

Technology Benchmarking Executive Summary - DRAFT



This Technology Benchmarking Report (TBR) has been prepared to support the Owens Corning Guelph Glass request for a site specific annual standard for hexavalent chromium under Section 32 of Ontario Regulation 419/05: Air Pollution – Local Air Quality (O. Reg. 419/05). This report (TBR) is a required element of the request for the site specific standard and has been prepared in accordance with the Ministry of the Environment and Climate Change (MOECC) publications “*Guide to Requesting an Alternative Air Standard*” (GRAAS), December, 2007, and the “*Guideline for the Implementation of Air Standards in Ontario*” (GIASO), March 2009.

The Owens Corning facility is located at 247 York Road in Guelph Ontario. The facility produces textile glass yarn and fiberglass for reinforcements for commercial and industrial markets worldwide. This facility is the sole producer of fiberglass for reinforcements in Ontario and Canada and has been operating in Guelph since 1951. Due to the nature of the process, the facility operates continuously 24 hours per day, 365 days per year. Detailed process descriptions and documentation of emission estimates are located in the Emission Summary and Dispersion Modeling (ESDM) Report.

This is a companion document to the ESDM Report where modeling indicates that the facility would not meet the future hexavalent chromium standard and that a site specific standard is necessary. This report provides an assessment of the available technologies to reduce point of impingement (POI) concentrations of hexavalent chromium using the top down approach prescribed by Appendix A of the MOECC GRAAS guidance document.

This Technical Benchmarking Report:

- Identifies all available technologies to reduce the POI concentration of hexavalent chromium;
- Assesses the commercial availability of each of the technologies identified and screens out those options which are not commercially available;
- Assesses the technical feasibility of each of the identified technologies and screens out options that are not feasible; and
- Ranks the technically feasible pollution mitigation options, and combinations of options (pollution control strategies) based on reductions in POI concentrations.

Fifteen (15) individual technologies in the following categories were assessed:

- Material Substitutions (2 options);

- Process Changes (4 options); and
- Add-On Controls (9 options)

An additional category of “Other” was added for re-engineering of exhaust points to overcome site specific dispersion challenges. While this is not a required option for consideration, it is another method for the facility to reduce the predicted POI concentrations in the surrounding community.

The technically feasible individual technologies and combinations of options were modelled and ranked based on their potential to reduce the predicted POI concentrations. The following table summarizes the assessment of these pollution control strategies.

Assessment Result Summary of Technically Feasible Pollution Control Strategies

| Pollution Control Strategy Description | Ranking | Overall % Decrease in POI |
|--|---------|---------------------------|
| Electrostatic Precipitator (DEP/WEP) or Dust Collector (DC) on furnace and forehearth stacks combined with various material substitution and process changes. | 1 - 5 | 91% - 95% |
| Install state of the art combustion controls system and use improved construction techniques on all remaining sections of the process (forehearths). Re-engineer several stacks to overcome site specific dispersion challenges. | 6 | 88.5% |
| Scrubber installation on the forehearth stack combined with conversion of the forehearth conversion to air/gas combustion. | 7 | 75% |
| Forehearth conversion to air/gas combustion | 8 | 73% |
| All other pollution control strategy options have been assessed and modelled and achieve lower decreases in the overall % POI. | 9 – 13 | Below 50% |

The above strategies include the planned reconfiguration of the facility as well as the control strategies listed. Additional details related to all of these control options are located in the Technology Benchmarking report. These pollution control strategies are further assessed in the Economic Feasibility Assessment Report (companion document) prior to the development of the Action Plan required for the Site Specific Standard Application.