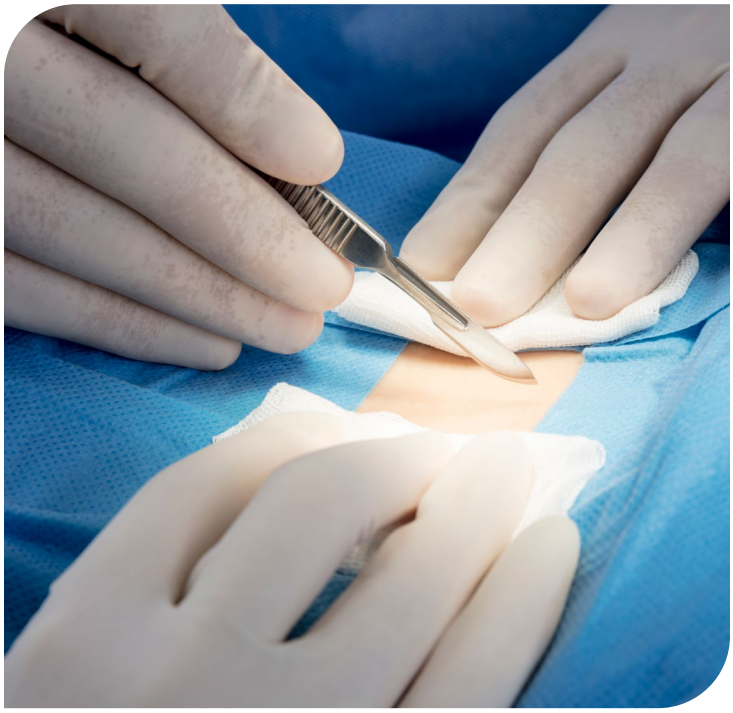
MED1-4151 Curable PDMS Lubricant

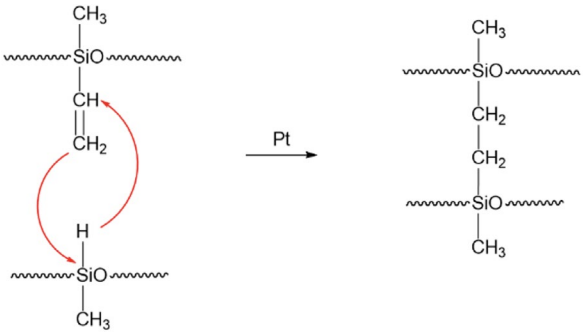
MED1-4151 is a premium healthcare crosslinking silicone lubricant designed to be applied and cured onto a substrate and provide adequate lubrication for several applications. Some applications may include needle coating, cutting edges, syringe lubrication, or other applications requiring friction reduction between various substrates and/or including human tissue.



FREQUENTLY ASKED QUESTIONS ABOUT NUSIL® MED1-4151 CURABLE PDMS LUBRICANT

HOW DOES MED1-4151 PROVIDE LUBRICATION?

MED1-4151 is a reactive silicone system which crosslinks via a platinum-catalyst initiated polyaddition reaction. Unreacted silicone polymer remains in the system and provides lubrication by slowly migrating out of the crosslinked system.



IS MED1-4151 DISPERSED IN SOLVENT?

No, MED1-4151 is supplied undispersed and does not include any solvent. MED1-4151 is designed to be easily diluted with solvents to achieve various thicknesses and be compatible with different processing methods. Typical dilutions range from 1-75% silicone content, but higher solid content can be targeted for certain applications. There are several solvents that can be considered for use with MED1-4151 including, but not limited to:

- Volatile silicone fluids
- Heptane
- Hexane
- Toluene
- Xylenes
- NAPHTHA
- T-Butyl Acetate
- n-Butyl Acetate
- Ethyl Acetate
- Acetone
- Methyl ethyl ketone (MEK)
- Hydrofluoroethers

It is important to ensure that the solvent selected for use is dry (does not contain water) and is sufficiently pure to ensure that the curing reaction is not inhibited and optimal adhesion to the substrate can be achieved.

*Note: It is the responsibility of the end user to ensure compatibility of solvent with their process and material. These are only recommendations of possible solvents to use.

HOW DO I DISPERSE THE MATERIAL IN SOLVENT?

Part A and Part B should each be dispersed in solvent separately before being catalyzed. Add the desired amount of solvent by weight to each part, for example, when using 3% MED1-4151, you would add 97% solvent. Each application may need a specific dilution factor to achieve the desired thickness of the coating with the selected coating method. Mechanical mixing or stirring can be used to disperse the material and if air is introduced, it can be removed via vacuum. Slowly apply full vacuum to a suitable container of at least four times the volume of material being de-aired. Typically, dispersed materials deair very quickly under vacuum, but if held under vacuum too long, the solvent can be removed along with other components of the formulation such as the inhibitor.

HOW SHOULD MED1-4151 BE APPLIED?

If dispersing in solvent, Part A and Part B should both be dispersed in solvent first and then catalyzed. MED1-4151 is designed to be combined in a 1:1 Part A to Part B ratio by weight, changing this ratio can vary the cure and resulting physical properties and is not recommended. Mixer design/size/type, blade/propeller type, shear/RPM levels, speed of mixer, and heat created from the mixer are all important parameters in mixing the material and should be addressed in order to have an adequately mixed dispersion. The catalyzed material can be applied via spraying, dipping, knife coating, brushing, or dip coating.

WHAT ARE THE CURING REQUIREMENTS FOR MED1-4151?

The solvent used and dilution factor will dictate the cure schedule needed as this will vary the thickness of the coating and the temperature at which the solvent will flash off. With dispersed silicones, a ramp cure is always recommended to ensure the solvent is evaporated before the crosslinking reaction takes place. This process is important to avoid bubble formation and entrapment and to obtain the best adherence to the substrate. If bubbles occur, it is possible the drying step is not adequate or that temperature is being applied too rapidly. Because MED1-4151 is an addition curing silicone, increasing the heat will decrease the cure time required.

WILL MED1-4151 STICK TO A SUBSTRATE?

Yes, MED1-4151 will stick to many metal, plastic and other substrates. Substrate preparation is key to ensuring the best adherence is achieved. Cleaning with isopropyl alcohol or another cleaning solvent before adding the coating is a good practice to ensure good adherence, just ensure the solvent is completely dried before applying the silicone. In applications where additional bonding is needed, NuSil's MED1-161 primer and/or introduction of plasma treatment is recommended to be applied before adding the coating.

To learn more about NuSil lubricants, visit:
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