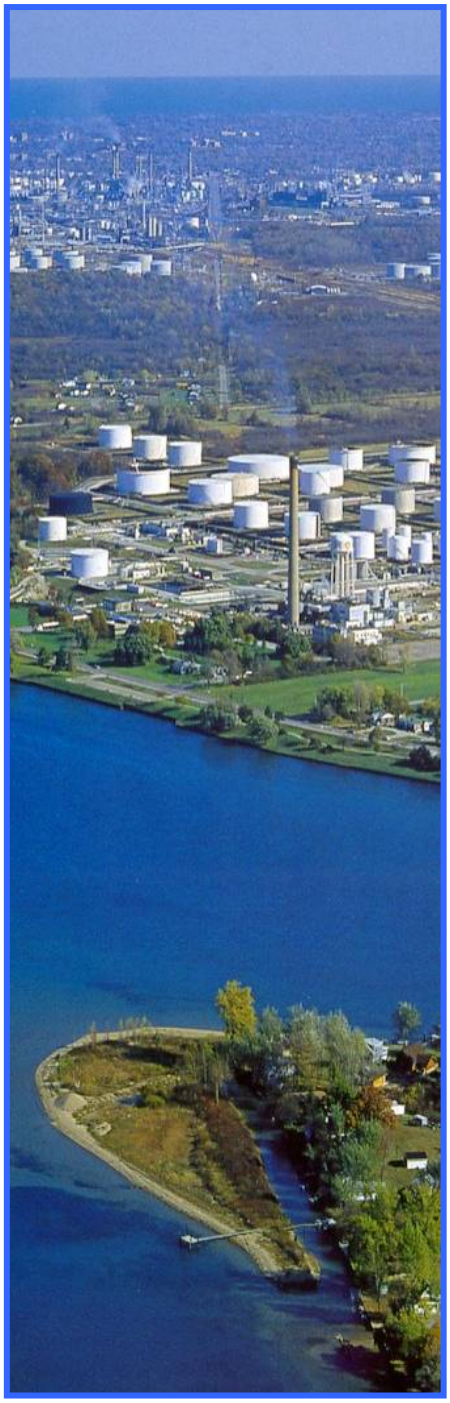

Introduction

Sarnia-Lambton, with its vast network of petrochemical and refining complexes, is internationally known as a significant industrial chemical centre. This document provides information about the wide variety of feedstocks, raw materials and products used in the area, and some information about the companies involved. Also noted are some of the infrastructure and amenities that make Sarnia-Lambton a good place to invest and to live.

The information provided is illustrative and not exhaustive. The intent has been to list the major items and few selected uses, particularly within the Sarnia-Lambton Refining and Petrochemical Complex (SLRPC).

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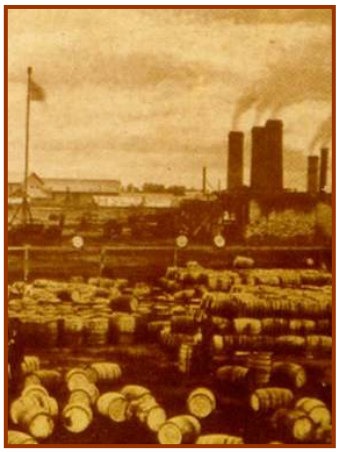
SARNIA·LAMBTON
Economic Partnership

Overview



Sarnia-Lambton's Refining and Petrochemical centre has its roots in the oil fields of Lambton County. In 1857 the discovery of crude oil at Oil Springs, just south of the Town of Petrolia, led to the establishment of several refineries. The presence of a large refinery at Sarnia and the needs of a wartime economy in the 1940s combined to bring petrochemical companies to the area. The region's excellent location, access to raw materials and transportation routes to the markets of the world continue to ensure a vibrant future for the diversified oil and petrochemical complex which has developed.

The area's refining and petrochemical complex also serves as an ideal platform for new biohybrid chemistry manufacturing, such as BioAmber, which is locating a bio succinic acid plant in the Bio-Industrial Park Sarnia.

Raw materials and transportation are key.

Major pipelines bring crude oil, natural gas, natural gas liquids, and ethane to the Sarnia-Lambton region. Other pipelines carry refinery products to markets across Southern Ontario. Vast salt deposits lie just 2,000 feet below the surface. The St. Clair River provides cooling and process water as well as being a link in the St. Lawrence Seaway, which connects the heartland of North America with the markets of the world. Within the local refining and petrochemical complex, a network of pipelines facilitates the transfer of intermediate products from one company to another.

The SLRPC has an excellent transportation infrastructure. The region is served by a superb network of highways that connect to the Great Lakes Industrial Corridor, the southern United States, and into Mexico. Highway 402 runs eastward from the Michigan-Ontario border and joins up with Highway 401. To the west, Highway 402 connects with Michigan's Interstate 94/69/75 network via the international double-span Blue Water Bridge. This commercial border crossing includes customs and brokerage facilities and a dedicated lane for trucks using the Free and Secure Trade (FAST) program.

The regional rail infrastructure is impressive with service offered by both CN and CSX Transportation. CN operates a rail tunnel under the St. Clair River. As an international gateway, the St. Clair River Tunnel accommodates double-stacked containers and multi-level auto carriers with non-stop efficiency.

Sarnia-Lambton has an enviable quality of life unmatched by most regions of Canada. With a population of nearly 89,000 (Statistics Canada, 2006 Census – Sarnia Census Agglomeration), the Greater Sarnia Area is large enough to provide the amenities of a city without the problems of a major metropolitan centre. Residential areas are attractive and affordable. Schools and public facilities of all kinds are excellent. Traffic problems are non-existent. Its location on the shores of Lake Huron and the St. Clair River provides many and varied recreational opportunities. Meanwhile, major population centres such as Detroit and London are less than an hour's drive.

Sarnia-Lambton - an excellent place to do business; a superb place to live while doing it!

COMPANY PROFILES

The **Air Liquide Canada Inc.** facility is located in St. Clair Township. The plant began operations in 1986. The plant process takes a carbon dioxide-rich waste stream from the nearby CF Industries plant and produces a liquefied food-grade product. The liquefied carbon dioxide is shipped by road and rail to customers in Southern Ontario and Michigan for use primarily in food freezing, beverage carbonation, greenhouse atmosphere enrichment, and welding applications.

Air Products Canada Limited came to Sarnia in 1981 to build the first liquid hydrogen facility in Canada. The Canadian operation is a subsidiary of Air Products and Chemicals Inc., a major international supplier of industrial gases, chemicals and energy systems. The feedstock for the facility is a hydrogen waste stream from NOVA Chemical's Corunna site.

In August 2006, Air Products began operations of a hydrogen production facility located at the Shell Canada Products refinery in St. Clair Township. Utilizing a natural gas-based steam methane reformer, the plant supplies 80 million standard-cubic-feet-per-day of hydrogen to the Shell refinery and the Suncor Energy Products complex in Sarnia. The hydrogen is utilized by the two refineries to produce ultra low sulphur diesel and other petroleum products.

The **BP Canada Energy Company** plant in Sarnia is a large natural gas liquids fractionation plant which started operation in 1970. Prior owners were Dome Petroleum and Amoco Canada Petroleum Company. Raw materials are obtained primarily through the Enbridge and Kalkaska (Michigan) pipelines with smaller amounts through the Cochin pipeline and from local refineries. Products, which include propane, isobutane, normal butane, and condensate, are delivered to customers by road, rail and pipeline.

In 1953 **Cabot Canada Limited** was attracted to Sarnia-Lambton by the availability of heavy hydrocarbon fuel oils. Currently, three production units contribute to the parent company's position as the largest manufacturer of carbon black in the world. In the production process, the heavy oil is heated to a high temperature in a reactor where it "cracks" to carbon black and hydrogen. The carbon black, after some further processing, is sold primarily for reinforcing rubber goods while the balance goes into pigments and fillers for plastics, paints and inks. The hydrogen by-product is used internally for fuel.

In April of 1993, Terra Industries of Sioux City, Iowa, purchased what had been ICI Canada's Courtright plant. In 2010 CF Industries acquired Terra Industries Inc. **CF Industries** converts air and natural gas into a variety of nitrogen-based chemicals for both agricultural and industrial applications. The plant started production in 1966. At current capacity, 350 million cubic metres per year of natural gas are consumed in order to produce 1.2 million tonnes of products. The product list includes anhydrous and aqua ammonia, urea, nitric acid and nitrogen solutions.

CF Industries is a global leader in nitrogen and phosphate fertilizer manufacturing and distribution, serving both agricultural and industrial customers.

Clean Harbors Inc. acquired Safety-Kleen Corp.'s Chemical Services Division in September, 2002. Clean Harbors Inc. is North America's leading provider of environmental and hazardous waste management services.

The Lambton Facility in St. Clair Township, which opened in 1973, is Canada's largest integrated hazardous waste management complex. Providing high-temperature incineration, pretreatment, secure landfill and transportation services from a single location,

the Lambton Facility is capable of safely and effectively treating and disposing of a wide range of industrial waste residues. Clean Harbors Inc. provides convenient, local access to a complete array of cost-effective environmental management solutions.

TABLE 1 - HYDROCARBON FEEDSTOCKS AND KEY INTERMEDIATES

Feedstock	Source(s)	User(s)
Crude Oil	Western Canada via Enbridge Pipeline. Local oil fields (minor quantities) via truck	Imperial Oil; Suncor; Shell; NOVA Chemicals (Corunna)
Natural Gas (Methane)	Western Canada via TransCanada Pipeline and Union Gas Local gas fields (minor quantities) via Union Gas. NOVA Chemicals (Corunna) by-product	CF Industries
Natural Gas Liquids	Western Canada via Enbridge Pipeline and Cochin Pipeline Michigan via Kalkaska Pipeline Local refineries and other producers via pipeline and truck	BP Energy; NOVA Chemicals (Corunna); Shell
C4's, Mixed	Local refineries	Imperial Oil; NOVA Chemicals (Corunna); LANXESS
C5's+, Mixed	BP Energy	Sales via Pipeline
Raffinate	Local refineries	LANXESS
Ethylene	Imperial Oil NOVA Chemicals (Corunna)	Imperial Oil; NOVA Chemicals (Moore & St. Clair River Site)
Propylene	Imperial Oil NOVA Chemicals (Corunna)	Imperial Oil; Flint Hills Resources, Shell
Butylene, Iso	NOVA Chemicals (Corunna) LANXESS	LANXESS
Butylene, Normal	NOVA Chemicals (Corunna) LANXESS	LANXESS
1,3-Butadiene	NOVA Chemicals (Corunna) LANXESS	LANXESS
Benzene	Imperial Oil NOVA Chemicals (Corunna) Shell Suncor	Styrolution
Ethylbenzene	Styrolution	Styrolution
Styrene	Styrolution	LANXESS

DUPONT The miracles of science™

More than 80 employees and contractors work at **DuPont Canada's St. Clair River Site**, which manufactures a range of modified polymers for customers around the world. Many industries, such as the automotive, packaging and other sectors, depend on these polymers for their high performance characteristics in a variety of applications. The site, which covers 42 acres or about 17 hectares, has been a part of the Sarnia-Lambton Petrochemical and Refining Complex community for almost 50 years. DuPont Canada is also a member of the Chemistry Industry Association of Canada and adheres to its Responsible Care® Ethic as part of its overall commitment to safety, health and the environment.

Esso Imperial Oil

Imperial Oil Products & Chemicals Division has deep roots in Lambton County. Its corporate history dates to September 8, 1880, when 16 Canadians involved in the early oil industry combined their resources to form the Imperial Oil Company. The original head office was in London, Ontario, until a lightning strike in 1883 destroyed the refinery in that city. Operations were moved to their other refinery in Petrolia. In 1898 Standard Oil (now Exxon Mobil Corporation) purchased a controlling interest in Imperial Oil. Shortly thereafter the

head office and refinery operations were moved to Sarnia, where Standard already owned a refinery. Since then, Imperial has continually expanded and modernized its facilities where, today, it is now one of the largest and most highly diversified refining and petrochemical complexes in Canada.

In addition to refining capacity of 119,000 barrels a day, Imperial's Sarnia site is home to a chemicals plant. The chemical operations annually produce more than one million tonnes of polyethylene, specialized solvents, olefins, aromatics and plasticizer feedstocks.

Imperial's Sarnia Research Centre, the largest and oldest petroleum research centre in Canada, is a world-class facility focused on developing and improving lubricating oils and fuels, enhancing refinery processes and developing new technologies to improve environmental performance.

The presence of the Imperial Oil refinery in Sarnia was a key reason for the decision of the Canadian government to locate a synthetic rubber plant in this city in 1942, during the Second World War. These two operations formed the foundation for the SLRPC in the years following the war.

Ethyl Canada Inc. has operated a plant in the SLRPC since 1956. Currently, it operates a production unit for diesel ignition improvers and blending facilities for a variety of other products including aluminum alkyls, manganese antiknocks, antioxidants, fuel, and lubricant additives.

H. C. Starck, headquartered in Goslar, Germany, manufactures metal and ceramic powders, specialty chemicals and parts made from advanced ceramics and refractory metals. The company employs 3,400 people in 13 manufacturing sites in Europe, Asia and North America.

The company constructed its Sarnia facility in 1997. This plant manufactured tungsten carbide for hard metals and nickel hydroxide for rechargeable batteries.

H.C. Starck was originally a subsidiary of Bayer AG. In February 2007, the sale of the company to a consortium formed by financial investors Advent International and The Carlyle Group was finalized.

In August, 2007, the company sold the battery products business to Toda Kogyo Corporation of Japan. The transaction included the nickel hydroxide production facilities located in Sarnia.

As of June 2010, the Sarnia facility was in the process of undergoing a multi-million dollar expansion. It was anticipated the project would be completed by the end of September.

LANXESS Inc. is a leading global chemicals company. It was established in July 2004 when Bayer AG combined almost all areas of its chemicals business and parts of its polymers activities into a new organization. In early 2005, LANXESS began trading as an independent entity.

The origins of LANXESS in Sarnia date back to the Second World War.

In February, 1942, Polymer Corporation Limited was formed to produce synthetic rubber and related products when the Western nations were cut off from all major sources of natural rubber. Just 18 months later production was underway; an achievement recognized in 1986 by the Engineering Profession of Canada as one of Canada's ten outstanding engineering accomplishments of the last 100 years.

From 1946 to 1951, Polymer developed into a major supplier of synthetic rubber to the world. In 1973, the official name of the company was changed to Polysar Limited.

Expansion and diversification continued into the 1980s. Basic petrochemicals were produced at a facility near Corunna in St. Clair Township. Styrene, styrene-butadiene latices and a wide range of other synthetic rubber types were produced in Sarnia. Other facilities in Canada, the United States and Europe produced polystyrene, latices and rubber.

The two-year period from 1988 to 1990 saw massive changes in the ownership and structure of Polysar. First, the latex business was sold to BASF. Then, NOVA Chemicals bought the rest of the company. Two years later, NOVA Chemicals sold the rubber business to Bayer AG.

NOVA Chemicals operates three manufacturing facilities in Lambton County. The flow starts at their Corunna operation in St. Clair Township where crude oil, condensate and natural gas liquids are processed to produce over 6.5 billion pounds (2,948 kilotonnes) of basic petrochemicals and 3 billion pounds (1,361 kilotonnes) of refinery and energy products annually. This operation was acquired by NOVA Chemicals as part of their purchase of Polysar Corporation and was retained when the rubber business was sold to Bayer AG in 1990.

In 2005, NOVA invested $260 million in upgrading the Corunna site. The program resulted in enhanced energy efficiency, reduced emissions, strengthened operating reliability and expanded ethylene and propylene capacity.

A second NOVA site in St. Clair Township consists of two production units producing high and low density polyethylene. This facility was acquired from Union Carbide which had built the original unit in 1977. Current capacity at this site is 830 million pounds (375 kilotonnes) of polyethylene per year. As of June 2010, the Moore Site was undergoing a modernization and expansion. Completion of the $78 million project is expected by the end of 2011.

A third plant in St. Clair Township is located near the St. Clair River in the community of Corunna. It currently has a production capacity of 395 million pounds (180 kilotonnes) per year of polyethylene. This plant was acquired by NOVA Chemicals from DuPont Canada in late 1993.

The International Petroleum Investment Company of Abu Dhabi assumed ownership of NOVA Chemicals in July 2009.

Praxair - In 1967, the Linde division of Union Carbide Canada Limited built a nitrogen plant adjacent to the Imperial Oil refinery in Sarnia. In 1992, the company became Praxair, an independent publicly traded company, and in 1996 acquired Liquid Carbonic Inc.

Praxair Canada Inc.'s presence in the area now includes two nitrogen producing facilities, and a new oxygen and nitrogen producing plant. In addition, extensive hydrogen and nitrogen pipeline distribution networks supply all major chemical plants in the SLRPC. Praxair also has an oxygen pipeline that supplies chemical customers. Bulk liquid and cylinder gas delivery systems also supply industry in the surrounding southwestern Ontario area. In addition, a network of local outlets offers a broad range of welding and cutting equipment and supplies.

Shell Canada - In 1901, a group of Canadian businessmen and politicians founded the Canadian Oil Refining Company and built a refinery in the Lambton County oil fields at Petrolia. Several changes in ownership and 51 years later, the company built a new refinery on the shores of the St. Clair River just south of Sarnia. In 1963 **Shell Canada Products Limited** came to the SLRPC through the purchase of Canadian Oil.

Currently, the Shell refinery produces gasoline, distillates, liquid petroleum gas, heavy oils, pure chemicals and solvents from 75,000 barrels of crude oil per day.

In 2002, Shell became the first nation-wide refiner capable of producing low sulphur gasoline when it started up its gasoline hydrotreater following a $150 million investment.

On the banks of the St. Clair River, Shell operates docking facilities which can handle ships up to 1,000 feet in length, the longest docks on the St. Lawrence Seaway.

As key component of the Shell manufacturing site is an isopropyl alcohol plant with an annual production capacity of 201 million pounds (91 kilotonnes) per year. Feedstock for the facility is a combination of propane and propylene. This plant was originally operated by Basell Canada Inc. on Shell's behalf prior to the closure of the Basell facility in the summer of 2008.

STYROLUTION

This site supplies styrene to Styrolution's polystyrene operations and customers in North America.

The facility had been operating since 1977. NOVA Chemicals purchased the facility in 1988. In the late 1990s a significant project to upgrade the facility with new equipment and state-of-the-art technology increased annual production of styrene monomer to approximately 950 million pounds (431 kilotonnes).

The Sarnia-Lambton site became part of INEOS Styrenics in October 2007 and, most recently, Styrolution; which formalized the acquisition in Summer 2011.

The ethylene feedstock required for the styrene process arrives at the site by pipeline from NOVA Chemical's Corunna site, as does most of the second feedstock, benzene. Other third party producers in the area also supply benzene to the site.

SUNCOR ENERGY

Formerly known as Sunoco, **Suncor Energy Company** became a member of the SLRPC when its Sarnia refinery was built near the St. Clair River in 1953. With a capacity of 80,000 barrels per day, the Sarnia refinery produces fuel related products: gasoline, kerosene, jet and diesel fuels.

During the late 1970s, facilities were added for the production of benzene, toluene, and xylene; which are widely used in the production of plastics and pharmaceuticals. A major upgrading of the refinery, carried out in 1984, allowed Suncor to maximize the production of high value fuels while minimizing the production of residual fuel oils.

Suncor and Shell Canada signed a 20-year agreement in October 2003, under which Suncor's Sarnia Refinery would process Shell's high-sulphur diesel into ultra low sulphur diesel. In July, 2006, Suncor completed phase one of "Project Genesis" – the construction of the new diesel desulphurization unit.

The new diesel desulphurization unit was the first phase of a two part expansion and upgrade of the refinery. The second phase of this $1 Billion project increased the refinery's capacity to process synthetic crude oil from Suncor's oil sands operation in Fort McMurray, Alberta, and was completed in November 2007.

In August 2006, Suncor officially opened its St. Clair Ethanol Plant, with a production capacity of 200 million litres per year, in St. Clair Township. The company has since doubled the plant capacity with a $120 million expansion; making it the largest ethanol plant in Canada.

TODA KOGYO CORP.

In August 2007, Toda Kogyo Corporation of Japan acquired the Battery Products Business of H.C. Starck, including the main production facilities located in Sarnia. The production site is the only industrial scale production facility for spherical Nickel Hydroxide in the western world.

Toda Kogyo was founded in 1823 and is the world's leading manufacturer of iron oxide particles which are essential raw materials, or integral components of industrial and consumer products.

TABLE 2 - PETROLEUM AND PETROCHEMICAL PRODUCTS PRODUCED IN THE SARNIA-LAMBTON REFINING AND PETROCHEMICAL COMPLEX		
Product	**Producer(s)**	**End Uses**
Propane Butane, Iso Butane, Normal	BP Energy Shell Suncor	Fuel; Chemical Feedstock
Butane, Mixed	Imperial Oil; NOVA Chemicals (Corunna)	Fuel; Chemical Feedstock
Hexane	Imperial Oil	Oil Seed Extraction; Polymerization Medium
Butylene, Iso	LANXESS	Chemical Intermediate
Gasolines, Various Grades	Imperial Oil Shell Suncor	Auto and Aviation Fuel
Nonene	Imperial Oil	Detergents; Plasticizers
Tetramer, Propylene	Imperial Oil	Detergents; Plasticizers
Solvents, Petroleum	Imperial Oil Shell	Paints; Dry Cleaning
Kerosene	Imperial Oil Suncor	Fuel
Fuel Oil, Various Grades	Imperial Oil NOVA Chemicals (Corunna) Shell Suncor	Stove Oil; Furnace Oil; Jet Fuel; Marine Fuel; Production of Carbon Black
Lubricating Oil; Various Grades	Imperial Oil	Lubricants for Machinery of All Types
Waxes, Petroleum	Imperial Oil	Packaging; Candle Making; Protective Coatings
Lube Oil Additives	Imperial Oil Ethyl	Viscosity and Flow Improvers for Motor Oils
Coke, Petroleum	Imperial Oil	Fuel
Carbon Black	Cabot	Rubber; Plastics; Pigments; Inks
Toluene	Imperial Oil Shell Suncor	Paints; Explosives; Pesticides
Xylene	Imperial Oil Shell Suncor	Paints; Pesticides
Toluene/Xylene Mixtures	NOVA Chemicals (Corunna)	Paints; Pesticides
Isopropyl Alcohol	Shell	Printing Inks; Pharmaceuticals; Cosmetics; Household and Automotive Specialties
2-Ethyl Hexyl Nitrate	Ethyl	Diesel Ignition Improver
Cyclopentane	Imperial Oil	Fuel, Solvents

TABLE 3 - PLASTICS, RUBBERS AND LATICES PRODUCED IN THE SARNIA-LAMBTON REFINING AND PETROCHEMICAL COMPLEX		
Product	**Producer(s)**	**Uses**
Polyethylene Wide Variety of Grades, Densities and Types	Imperial Oil NOVA Chemicals (Moore & St. Clair River Site)	Film; Rigid and Flexible Packaging; Pipe and Pipe Coatings; Barrels and Drums; Toys; Shrink Wrap; Wire and Cable Coating
Rubber, Polybutadiene	LANXESS	Tire Treads; Additive for Polystyrene Resin
Rubber, Butyl	LANXESS	Tire Inner Tubes; Reservoir Linings; Chewing Gum
Rubber, Halobutyl	LANXESS	Tubeless Tire Inner Liners; Pharmaceutical Closures; Tire Sidewalls
Reactive Polymers	DuPont	Co-extrudable Adhesives for Packaging, Corrosion Protection, Toughners, Compatibilizers

TABLE 4 - INORGANIC CHEMICALS PRODUCED IN THE SARNIA-LAMBTON REFINING AND PETROCHEMICAL COMPLEX		
Product	**Producer(s)**	**End Uses**
Anhydrous Ammonia	CF Industries	Fertilizers; Chemical Intermediate; Household Cleaning Compounds; Refrigerant; Pulp and Paper; Plastics; Mining Products
Nitric Acid	CF Industries	Industrial Chemicals; Explosives; Metal Refining
Urea; Urea Sulphur Coated	CF Industries	Fertilizers; Runway Deicer
Aqua Ammonia	CF Industries	Fertilizers; Pulp and Paper; Household Cleansers; Pharmaceuticals
Nitrogen Solution Fertilizers	CF Industries	Liquid Fertilizers
Carbon Dioxide, Liquified	Air Liquide Canada Praxair	Food Freezing; Welding; Carbon Dioxide Lasers; Mould Hardening; Fire Abatement Systems, Beverage Carbonation
Argon Liquid	CF Industries	Various industrial processes
Hydrogen, Liquid Hydrogen, Compressed Gas	Air Products Praxair	Petroleum Refining; Metal, Food, Electronic and Pharmaceutical Industries
Nitrogen, Compressed Gas	Praxair	Inerting Gas
Oxygen	Praxair	Steel Making
Sulphur	Imperial Oil Shell Suncor	Fertilizers; Gunpowder; Chemical Intermediate

TABLE 5 - RAW MATERIALS USED BUT NOT PRODUCED IN THE SARNIA-LAMBTON REFINING AND PETROCHEMICAL COMPLEX		
RAW MATERIAL	**USER(S)**	**USES**
Alumina	Ethyl	Drying Agent; Catalyst Support
Chlorine	LANXESS	Manufacture of Halobutyl Rubber
Hydrofluoric Acid	Suncor	Alkylation Agent in Refineries
Nitrogen, Liquid	Air Products	Production of Liquid Hydrogen; Chemical Processing Refrigerant
Iso-Pentane	Ethyl	Solvent
Methyl Chloride	LANXESS	Production of Butyl Rubber
Phenol Ketone, Methyl Ethyl Ketone, Methyl Isobutyl	Imperial Oil	Production of Lubricating Oils
2-Ethyl Hexanol	Ethyl	Production of diesel fuel additive
2,6-Di-tertiary Butyl Phenol; Phenylenediamine	Ethyl	Antioxidant
Cyclohexane Octene	NOVA Chemicals (St. Clair Site), LANXESS	Production of polyethylene, production of polybutadiene rubber
Bromine	LANXESS	Production of Halobutyl Rubber
Acetonitrile	LANXESS	Production of Butadiene
Isoprene	LANXESS	Production of Butyl Rubber

TABLE 6 - PRODUCTS BLENDED, REPACKAGED AND/OR TERMINALED IN SARNIA-LAMBTON		
PRODUCT	**COMPANY**	**USES**
Aluminum Alkyls	Ethyl	Polymerization Catalysts
Antioxidants	Ethyl	Oxidization Inhibitors for Fuels, Lube Oils, Chemicals and Plastics
Diesel Fuel Additives	Ethyl	Diesel fuel enhancement

ENVIRONMENTAL SUSTAINABILITY, EDUCATION & PUBLIC AWARENESS

Although in the marketplace the companies in the SLRPC are keen competitors, they are noted for a high degree of cooperation and participation in the community. This activity shows up particular in the areas of environmental sustainability, education and public awareness. Some of the key initiatives in these areas are highlighted below.

ENVIRONMENTAL SUSTAINABILITY

Bluewater Sustainability Initiative

Established in 2006, the Bluewater Sustainability Initiative is a collaborative partnership of industry, business, education and community-based environmental associations working towards the vision of Sarnia-Lambton achieving global recognition as a hybrid, green community. It brings together and support stakeholders in identifying and implementing sustainability initiatives in the community.

Core strategic areas include development of the biohybrid economy, alterative energy opportunities, environmental control technologies and educational related initiatives.

Key industrial participants include LANXESS, NOVA Chemicals and Suncor Energy.

The Bluewater Sustainability Initiative is located at the Suncor Sustainability Centre which is located on the campus of Lambton College.

The Sarnia-Lambton Environmental Association

The Sarnia-Lambton Environmental Association is an important example of cooperation and leadership by the industries in Sarnia-Lambton. Three major companies formed the St. Clair River Research Committee in 1952, with the goal of working together to improve local air and water quality. By 1967, the group had grown to 15 members, and was incorporated as the Lambton Industrial Society. In July of 2000, the LIS changed its name to the Sarnia-Lambton Environmental Association.

The Sarnia-Lambton Environmental Association and its 20 member companies are committed to earning the community's recognition for promoting and fostering a healthy environment consistent with sustainable development. A key part of this commitment includes state-of-the-art air and water monitoring programs building on the database of historical information which began in 1952. The record demonstrates dramatic improvements in local environmental quality, and highlights areas where additional improvements are needed. All information is shared openly with the community.

EDUCATION and R&D

The Research Park and the Bioindustrial Innovation Centre

The Research Park is a joint venture of the University of Western Ontario, the County of Lambton, and the City of Sarnia. The Park is operated by the University of Western Ontario. The development of alternative energy technologies and industrial bio-products is a key focus of The Park's new Centre of Excellence for Commercialization and Research.

BIOINDUSTRIAL INNOVATION CENTRE

The University of Western Ontario RESEARCH PARK Sarnia Lambton Campus

Located within the Bowman Centre for Technology Commercialization at The Research Park is Canada's Bioindustrial Innovation Centre. Sarnia-Lambton was chosen as the location for this centre for the commercialization of large-scale industrial biotechnology for the entire country.

Lambton College of Applied Arts and Technology

Lambton College has a history of working cooperatively with the companies in the SLRPC to provide the necessary education and training for future employees. Many of the technology programs offered are three years in duration, with a co-op component which provides students with a combination of theory and application skills in current and emerging technologies.

The College's Chemical Production Engineering Technology, Instrumentation & Control Engineering Technology, and Mechanical Technician – Industrial Maintenance programs produce graduates prepared for the refining and petrochemical industry.

Building on its history of more than 40 years of process technology leadership, Lambton College's Alternative (Sustainable) Energy Engineering Technology program provides theory and application skills in current and emerging energy technologies.

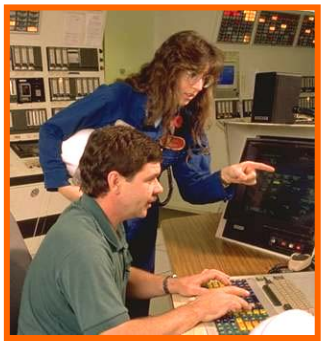
The College's Advanced Materials Engineering Research Lab (major sponsor Lanxess) is dedicated to the use of polymer and biodegradable materials and advanced manufacturing technologies.

The College's Centre for Advanced Process Technology provides training in leading edge process technologies and applications. Theory and applications are tested through dynamic simulations or processing of samples in the advanced technology laboratories.

The College's School of Technology, Applied Science and Apprenticeship launched a new three year co-op Power Engineering Technology – Chemical (PETC) program in November 2010.

In order to ensure relevance to the industrial community, advisory committees with strong industrial representation are active participants in curriculum planning and course evaluation.

The Sarnia-Lambton Industrial Education Cooperative



Unique to Sarnia-Lambton, and modeled after the Sarnia-Lambton Environmental Association, is the Industrial Education Cooperative, established in 1993 by 13 local companies to provide training and development for employees. The Cooperative works closely with all member companies and local service providers, especially Lambton College, to identify and prioritize common training and educational opportunities, coordinate the design, delivery and evaluation of high quality training to meet these opportunities and set common standards of excellence for practices, procedures and methods.

Twenty of Sarnia-Lambton's major industries are members of the Industrial Education Cooperative, including BP Canada, Imperial Oil, Lanxess, NOVA, Shell, Suncor, and TransAlta.

Science Education Partnership

The Science Education Partnership involves the Lambton Kent District School Board, the St. Clair Catholic District School Board and local companies including Bluewater Power, Imperial Oil, LANXESS and NOVA Chemicals.

The collaborative program works to bring science alive in elementary classrooms by providing resources for classrooms across the school district. The Science Education Partnership was formed for the purpose of expanding and supporting a high quality "Hands-on, Minds-on" science program for students from kindergarten to grade eight. Industrial partners support the program through both financial and human resources.

PUBLIC AWARENESS

Responsible Care®

Responsible Care® is a program developed by the Canadian Chemical Producers' Association and practised by the companies in the SLRPC. In fact, many of the initiatives in Responsible Care® are modeled on activities which originated in Sarnia-Lambton over 40 years ago. The primary example is CVECO, a community-wide emergency response network which includes municipalities, industries, transportation companies and the media.

Another facet of Responsible Care® is the CAER (Community Awareness and Emergency Response) program. In Sarnia-Lambton, CVECO already had the emergency response side under control when the Sarnia CAER Committee was formed in 1985, so the latter group concentrated on Community Awareness. Again, the initiative of the local companies predated the Canadian Chemical Producers' Association initiative and provided an example and inspiration for similar groups across the country and now around the world.

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Feedstocks, Chemicals and Plastics Used and Produced in the Sarnia-Lambton Industrial Complex

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