



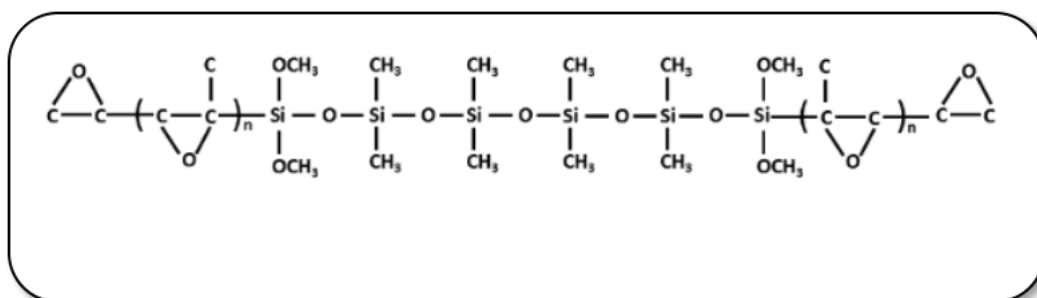
BLOCK SILICONE

Block Silicone

The evolution of silicone softeners reflects a continuous pursuit of enhanced performance and broader applicability. While initial versions were straightforward and functional, they presented certain drawbacks. Subsequent generations tackled these limitations, yet opportunities for optimization remained. The latest iterations, the third and fourth generations, represent significant advancements, establishing silicone softeners as the superior option for diverse uses



Silicone surfactants, known for their flexible molecular structure and ability to lower surface tension, are commonly employed to impart softness to fabrics. Despite the availability of various hydrophilic and epoxy/polyether modified polysiloxanes, these often fall short of meeting rising market demands and stringent performance criteria. Consequently, the development of novel silicone surfactants with enhanced properties is a key area of global research. While polydimethylsiloxane (PDMS) is inherently hydrophobic, attaching polar groups offers a straightforward method to introduce new functionalities to the silicone backbone. Such modifications enable the creation of innovative polymeric materials unattainable through traditional polymerization techniques.



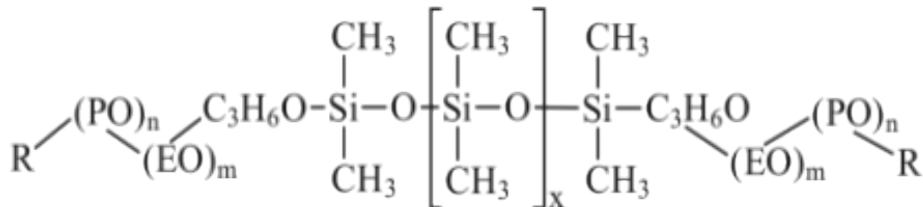
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Types of Block Silicone

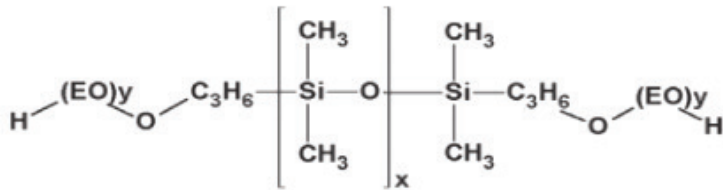
Alpha Omega Block -

These silicone polyethers are applicable where a large molecular mobility is required. This includes additives for leveling and flow control of high speed printing inks.



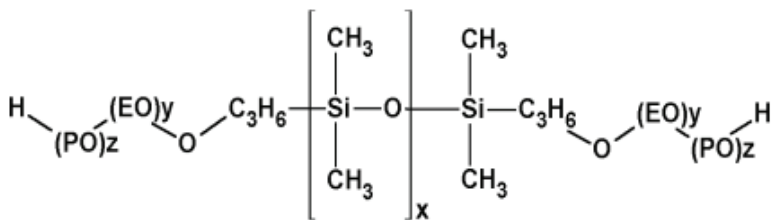
Polyoxyethylene (EO) Block -

Here polyoxyethylene blocks and dimethyl silicone blocks are joined through non-hydrolyzable silicone to carbon bonds. It functions as an emulsifier, wetting agent and profoaming additive for a variety of applications.



Polyoxyethylene/Polyoxypropylene (EO/PO) Block -

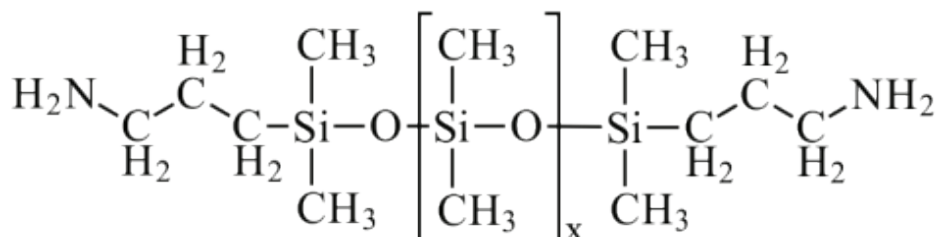
These blocks are joined through non-hydrolyzable silicone to carbon bonds. These find application in -wetting agent, thread lubricant systems.



(y and z are random)

Amine End Blocked -

These silicones are useful for adding flexibility and high temperature breakdown resistance.



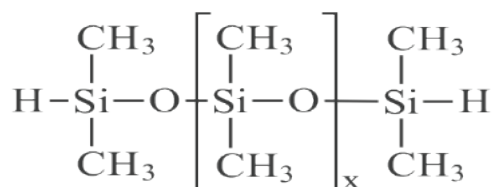
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Amine/Alkoxy End-Blocked -

These fluids impart a novel moisture curable system that produces a soft, flexible water resistant, protective coating. The products in this category are listed from fastest curing rate to slowest curing rate. The slow cure products thicken very slowly on exposure to moisture without forming a completely cured film.

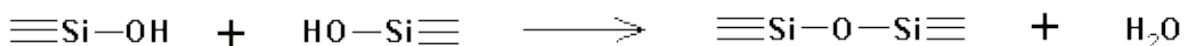
Hydride End-Blocked -

Such fluids having reactive hydride group on the ends of the chain, are used in chain extending reactions where minimal crosslinking is required.



Hydroxyl Functional Blocks -

Such silicone fluids can be reacted with other hydroxyl groups by the following condensation reaction



These fluids can be used to make silica more hydrophobic and are used in room temperature cured silicone products where high temperature stability and water repellency are important.

Polar Amine/Alkyl Functional Blocks -

This provides a versatile functionality which can be tailored for use in textiles and other applications. The presence of polar amine group enhances affinity.

