Delrin® SC631 Acetal Resin for Medical Devices

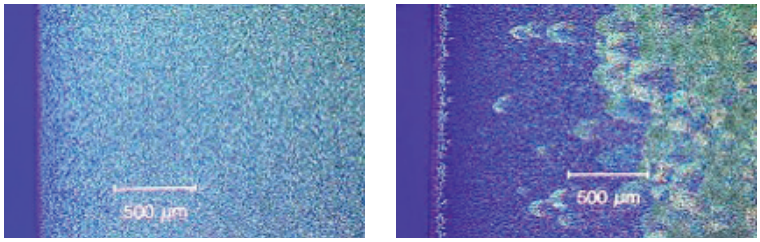
Lasting performance, safer systems, smarter engineering.

Product overview

Delrin® SC631 is a medium-high viscosity acetal homopolymer that is ideal for medical grade applications requiring the highest mechanical properties.

As a nucleated grade, it offers unique benefits, including:

- **Greater strength and stiffness.**
- **Improved creep and fatigue resistance for longer lifetime under repeated or static loads.**
- **Faster injection molding cycle times.**
- **Fewer voids in thick sections.**



Microstructure images of nucleated (left) versus non-nucleated (right) Delrin structures–showing broader distribution of smaller crystals and greater uniformity with nucleated grades.

Confidence in every component

The enhanced properties of nucleated grades, like Delrin® SC631, widen the gap in performance versus acetal copolymer in key applications, such as when additional creep resistance is needed.



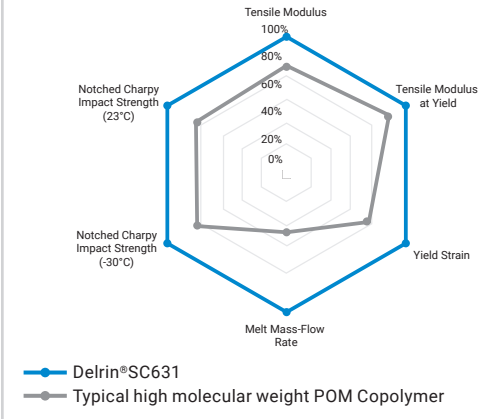
Pictured: Autoinjector. Delrin SC631 is an ideal materiall for spring-loaded parts in medical device systems, where components are under stress for extended periods and must allow minimal deflection.

What is SC?

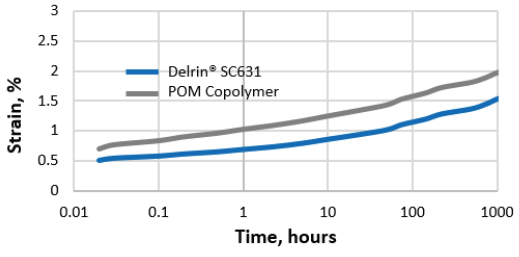
The SC designation in Delrin® SC631 stands for Special Control. Delrin SC grades experience a high amount of testing, and they offer a greater degree of manufacturing control and broad regulatory compliance:

- Produced according to Good Manufacturing Practice (GMP)
- Acquired food contact statements
- Testing against selected parts USP Class VI
- Testing against relevant parts ISO 10993
- Sterilization data
- Global availability
- Extended change notification

Properties comparison Delrin SC631 versus POM copolymer



Real-time Tensile Creep at 23°C and 20.7 MPa Loading



Engineered for resilience and precision, Delrin® SC631 empowers engineers to design smarter, safer and more efficient medical devices without compromise.

Typical applications

- Clamps, clips and connectors
- Valves and pumps
- Diagnostics
- Dry powder inhalers
- Injector Pens
- Autoinjectors
- Fluid control and gas handling
- Prosthetics
- Surgical instruments

Delrin® SC631 NC010 acetal resin

Properties	Value	Units	Test method
Tensile modulus	3300	MPa	ISO 527-1/-2
Yield stress	74	MPa	ISO 527-1/-2
Yield strain	15	%	ISO 527-1/-2
Nominal strain at break	35	%	ISO 527-1/-2
Flexural modulus	3100	MPa	ISO 178
Charpy impact strength, 23°C	300	kJ/m2	ISO 179/1eU
Charpy notched impact strength, 23°C	9	kJ/m2	ISO 179/1eA
Charpy notched impact strength, 23°C	8	kJ/m2	ISO 179/1eA
Melt mass-flow rate (190°C, 2.16kg)	7	g/10min	ISO 1133
Poisson's ratio	0.37	-	-
Molding shrinkage, parallel	1.9	%	ISO 294-4, 2577
Molding shrinkage, normal	1.8	%	ISO 294-4, 2577
Melting temperature, 10°C/min	178	°C	ISO 11357-1/-3

For complete data visit Delrin® Material Data Center at https://delrin.materialdatadenter.com

To learn more, contact your Delrin representative or visit Delrin.com.

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Delrin® is an industry-leading premium industrial polymer business. Grounded in strong innovation, Delrin is a category creator with a longstanding reputation for quality, reliability, supply and product performance. The iconic Delrin brand, coupled with proprietary technology and deep application expertise make us a leader in the high-end engineering polymer market. Delrin has exciting growth prospects from exposure to automation, actuation, healthcare, mobility and consumer applications.

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