

FAQs: Spectralon® EPV

What are the differences between Space-Grade Spectralon and Spectralon EPV not just from a material perspective but also a handling and process standpoint?

- Same material but different handling process.
 - EPV is an inherently molecularly pure PTFE-based product that will be contaminated by any volatile, organic or hydrocarbon based material that it comes into contact with or in proximity to. Extra care needs to be taken when handling EPV to ensure avoidance with the above-mentioned contaminants.
- Spectralon EPV only undergoes vacuum bake-out at a resin and finished product level and does not inherently have any other testing.
- Stored in Clean Room during transitions from Resin & Machine
- Packaged with N2 or Vacuum in non-outgassing storage bags
- Labsphere's Spectralon EPV reflectance material is for field and laboratory terrestrial applications.
- Space-Grade Spectralon is developed using an advanced manufacturing process that involves special cleaning and baking procedures, rigid inspection, special handling and packaging, and a full documentation of the process. Each sample undergoes rigorous mechanical and spectroscopic analysis and other program-specific qualification testing.

What is the additional cost for Spectralon EPV?

- It is a onetime fee per vacuum run of \$5,700.
 - Ex. If you have two spheres, it would divide over two spheres.
If you have 10 spheres, the price would divide over 10 spheres if they can all fit in a single oven run.
- If the customer order will exceed our oven capacity then the same additional fee (\$5,700) will apply to each additional oven run.
- We will work with you (the customers) to make sure we don't have unnecessary runs or space order quantities accordingly.

What is the maximum size possible for Spectralon EPV spheres? And why?

- Maximum practical oven dimensions are 24"W x 22"D x 18"H – we cannot fit anything larger than that as we need to leave space for airflow around the edges and we have a sensor in the top of the unit (TQCM). In addition, we have shelves that fit in this space as well, so we can add more small parts in different levels to increase quantity for small parts.

What procedures have you (Labsphere) implemented to ensure Spectralon EPV Spheres are not contaminated?

- **Handling:** Gloves must always be worn while handling EPV material, and parts are to be stored in non-outgassing (non-MOC) bags or clean room containers. Exposure to bodily fluids and gases (like human exhalation) will irrevocably contaminate Spectralon EPV.
- **Surfaces:** Any surfaces that come into contact with Spectralon EPV must be cleaned by gentle flow of purified air or inert gas to blow off dust or particulates. The surfaces may be wiped with optical grade isopropyl or ethyl alcohol and silicon-grade ultra-clean cloth (kim wipes).
- **Peripheral Materials (metals and other surfaces):** Other materials and surfaces that come into contact with Spectralon EPV should be wipeable, cleanable and free of contamination. Surfaces that come into contact with EPV should be passivated or non-outgassing such as stainless steel, passivated aluminum or non-oxidizing metals.
 - Paints and coatings unless qualified for their outgassing properties have been avoided and not used in this process.
 - Anodized (or non-anodized) carbon steel, copper or raw aluminum should be avoided as these are oxidizing surfaces.
 - Metals should be cleaned in a sonic bath before contacting EPV and vacuum baked whenever possible.
- **Proper Use of Material:** If the product is meant for use in a vacuum chamber then default materials should be chosen in stainless steel or nickel plated aluminum including screw hardware.
 - We clean metals via alcohol wipe or hypersonic bath

Where should Spectralon EPV parts be stored when not in use?

End Use and Environment: Customer environment should be considered as vital to maintenance of the cleanliness of the parts – Spectralon EPV parts should be stored in vacuum and/or N2 (inert gas) purged environments to maintain the cleanliness of these parts. Most situations when humans are in proximity to the parts, normal air (with humans or other volatile sources) or touching of the parts by unclean tools are unacceptable and should be questioned.