Soft-Guard Septa and Caps Are Compatible with LCMS or LCMS - Tech Information

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LC-MS Compatibility of Soft-Guard™ Septa & Caps (and when to choose AQR™)

Selecting the right cap–septa system is essential for low background, robust needle penetration, and long-term autosampler reliability in LC-MS workflows. Soft-Guard™ caps feature high-purity silicone rubber and a cast PTFE facing designed to deliver clean baselines and consistent resealing across most LC-MS applications. In typical LC-MS methods, Soft-Guard™ caps outperform standard offerings due to material purity and manufacturing controls.

For the most demanding LC-MS(/MS) assays—e.g., sub-ppb quantitation, tricky ion-suppression environments, heavy gradient elution, or long queued batches—MicroSolv recommends the ultra-pure, colorless AQR™ line. AQR™ caps are engineered specifically for maximum cleanliness while still incorporating Soft-Guard™ technology, offering extremely low extractables and reliable resealing under aggressive solvent conditions.

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1) What "LC-MS compatible" means for caps & septa

- **Low extractables background:** High-purity silicone and **cast PTFE** minimize leachables that can show as ghost peaks or cause ion suppression.
- **Controlled penetration & reseal:** The Soft-Guard™ construction reduces needle stress, limits coring, and reseals consistently to prevent evaporation or carryover across long sequences.
- **Material selection for solvents:** The PTFE face provides broad solvent compatibility across common LC-MS mobile phases and high-organic gradients. (For highly aggressive conditions or ultra-trace targets, select AQR™.)

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2) When Soft-Guard™ is enough vs. when to step up to AQR™

Use **Soft-Guard™** caps for:

- Routine LC-MS quantitation where background limits allow low-ppb performance.
- High-throughput work that benefits from lower insertion force and reliable resealing to reduce missed injections.

Choose **AQR™ (with Soft-Guard™ technology)** for:

- Ultra-trace LC-MS(/MS) methods requiring the lowest possible extractables and colorless elastomer to avoid additive signatures.

- Methods especially sensitive to matrix-induced ion suppression or complex gradient programs where even minimal leachables matter.
- Long queued batches and stability-critical sequences where evaporation control and reseal integrity must be maximized.

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3) Practical selection & handling tips for technical users

- Match cap to vial family and thread (e.g., 9-425 screw caps for 12×32 mm vials) to maintain dimensional tolerances and sealing pressure. (See the product categories for vials, caps, and accessories.)
- Avoid over-torque: excessive tightening can deform septa and induce leaks or poor resealing; use consistent torque across trays. (Soft-Guard™ helps by reducing required penetration force.)
- Validate with blanks: When moving to more sensitive methods, run mobile-phase blanks and matrix blanks to confirm background is within your S/N requirements; upgrade to AQR™ if needed.
- Consider system needs: Needle geometry, injection volume, and idle times can influence whether Soft-Guard™ or AQR™ gives the best risk/benefit for your assay.

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4) Summary for LC-MS labs

- **Soft-Guard™ caps & septa**: LC-MS-compatible, low-extractable, reliable resealing; excellent for most LC-MS applications.
- **AQR™ caps (with Soft-Guard™)**: Ultra-pure, colorless option for **highest-sensitivity** methods and the tightest background limits.
- Pair with appropriate **vials and inserts** and follow consistent handling practices to maintain performance margins.

Click ***HERE*** for AQR caps ordering information.

Soft-Guard™ Caps
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