

NuSil® Brand Silicones

MGMC Mini Conference

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August 23, 2023



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Strong science and innovation support advanced industries



BIOPHARMA

Broad portfolio of cGMP materials that meets stringent global regulatory and industry best practice standards



BIOMATERIALS

Market leading medical grade silicones for use in the body, on the body or in contact with the body.



ADVANCED TECHNOLOGIES

Innovative, high-purity materials including both NuSil® silicones and J.T.Baker® brand chemistry platforms engineered for the most demanding applications.



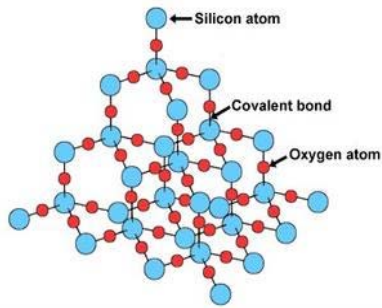
RESEARCH & DIAGNOSTICS

Avantor® has been helping our customers achieve groundbreaking research that has reshaped the world with J.T.Baker® and BeneSphera™ brands.

What is silicone?



Silicon



Silica (silicates, sand)



Silicone

Combines The Best Characteristics
Of Organic And Inorganic Materials

Key silicone properties

- Biocompatible in a large range of applications
- Chemically stable
- Strong & flexible
- Broad operating temperature range
- Gas permeable
- Low volatility
- Conductive or insulative
- Hydrophobic surface energy
- Other surface mods (lubricious)
- Optically clear to color matching
- Customizable



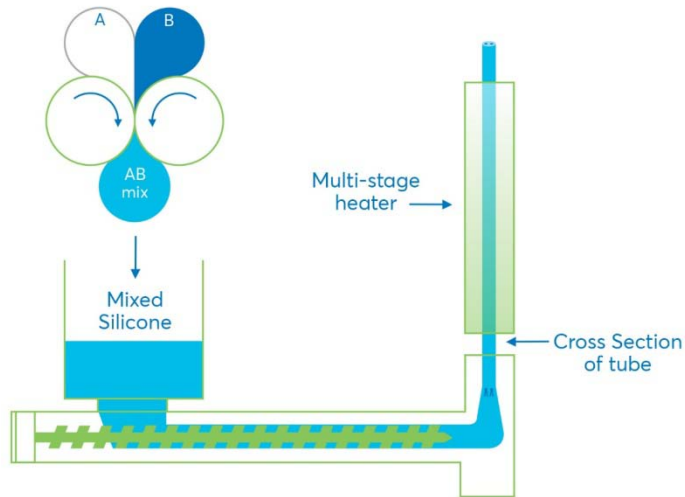
Silicones in many forms



Fabrication: Choose process method based on component

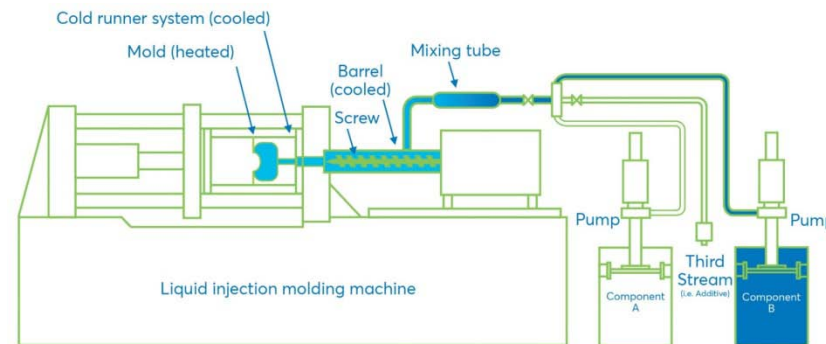
EXTRUSION

- Continuous profile (e.g. tubing, ribbon, rod)



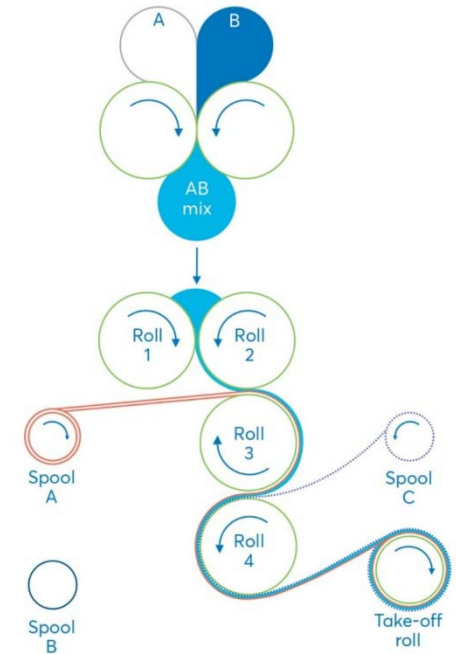
MOLDING

- Discreet parts
- 3-D geometry
- Small-Med. size
- Hollow or solid



SHEETING

- Sheets
- Films
- Tape



What do you want the material to do?

Be the
component



Fabrication

Assemble
a device



Assembly

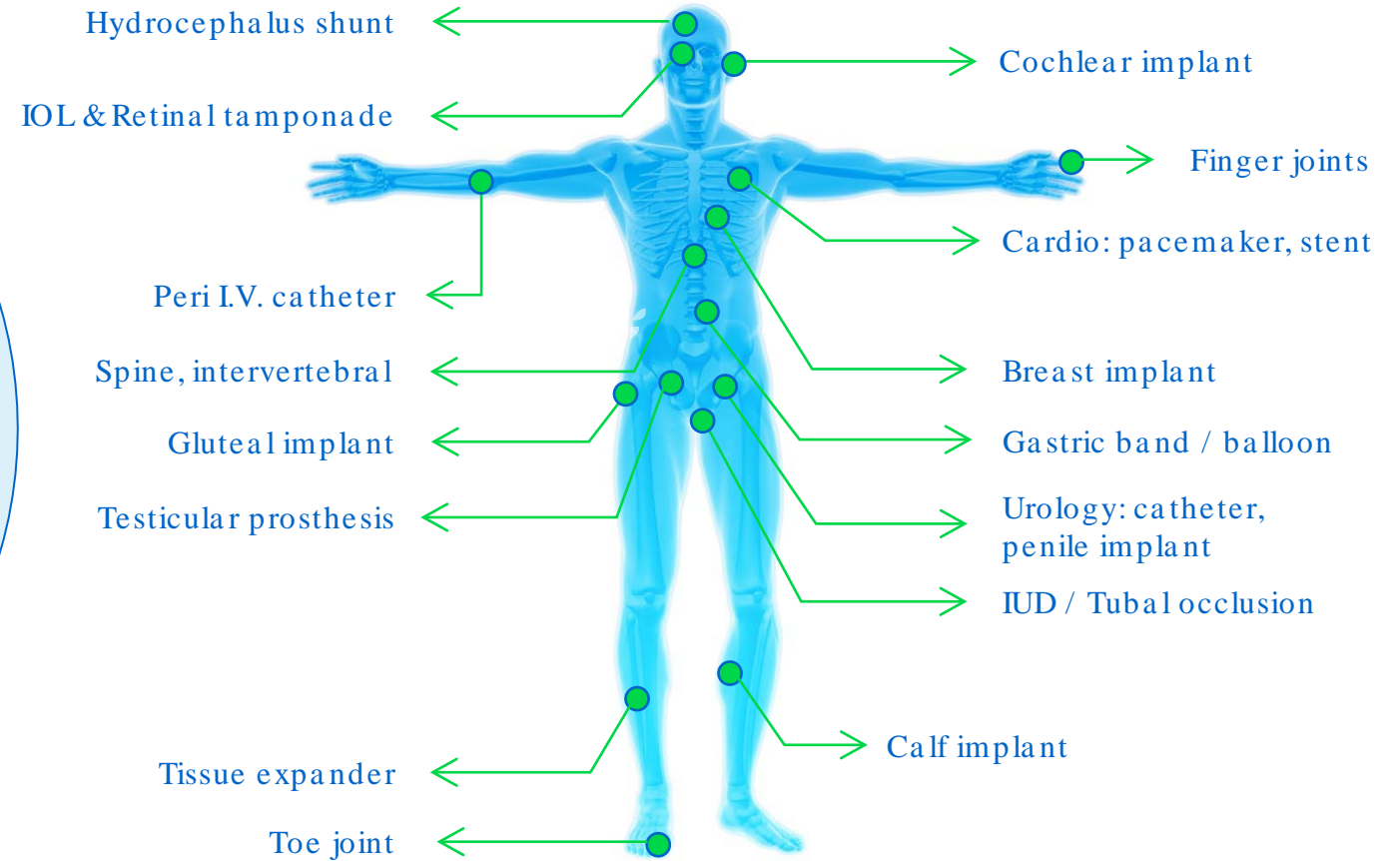
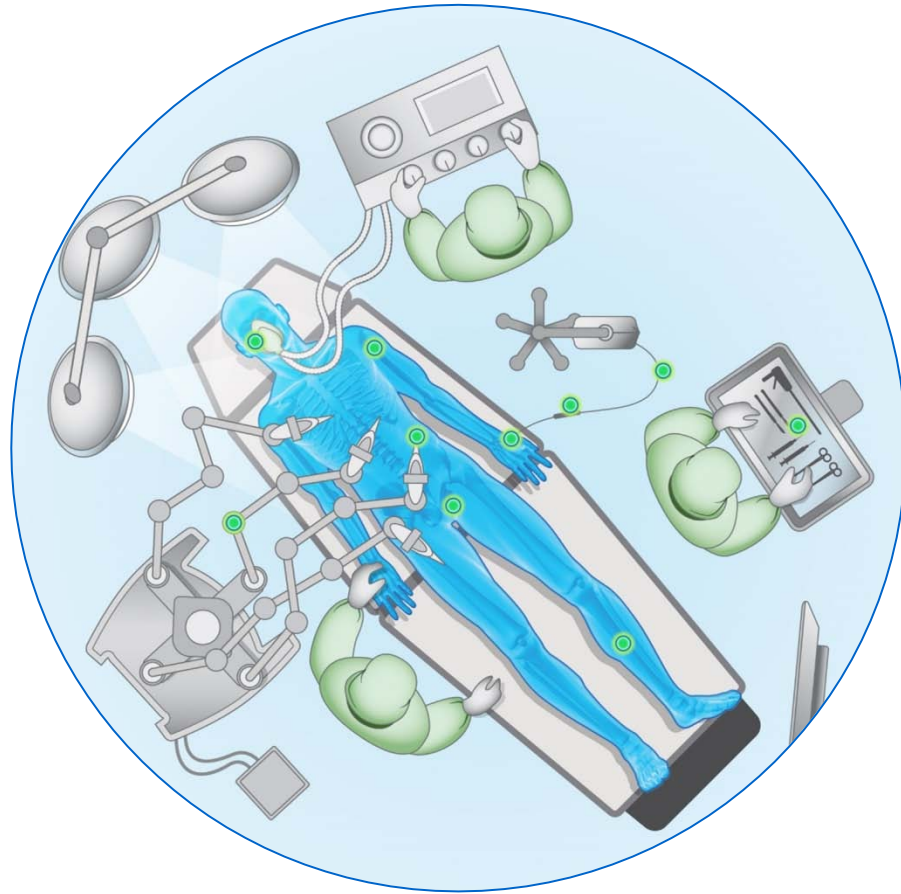
Reduce
friction



Provide
information



Silicones in the medical industry



Understanding NuSil® brand medical grade products

| | Class VI Line | Premium Care Line | Implant Line | | |
|--|--|---|---|---------------------------------|--|
| Description | Standard packaging and USP Class VI testing for high volume applications | For applications that require a higher level of regulatory support, testing and specialized packaging | For implant applications with the highest level of regulatory support and testing | | |
| Supported Uses | May be considered for short-term implantation (≤29 days), insertable, external contact, non-contact external | May be considered for short-term implantation (≤ 29 days), insertable, external contact, non-contact external | May be considered for long-term implantation (>29 days) | | |
| Quality System & Regulatory Support | Developed for implant line, but applied across portfolio | | | | |
| MAF Supported | ————— | <u>Standard products</u> Yes | <u>Custom products</u> Available upon request | <u>Standard products</u> Yes | <u>Custom products</u> Available upon request |
| Biological Endpoint Testing | USP Class VI | Select ISO 10993 | Full ISO 10993 | | |
| Cytotoxicity | ————— | Tested per lot | Tested per lot | | |
| Trace metals | ————— | Per NuSil Specification | Per NuSil Specification & ISO 14949 requirements on select products | | |
| Customization | Yes | Yes | Yes | | |
| Packaging | Controlled Environments | Controlled Environments | Controlled Environments | | |

Innovative solutions



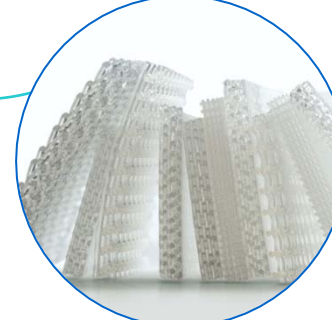
Electronically Conductive Elastomers



- Merging technology platforms
- Conductive LSR



Liquid Additive Manufacturing (LAM)



- Enables production of complex components
- Platinum catalyzed systems



In Situ Curing Silicones



- Patented technology
- Sterilize silicone elastomers in the uncured form
- Silicones cure in the body for a customized fit of implanted device

Thank you



To learn more visit
www.avantorsciences.com/nusil or contact
NuSil at silicone@nusil.com or +1 (805) 684 8780