

Headspace Crimp Cap Commonly Used for Residual Solvent Testing - Tech Information

Date: 22-APRIL-2012 Last Updated: 28-JANUARY-2026

In residual solvent testing—especially when following **USP <467>** guidelines—the choice of headspace cap and septa materials is critical to achieving accurate, reproducible results. The pharmaceutical industry overwhelmingly relies on crimp caps equipped with a silicone rubber / PTFE (polytetrafluoroethylene) septum because this combination provides the optimal balance of chemical resistance, seal integrity, and thermal stability required for headspace GC analysis.

Why Silicone / PTFE Septa Are Preferred for USP <467>

- **Excellent Chemical Barrier:** The PTFE layer faces the sample and acts as an inert, non-reactive barrier, minimizing extractables and preventing interaction between volatile analytes and the septum material.
- **Superior Resealability:** The silicone backing provides elasticity, allowing the septum to reseal after needle penetration and maintain vial pressure—important for consistent headspace sampling.
- **Heat Resistance:** These septa withstand the elevated temperatures commonly used in headspace ovens without degrading or releasing interfering compounds.
- **Regulatory Alignment:** The materials and performance characteristics align well with the stringent requirements of USP <467> for residual solvent analysis.

Common Headspace Crimp Cap Choice

One widely used option in pharmaceutical and analytical laboratories is MICROSOLV Catalog #95025-09-1S, a high-quality crimp cap designed specifically for reliability in volatile and residual solvent applications. This is just one of several suitable crimp caps available, but it remains a popular choice due to its robust performance, consistency, and compatibility with standard 20 mm headspace vials.

Importance of Using Proper Headspace Closures

A properly selected and installed crimp cap is essential for:

- Preventing sample evaporation or pressure loss
- Maintaining analyte integrity
- Ensuring consistent septum penetration and resealing
- Achieving accurate, repeatable headspace GC measurements

Even small variations in cap material or sealing quality can influence analytical results, which is why validated, industry-standard components are strongly recommended for regulated testing environments.

NOTE: Our catalog number [95025-09-1S](#) is one of many caps used. Click [HERE](#) for more information about Headspace vials and caps.

AUTOSAMPLER

VIALS AND CAPS

Printed from the Chrom Resource Center

Copyright 2025, All Rights Apply

MicroSolv Technology Corporation

9158 Industrial Blvd. NE, Leland, NC 28451

Tel: (732) 380-8900

Fax: (910) 769-9435

Email: customers@mtc-usa.com

Website: www.mtc-usa.com