



## Polyimide-Filled Polytetrafluoroethylene (SP191)

Material Data Sheet  
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## Overview

SP191 is a polyimide-filled PTFE compound which exhibits low friction and minimal wear in rotary and reciprocating sealing applications. SP191 performs well against soft mating surfaces such as aluminum, mild steel, brass, and plastics, and it is ideal for use in stop-start applications where the goal is to eliminate stick-slip. SP191 demonstrates exceptional resistance against gas permeability, and is often used when optimal sealing of gases is desired. This material is suggested for use in applications with service temperatures ranging from  $-400\text{ }^{\circ}\text{F}$  to  $550\text{ }^{\circ}\text{F}$  ( $-240\text{ }^{\circ}\text{C}$  to  $287\text{ }^{\circ}\text{C}$ ).

## Chemical Compatibility

Chemical Compatibility SP191 exhibits excellent compatibility with most fluids and gases. For more details, reference Technical Report 60A, "Chemical Compatibility Guide," in the technical library section of our website at [www.balseal.com](http://www.balseal.com).

SP191 can be repeatedly sterilized using the conventional EtO method without loss of biocompatibility or degradation of mechanical properties.

SP191 can be repeatedly sterilized using conventional autoclave methods (steam) without loss of biocompatibility or degradation of mechanical properties.

## Compliance

SP191 is a pre-qualified material for medical, pharmaceutical, and implantable applications per Bal Seal Engineering. Bal Seal Engineering defines a medical, pharmaceutical, and implantable material as a composition that meets ISO 10993-5 (cytotoxicity) and USP Class VI requirements as tested by a qualified third party. SP191 is a composition which contains ingredients that meet FDA regulation 21 CFR 170.39 for use in food contact applications. Bal Seal Engineering defines its compositions as "FDA Compliant" if each of the ingredients in the composition have been found by the FDA to be "safe for use in food contact," or "acceptable for use in food contact." SP191 is a low-outgassing material per ASTM E595. ASTM E595 defines low-outgassing materials as materials that have a Total Mass Loss (TML) of less than 1% and Collected Volatile Condensable Materials (CVCM) of less than 0.1%. SP191 is also compliant with SAE specification AMS3678 for the aerospace industry.

## Color

Tan (color variations may occur during processing)

## Heat Treatment

Certain seal sizes are supplied as SP191 HT where HT stands for a heat treatment to limit dimensional changes. Material properties and composition remain the same.

## Mechanical Properties of SP191

Tensile Strength (typical)	Elongation (typical)	Elongation (typical)
2800 psi (19 MPa)	225%	59 ShoreD (45 Rc)

## Advantages

- Low friction
- Extremely low wear
- Increased hardness
- Broad useful temperature range of  $-400^{\circ}\text{F}$  to  $550^{\circ}\text{F}$  ( $-240^{\circ}\text{C}$  to  $287^{\circ}\text{C}$ )

## Application Examples

- Industrial robotics
- HPLC pumps
- Surgical tools
- Medical equipment
- Aerospace gimbals/pods/pan-tilt systems

## Other Information

For more information, contact a technical sales representative, or e-mail us at [sales@balseal.com](mailto:sales@balseal.com).

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