Owens Corning
Guelph Glass Plant

WELCOME

Community Information Session

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About Owens Corning

- Owens Corning (NYSE: OC) develops, manufactures and markets insulation, roofing, and fiberglass composites.

- Global in scope and human in scale, the company's market-leading businesses use their deep expertise in materials, manufacturing and building science to develop products and systems that save energy and improve comfort in commercial and residential buildings. Through its glass reinforcements business, the company makes thousands of products lighter, stronger and more durable.

- Based in Toledo, Ohio, U.S.A., Owens Corning employs about 14,000 people in 25 countries. It has been listed as a Fortune 500® company for more than 60 consecutive years.

- Additional information is available at www.owenscorning.com

About the Guelph Glass Plant

- Located at 247 York Road, Guelph, Ontario in the Township of Guelph/Eramosa and Wellington County.
- Opened in 1951; owned and operated by Owens Corning since 1989.
- One of 32 Owens Corning Composites Manufacturing Facilities located around the world.
- Owens Corning's sole composites facility in Ontario and Canada.
- Occupies 377,000 sq. ft. on 21.27 acres of land.
- Pays about $400,000 in city taxes annually.
- Employs 180 people currently.
- Operates continuously 24 hours per day, 365 days per year.
- Processes approximately 22,000 tonnes of glass fiber product per year.

Guelph Glass Plant Products

Owens Corning is a global pioneer and industry leader in the glass fiber reinforcements, nonwovens and specialty composite fabrics industry, with a long history of product innovation and customer focus. Reinforcements, such as glass fiber, are used in composite materials to give physical and mechanical properties that traditional materials such as plastic alone cannot provide.

Owens Corning glass fiber materials are found in more than 70,000 end-use applications in the construction, wind energy, water infrastructure, industrial, transportation, consumer goods, and aerospace/defense sectors.

Chopped Strand Mat (CSM) Applications*

- Marine: pleasure and commercial craft
- Transportation: truck, bus parts
- Corrosion: tanks, ducts, fittings
- Industrial: housings, shroud, enclosures
- Consumer goods: trays, skis

Continuous Filament Mat (CFM) Applications

- Structural Cross sections:
  - Ladder Rail
  - Cooling Tower Structure
- Electrical isolation back planes

Wet Use Chopper Strands (WUCS) Applications

- Flooring carrier layer
- Ceiling tile facia
- Wall covering facia

*CSM manufacturing will relocate from plant in 2016.

Our Commitment to Health and Safety

Owens Corning is committed to the principles of environmental sustainability, product stewardship and to the safety and health of our employees and the community.

To ensure a continuing commitment to these principles, Owens Corning is dedicated to:

- Providing safe working conditions.
- Promoting the health and well-being of our employees.
- Conducting operations in a manner that safeguards the community.
- Providing products that are safe and environmentally sound to make, use, and dispose of; and that perform as claimed.
- Providing useful information on the performance and safe use of our products.

Our Commitment to the Environment

- Owens Corning is committed to shrinking its environmental footprint through continuous reduction of resource use and environmental emissions from its operations.

- Owens Corning established its first set of 10-year footprint reduction goals in 2002. It achieved those goals by the end of 2010.

  Current footprint goals stretch forward to 2020. Energy use, greenhouse gas emissions and water consumption remain priorities.

- The company reduced emissions by 62% from its global operations between 2010-2013.

- Owens Corning has a company-wide target of reducing emissions of hexavalent chromium, as well as other compounds through product formulation, process improvements and advanced technologies.

- This is an ongoing continuous improvement process.

Working Under the Oversight of Regulators

The Ministry of Environment and Climate Change (MOECC) uses a framework for managing risk to local communities from a facility's emissions of a contaminant to air.

Owens Corning operations comply with:

- All applicable environmental, health and safety laws, regulations and legal requirements.
- All other environment, health and safety standards and guidelines to which the Company subscribes.

Ontario Ministry of the Environment and Climate Change (MOECC)

Environment Canada

Ontario Ministry of Labour

Workplace Safety & Insurance Board

City of Guelph – Municipal Bylaws

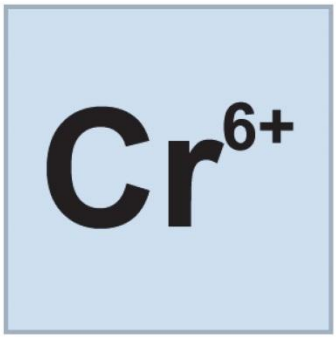
What is Hexavalent Chromium?

- Hexavalent chromium is a form of the metallic element chromium.
- It has no odour.
- Generally produced by industrial processes.
- Used for chrome plating, the manufacture of dyes and pigments, leather and wood preservation, and treatment of cooling tower water.

Cr^{6+}

Exposure to Hexavalent Chromium

Hexavalent chromium exposure can occur from:



- Inhalation,
- Ingestion,
- Direct contact with skin.

It can be found in air, soil, and water.

Hexavalent chromium is a known human carcinogen.

Resources For More Information

Environment Canada
https://www.ec.gc.ca

National Toxicology Program
https://www.niehs.nih.gov/

ATSDR
http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=17

Hexavalent Chromium
Historical and Existing Air Regulations

The Guelph Glass Plant is in compliance with current Ministry regulations for local air quality.

- Ontario provincial air regulations (established by Ontario Regulation 419/05) are based on scientific data and risk assessments.
- In 2005, the 24 hour guideline for total chromium (including hexavalent chromium) was 1.5 micrograms per cubic meter ($\mu g/m^3$).
- A new standard for hexavalent chromium was introduced in 2011 and will become effective in 2016.
- Regulations currently include a 24 hour Upper Risk Threshold concentration of 0.07 $\mu g/m^3$. This came into effect in 2011.

Future Air Standard for Hexavalent Chromium

The future annual standard of 0.00014 micrograms per cubic meter ($\mu g/m^3$) comes into effect on July 1, 2016.

Current Comparator - Upper Risk Threshold
effective as of July 2011
0.07 micrograms per cubic meter
(on a 24 hour average)

Future Standard - 2016 Standard
effective July 1, 2016 and beyond
0.00014 micrograms per cubic meter
(on an annual average)

This is an overall reduction of 99 percent.

Ministry Compliance Measures

As long as a facility works to reduce air concentrations as much as possible with technology-based solutions and best practices, there are allowable approaches to maintain compliance.

3 Approaches for Maintaining Compliance		
Meet the general air standard.	Register and meet the requirements under a sector-based technical standard, if one is available.	Request and meet a site-specific standard.

Need for an Interim Site-Specific Standard

Technical challenges and related economic considerations limit Owens Corning from achieving the future general standard by the July 2016 deadline.

An interim site-specific standard is an allowable approach to maintain compliance while Owens Corning works to meet the general standard.

Allowable Approach Under Regulation	Feasibility Assessment Result
Meet the new standard	**Not a viable approach** With current technology and best practices, the Guelph Glass Plant can reduce air concentrations by more than 85% but needs more time to achieve a 99% reduction.
Meet the requirements under a sector-based technical standard, if one is available	**Approach not available** Owens Corning is the only facility in its sector in Ontario.
Request and meet a site-specific standard	**Approach Owens Corning is pursuing** Used when a facility is working to reduce air concentrations as much as possible with technology-based solutions and best practices.

Requesting An Interim Site-Specific Standard

- ✓ Request must be made 15 months in advance of the regulation taking effect.

- ✓ Request must include:
  - Emission Summary and Dispersion Modeling Report
  - Technical Benchmarking Report
  - Economic Feasibility Study Report
  - Action Plan for achieving the lowest air concentrations possible considering both technical and economic feasibility
  - Public Consultation Report

- ✓ Community must be notified and provided an opportunity to review the request and provide input to the Ministry through:
  - Mailing of a notification letter within a defined distance of the facility
  - Placement of a public notice
  - Holding a public information session
  - Submitting a Public Consultation report

- ✓ Ministry will conduct a technical review of the request
  - Ministry will post a draft decision on the Environment Registry for public comment

Decision expected before the new standard takes effect on July 1, 2016.

How a Site-Specific Standard Is Determined

The MOECC needs to be satisfied that the site-specific standard applies best available technologies to reduce risks to local communities.

- An interim site-specific standard is an air concentration developed using a mathematical model approved by the Ministry and is based on technology considerations.

- It is based on the highest concentration that may occur at any location (regardless of property use) beyond the facility property line. This is referred to as a "Point of Impingement" (POI).

- Factors in the calculation include:
  - site-specific emissions (based on the actions that a facility can take to reduce emissions to air as much as possible considering the technology available),
  - meteorological data,
  - an approved air dispersion model.

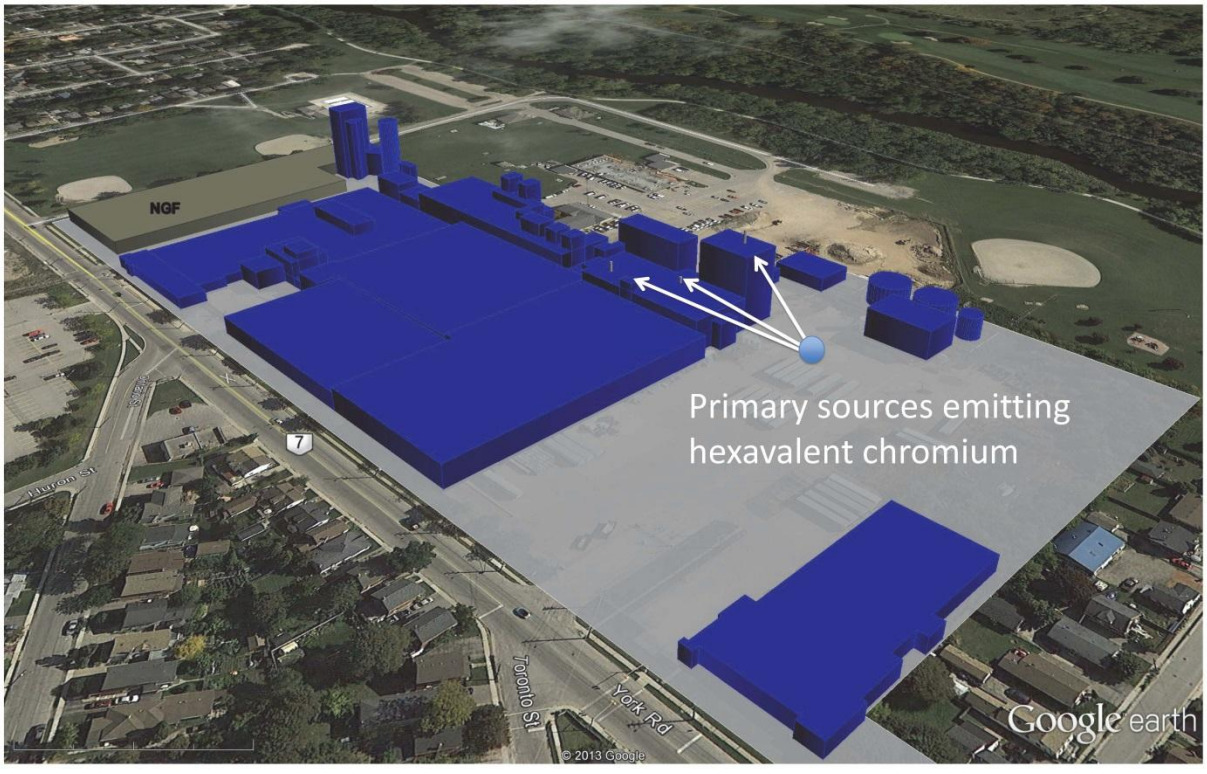
- A site specific standard is an interim standard established for a specific period of time to ensure continued review of available and feasible technologies.
  - Owens Corning is requesting a 10-year term.

Hexavalent Chromium

A Byproduct of Manufacturing

Small levels of hexavalent chromium are created as a byproduct of the manufacturing process.

- Owens Corning does not use or manufacture hexavalent chromium.
- The plant's existing glass melting and molten glass transport structures are made from materials that include chromium oxide. These materials are used because they resist extreme wear conditions in the furnace and forehearths.
- As a result of the high temperatures and other conditions of the process, an extremely small fraction of the chromium oxide is transformed into hexavalent chromium and emitted to the air primarily via 3 stacks.



Action Plan

Reducing Emissions: Actions Already Taken

Owens Corning has been actively pursuing reduction technologies to eliminate Hexavalent Chromium.

- Owens Corning is working to reduce emissions in a systemic and efficient manner to ensure optimal results.
- The company is focused on technologies that prevent the formation of hexavalent chromium.
- Efforts to date have included process evaluations and ongoing research into better understanding the process conditions that affect the creation of hexavalent chromium.
- Multiple stack testing programs have been conducted to measure the emissions from the stacks using the most up to date methodologies.
- In 2012, Owens Corning invested $3 million to install the first manufacturing scale prototype on one trial section of the process. This prototype included the use of new state-of-the-art combustion control systems, improved construction techniques and an alternate refractory material.

Action Plan

Reducing Emissions: Actions Planned

The Ministry will closely oversee progress using a framework for managing risk that was developed in cooperation with public health units in Ontario and other stakeholders.

Early 2016	• Replacement of the existing furnace with a new smaller furnace with improved technology. • Install state of the art combustion controls system and use improved construction techniques on all remaining sections of the process. • Re-engineer 4 stacks to overcome dispersion challenges.
2017 - 2018	Evaluate reductions using source testing.
Ongoing 2017- 2026	Review operational life span of the remaining furnace hall general ventilation exhausters and replace with re-engineered exhausters to improve dispersion.
Ongoing 2015 - 2023	Continue to evaluate, research and implement new technologies to prevent formation of hexavalent chromium at the source and limit emissions including: • research impact of air/gas combustion in the forehearths on formation of hexavalent chromium. • monitor effectiveness of further combustion control improvements/changes. • drive innovation with suppliers of low sublimation chromium (LSC) refractory including quantification of the potential to reduce the formation of hexavalent chromium. • monitor the development/emergence of technologies that decrease formation or improve capture of hexavalent chromium emissions.

After Action Plan Is Implemented

Owens Corning is requesting an Interim Site Specific Standard of 0.0024 µg/m3 for hexavalent chromium.

Action Plan Outcome for Hexavalent Chromium

Location of Point of Impingement (POI)	Emission Rate (g/s)	Maximum Modelled Annual Concentration	Future Annual Standard
	(g/s)	(µg/m^3)	(µg/m^3)
Maximum at any off property location	0.00017	0.0024	0.00014
Maximum at any sensitive receptor	0.00017	0.0006	0.00014

g/s – grams per second
µg/m^3 – micrograms per cubic meter

Modeling was conducted using MOECC approved AERMOD (American Meteorological Society/Environmental Protection Agency Regulatory Model). Version 14134 was used using a 5 year site-specific meteorological data set.

Off Property Location - The property line and all locations off property.

- Regulatory compliance is determined based on the modelled concentration at this location.

Sensitive Receptors – Areas where people live, go to school, attend daycare and hospitals

- Important information for the evaluation of health risk.

Owens Corning is Committed to…

- Protecting public health and safety.
- Meeting our regulatory requirements.
- Sharing information directly and in a timely manner.
- Providing project updates as appropriate to local officials and interested citizens.
- Responding to questions and concerns quickly and with an earnest effort to reach a mutually-acceptable result.
- Safeguarding, sustaining and improving the environment for the benefit of current and future generations.

Providing Input and Staying Informed

Input received by Owens Corning before March 9 will be included in the Public Consultation Report.

Send us your comments

- Fill out Comment Cards at this meeting.
- Email us at **OCGuelph@owenscorning.com**
- Mail Rob Nixon at
  Owens Corning
  247 York Road
  Guelph, Ontario N1E 3G4

Stay Informed

All Boards and Documents at this Public Information Session will be posted to the project website

ocguelph.com

The Ministry will post a draft decision on Owens Corning's request on the Environmental Registry under the Environmental Bill of Rights (EBR) for additional comment.

Environmental Bill of Rights

The request for an interim site-specific specific standard allows for comment directly to Owens Corning and to the Ministry through the Environmental Registry.

The Ministry will post a draft decision on Owens Corning's request on the Environmental Registry under the Environmental Bill of Rights (EBR) for additional comment

www.ebr.gov.on.ca