



## ORGANIC COMPOUND QUANTIFICATION BY ICP OES

**Polydimethylsiloxanes (PDMS)** is one of the most common silicon polymeric compounds, which consists of the characteristic repeating oxygen and silicon units in their backbone. The repeating unit, “siloxane” with methyl as its side groups-the structure is called polydimethylsiloxane.

*Pharmaffiliates has developed and validated a simple yet robust method for determination of PDMS (silicone) content by ICP OES in finished products packed in glass syringes. The ICP OES equipment at Pharmaffiliates is equipped with specialized accessories designed for analysis of organic solvents such as organic sample introduction kit, microflow nebulizer and 1.55mm sapphire injector.*

A successful method was developed without any complex sample preparation steps but utilizing extraction principles in organic solvent layer. Calibration standards were prepared using USP silicon standard with regression coefficient greater than 0.99 and LOQ of 2 ppm and good recoveries.



Fig : Zoom of Organic Sample Introduction System

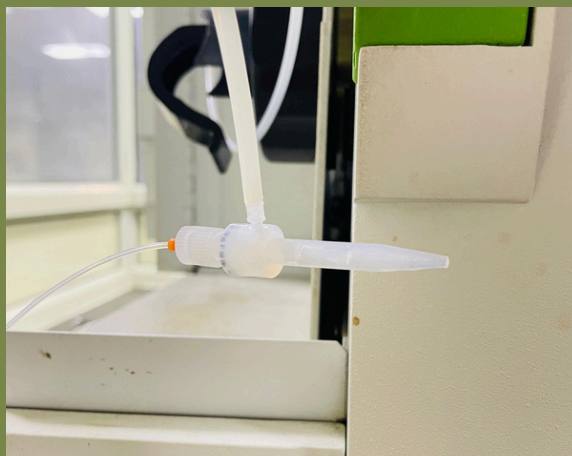


Fig : PFA-ST Microflow Nebulizer

There are several analytical techniques, which allow determination of silicone at trace levels such as FTIR, GC, NMR, GPC, SEC, ETAAS and ICP OES. The reliable quantification of PDMS is challenging due to their ubiquitous presence in the environment and their ability to stick to surfaces. Further, also high background of inorganic silicates from glass and high probability of external contamination from silicon rubber septa, O-rings, lubricants, sealants, tubing etc. Most methodologies have cumbersome sample preparation procedures and complex experimental set-up, which are hard to validate and monitor.

## Why Pharmaffiliates?

- **Specialized Expertise:** Benefit from our deep knowledge and experience in PDMS analysis across pharmaceuticals, herbal, ayurvedic, cosmetics, food, pulp and paper industries.
- **Robust Methodology:** We've developed and validated a straightforward yet reliable method for PDMS determination using ICP OES, tailored to meet the unique requirements of each industry.
- **Cutting-Edge Equipment:** Our ICP OES equipment is equipped with specialized accessories optimized for organic solvent analysis, ensuring accurate results.



Fig : Torch



Fig : Organic Glass Spray Chamber



Fig : Sapphire Injector  
1.5 mm ID

- **Streamlined Process:** Bid farewell to cumbersome sample preparation steps. Our method utilizes efficient extraction principles in organic solvents, making analysis seamless and efficient.
- **Precise Quantification:** With calibration standards boasting excellent regression coefficients and a low LOQ of 2 ppm, expect precise quantification and good recoveries.

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