



## Quadrant® LSG PPSU – Life Science Grade (LSG) Material Solutions for Medical Applications

Plastic stock shapes biocompatible according to USP and ISO 10993-1

### Trends

In addition to extreme resistance to steam and chemical sterilisation, today's medical device designs require exceptional physical performance that can help deliver the extended product life to meet conscious users demand.

### Quadrant Answers

Quadrant® LSG PPSU is an outstandingly tough engineering plastic with a temperature of deflection under load of about 205 ° C, excellent chemical resistance, dimensional stability and the ability to withstand more than 1,000 cycles of steam sterilisation without significant loss of properties. It is highly resistant to cleaning agents, disinfectants and various solvents, as well as to gamma radiation.

### Customer Benefits

Quadrant delivers unique LSG PPSU materials for machining which were tested on stock shapes in order to check their compliance with requirements for biocompatibility of materials per United States Pharmacopeia (USP) and ISO 10993-1. This offers the designer increased safety, approval facilitation, as well as reduced cost and time to market. Many standard colours including blue, grey, natural, black, red, green, orange, rust and yellow are offered as rod and plate. Various combinations of shape sizes provide manufacturers an ideal yield with minimal waste.

### Properties of Quadrant® LSG PPSU by Quadrant

- Superior resistance to common sterilisation techniques compared to other engineering plastics
- Extremely high resistance to repeated steam sterilisation
- High resistance to gamma radiation
- Tested biocompatibility per USP and ISO 10993-1 on stock shapes
- Excellent dimensional stability
- Very high impact strength
- Excellent machinability
- Lot traceability

## Typical applications

- Trial implants
- Medical instruments
- Endoscopic equipment
- Radiation therapy and brachytherapy components
- Trays for trauma products
- Biotechnology and laboratory equipment
- Analytical and diagnostic equipment

Available in colours: natural (ivory), black, blue, green, grey, orange, red, rust, yellow, as rod and plate, and also as finished parts. Please consult us for availability of rod diameters and plate sizes.



## Biocompatibility status of Quadrant® LSG PPSU grades:

MATERIALS	TESTS (1) (2)		1. Cytotoxicity		2. Sensitization		3. Intracutaneous Reactivity		4. Acute Systemic Toxicity		5. Implantation Test		6. Human blood compability		7. USP-Physicochemical Tests for Plastics		USP Class VI (conclusion from tests 3, 4 and 5)	
	Ref.: ISO 10993-5 and USP <87> Biological Reactivity, In Vitro Elution Test	Ref.: ISO 10993-10, Magnusson & Klignan Maximization Method	Ref.: ISO 10993-10 and USP <88>, Biological Reactivity Tests, In Vivo - Intracutaneous Test	Ref.: ISO 10993-11 and USP <88>, Biological Reactivity Tests, In Vivo - Systemic Injection Test	Ref.: USP <88>, Biological Reactivity Tests, In Vivo - Implantation Test (7 days)	Ref.: ISO 10993-4, Indirect Hemolysis (in vitro)	Ref.: USP <661> Containers, Ultra Pure Water extract 70°C/24h											
Quadrant® LSG PPSU black	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quadrant® LSG PPSU natural (ivory)	✓	V(3)	✓	✓	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	✓	✓	✓	✓	✓	V(3)	V(3)
Quadrant® LSG PPSU blue, green, grey, orange, red, rust, yellow	✓	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	V(3)	✓	✓	✓	✓	✓	V(3)	V(3)

✓ This test was carried out and the material passed the test.

V(3) An abbreviated biocompatibility type testing programme was run on these Quadrant® LSG PPSU products, which are colour variations of Quadrant® LSG PPSU black. A comprehensive biocompatibility type testing programme was run on Quadrant® LSG PPSU black.

(1) All tests were run on test specimens machined from rod diameter 50 mm shortly after manufacture.

(2) Quadrant EPP performs testing on its Life Science Grades in order to facilitate evaluation by its customers of their biocompatibility with regard to the requirements applicable to the specific use of the finished product. Quadrant EPP does not possess expertise in evaluating the suitability of its tested materials for use in specific medical, pharmaceutical, or biotechnological applications. It remains the customer's sole responsibility to test and assess the suitability of Quadrant's Life Science Grades for its intended applications, processes and uses.

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\*: „30 days“ applies to Ketron® PEEK-CLASSIXTM LSG white only.

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