

## **COVID-19: Recycling technologies for disposable Personal Protective Equipment used in healthcare sector**

### **Sponsor**

National Research Council of Canada (NRC), in collaboration with Environment & Climate Change Canada (ECCC) and Health Canada (HC)

### **For More Information**

For more information visit the [COVID-19 challenge website](#) [1].

### **Description**

The COVID-19 pandemic has generated an increased consumption of disposable Personal Protective Equipment (PPE) by healthcare workers and by the general public. As of June 29, 2020, based on federal government projections for PPE demand over the next year, it is estimated that approximately 63,000 tons of COVID-19 related PPE will end up as waste, being ultimately landfilled.

In November 2018, the Canadian Councils of the Ministers of the Environment (CCME) has adopted Canada's Zero Plastic Waste Strategy to reduce the environmental impact of plastics and promote a circular economy. To support this strategy and to reduce the environmental footprint of PPE in Canada, the Government of Canada is supporting the development of solutions to manufacture more sustainable PPE and to better manage their end of life. Strategies include re-usability, alternative materials, improved recyclability and novel recycling technologies, as well as compostability.

This challenge is in support of the novel recycling technologies element of that strategy. To reduce the environmental footprint of PPE in Canada, NRC, ECCC and HC are proposing, amongst other actions, to launch a challenge aiming at developing efficient and cost-effective recycling technologies which will enable the conversion of waste PPE into valuable products and divert them from landfills.

### **Essential (mandatory) outcomes**

The proposed solution must:

1. lead to a safe-to-operate prototype system that enables the conversion of polyolefin-

based waste PPE generated in the Canadian healthcare system into materials or molecules of significant commercial value, as demonstrated by a proof of concept on actual waste PPE.

## Definitions:

- Polyolefin-based waste PPE refers to disposable PPE that is mainly composed of polyolefins. This includes conventional disposable surgical masks, disposable respirators (i.e. N95 and equivalents), disposable surgical or isolation gowns, disposable drapes and disposable bedsheets.
  - Example end products 'materials' include (but are not limited to) polymers, solid carbons (e.g. carbon black, graphite, etc.) or other valuable materials that can further be used in manufactured products.
  - Example end products 'molecules' include valuable chemicals, monomers or fuels.
2. be able to safely handle entrants that are usually treated as general non-dangerous solid waste but may contain traces of bacteria and/or viruses.
  3. be scalable and capable of being fully deployed in Canada, in support of the healthcare system. Applicants must clearly provide their plans for scale-up and deployment.
  4. bring environmental benefits compared to the current landfilling practice, as demonstrated by Life Cycle Analysis (LCA). In particular, GHG emissions should be minimized to the extent possible.
  5. demonstrate, via a cost analysis, that reasonable cost targets can be met to support commercial/market adoption, including any required waste PPE handling costs (i.e, collection, storage, transportation, etc.).

## Eligibility

Solution proposals can only be submitted by a **small business** that meets all of the following criteria:

- for profit
- incorporated in Canada (federally or provincially)
- 499 or fewer full-time equivalent (FTE) employees\*
- research and development activities that take place in Canada
- 50% or more of its annual wages, salaries and fees are currently paid to employees and contractors who spend the majority of their time working in Canada\*
- 50% or more of its FTE employees have Canada as their ordinary place of work\*
- 50% or more of its senior executives (Vice President and above) have Canada as their principal residence\*

\* Calculations must take into account and include affiliated businesses, such as parent companies and subsidiaries, that are either in or outside of Canada.

## Funding Availability

Multiple grants could result from this Challenge.

- Estimated number of Phase 1 grants: two
- Estimated number of Phase 2 grants: one

## Maximum Project Value

The maximum funding available for any Phase 1 Grant resulting from this Challenge is **\$300,000.00 CAD for up to three months**.

The maximum funding available for any Phase 2 Grant resulting from this Challenge is **\$1,000,000.00 CAD for up to six months**. Only eligible businesses that have completed Phase 1 could be considered for Phase 2.

## Project Duration

- Phase 1 projects have a maximum duration of three months.
- Phase 2 projects have a maximum duration of six months.

## Special Notes

Please refer to the [Office of Research COVID 19 web-page](#) [2] for directives related to research activities at the University of Guelph.

## Deadlines

**If College-level review is required, your College will communicate its earlier internal deadlines.**

Type	Date
<b>External Deadline</b>	Friday, November 6, 2020 - 2:00pm

## How to Apply

Eligible companies are required to submit their application through the [Innovative Solutions Canada Website](#) [1].

For Questions, please contact

All incoming questions regarding this specific challenge should be addressed to [solutions@canada.ca](mailto:solutions@canada.ca) [3].

All enquiries must be submitted in writing no later than ten calendar days before the Challenge Notice closing date. Enquiries received after that time may not be answered.

You can also consult the [Frequently asked questions](#) [4] about the Innovative Solutions Canada Program.

A [glossary](#) [5] is also available.

Alert Classifications**Category:**

Funding Opportunities and Sponsor News

**Disciplines:**

Health and Life Sciences

Physical Sciences and Engineering

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## Source

**URL:**<https://www-research.uoguelph.ca/research/alerts/content/covid-19-recycling-technologies-disposable-personal-protective-equipment-used-healthcare>

## Links

[1] <https://www.ic.gc.ca/eic/site/101.nsf/eng/00119.html>

[2] <https://www.uoguelph.ca/research/article/2019-novel-coronavirus-information>

[3] <mailto:solutions@canada.ca>

[4] <http://www.ic.gc.ca/eic/site/101.nsf/eng/00004.html>

[5] <http://www.ic.gc.ca/eic/site/101.nsf/eng/00005.html>