

# Engineering Plastics for Photovoltaic Production Equipment



## Coating | Sputtering | Thin Film

### PHOTOVOLTAIC INDUSTRY TRENDS

- Reduce cost by lowering process temperature
- Increase efficiency and production yield by minimizing
  - damage in handling of coated glass
  - contamination from out-gassing
  - defects from material impurities

### QUADRANT ANSWERS

- Slide bearing materials suitable for high temperatures
- Materials that avoid damage in handling coated glass
- Highly dimensional stable plastics with minimal out-gassing over wide temperature range up to 220° C

### CUSTOMER BENEFITS

- Lower maintenance cost with self lubricating properties
- Highly inert in vacuum and gas chemicals: no out-gassing
- Higher wear resistant materials for longer life parts
- “Surface-friendly” coated glass handling

Quadrant provides high performance plastic as rod, plate or tube for machining or as finished parts. Over 60 years of expertise provides the platform for bringing your concept to the production line.

Let us help you build the optimum machine to increase your output, up-time and efficiency.

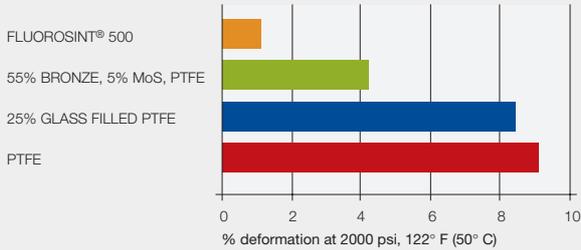


QUADRANT

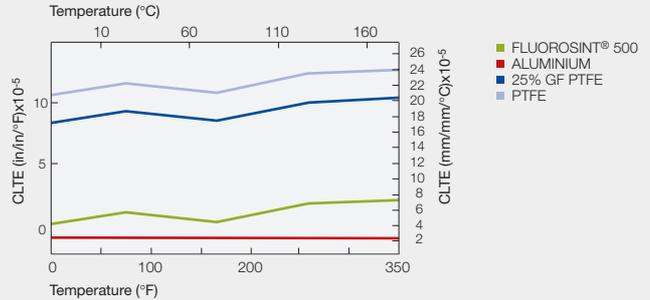
You inspire ... we materialize®

## DIMENSIONAL STABILITY

### DEFORMATION UNDER LOAD



### COEFFICIENTS OF LINEAR THERMAL EXPANSION



## FLUOROSINT FFM 500

**Solves sliding, damage and dimensional problems in rolls, insulation parts, sliders, clamps**

### Challenges:

- Resist aggressive chemicals at high temperatures
- High dimensional stability over wide temperature range
- Low out-gassing values
- Low friction parts



### Solution:

Fluorosint FFM 500, an enhanced performance PTFE. The material offers the chemical resistance and low friction of PTFE, but has far better dimensional stability and stiffness, minimal out-gassing.

### Benefits:

Fluorosint FFM 500 increases the operating life of CVD equipment and lowers maintenance costs by replacing very expensive ball bearings. Parts machined from the material resist cleaning gases and exhibit low out-gassing and leaching. It also has the "surface friendly" characteristics and low friction similar to virgin PTFE to minimize damage in handling.

For higher temperatures we recommend Celazole PBI, already in use for handling pins at short term temperature excursions up to 550° C and continuous exposure up to 310° C.

Learn more online at  
[www.quadrantplastics.com](http://www.quadrantplastics.com)

Quadrant has extensive product and machining resources available online. Our website is a portal to a wealth of technical data and the easiest way to engage our application specialists. Our team stands ready to help offer solutions to your toughest problems.

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 Email: [info@polymershapes.com](mailto:info@polymershapes.com)  
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