Challenge: LCBA – Thorlabs on Biodegradable Injection Molding for Packaging Applications

Challenge Statement/Synopsis:

Thorlabs Canada currently uses cardboard trays as part of their optical component packaging. Thorlabs Canada is seeking a replacement for the current system and is particularly interested in using ecofriendly (i.e., made from nature-based materials + biodegradable) materials in an injection molding system to generate the trays. Thorlabs Canada would purchase the trays from a supplier and pay for the specific tooling to be developed.

Context for the Challenge:

Thorlabs Canada is actively looking for ways to **reduce the environmental footprint** of its' products, including the **reduction of material waste** generated by the manufacturing process. While cardboard is a preferred material from a recyclability perspective, the process of folding the cardboard trays is manual and time-intensive. Thorlabs Canada currently utilizes 20,000 packaging trays annually. If this pilot is successfully implemented by Thorlabs Canada, there could be an opportunity to implement the solution at other Thorlabs facilities globally (**up to 100,000 trays annually**).

Response Criteria:

In your response, please include answers to the following questions or explain how your solution meets any stated requirements:

- The **TRL of your solution/product**, as well as a **description of any major pilot** or industrial implementation projects
- **Material properties**, including the content/source of the material (*At this time Thorlabs is not interested in bioplastics or biodegradable plastics; other nature-based/biodegradable materials options (e.g., paper, molded fiber, etc.) are acceptable)
- **Cost** of your solution/product per unit (per tray, per kg, etc.)
- **Dust reduction properties** (*Current solution generates dust/particulates; many of Thorlabs products are manufactured and used in clean rooms and minimal generation of dust and particulates is a consideration) A thin PLA or bio-plastic coating is acceptable for particulate reduction.

The Opportunity:

As part of the LCBA Canada Project you may have the opportunity to:

- Pilot or deploy your solution with Thorlabs Canada, if your solution is selected and deemed suitable. Thorlabs Canada is a subsidiary of Thorlabs Inc., a global optical equipment manufacturing company. Thorlabs Inc. has more than 20 manufacturing and distribution centres around the world.
- Meet new customers and explore new markets for your solution.

About Thorlabs Canada:

Thorlabs Canada focuses on the development and production of a wide range of fiber-based optical components for next-generation imaging devices and advanced instrumentation. We also machine a wide range of materials with femtosecond lasers. Thorlabs Canada is based in Montreal, Quebec.