AQR Brand of Caps Can be Autoclaved - Tech Information

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AQR™ screw caps have been autoclave-tested using a standard gravity cycle and retained both their mechanical integrity and chromatographic cleanliness after sterilization.

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1) Validated Autoclave Cycle & Outcomes

- Cycle used: Approximately 30 minutes total in a gravity autoclave at 250 °F (121.1 °C) comprising 15 min sterilization and 10 min dry time.
- Mechanical result: Caps exhibited no warping or deforming and continued to perform per design specifications (i.e., seal integrity and thread engagement).
- Chemical result: No additional extractable peaks were observed from the septa or caps post-autoclave—chromatograms before vs. after showed no extra peaks. This indicates the materials and bonding in AQR™ caps withstand typical moist heat sterilization without leaching artifacts.

Practical takeaway: If your method or facility requires pre-use sterilization (microbiology interfaces, aseptic sample prep, stability studies, or regulated workflows), AQR™ caps can be autoclaved without compromising chromatographic background or seal performance.

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2) Broader Compatibility Notes (Vials)

- Vials: The same resource notes RSA™ and AQ™ brand vials can be autoclaved in a similar fashion to AQR™ caps, offering a complete sterilizable container-closure system when needed. Always validate for your specific method and regulatory requirements.

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3) Technical Guidance & Best Practices

1. Cycle selection
   Use the validated gravity cycle (121.1 °C) parameters described above. If you must run pre-vac or extended cycles, perform a small lot verification (visual inspection + blank injections) before broad deployment.
2. Post-autoclave verification
   - Run mobile-phase blanks and, if applicable, matrix blanks to confirm no new baseline features appear after sterilization.
   - Confirm cap torque/fit; thermal cycling can slightly alter cap-to-vial seating until cooled and dried. (General autosampler cap handling.)

3. Materials awareness
   AQR™ caps are engineered for low extractables in high-sensitivity LC/LC-MS workflows. After autoclaving, this behavior remained unchanged in the internal testing cited above, but method-specific confirmation remains part of good laboratory practice.

4. When to escalate testing
   If your lab uses aggressive solvents, unusual storage conditions, or repeated autoclave cycles, schedule periodic checks (chromatographic blanks and visual inspections) and keep lot traceability in your method files. (General vial/cap selection & QA practice.)

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4) FAQs

- Do I need to change septa after autoclaving?
  Not typically, based on the reported results (no deforming, no added extractables). Replace only if mechanical damage, visible defects, or sealing anomalies are observed in your verification step.
- Can I autoclave the entire vial + cap assembly?
  The source confirms AQR™ caps and RSA™/AQ™ vials tolerate the gravity cycle. If autoclaving assembled units, ensure caps are fully seated and allow adequate dry time to prevent moisture entrapment under the septa. Validate per method.

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5) Summary for Technical Users

- AQR™ screw caps: Autoclave-compatible at 121.1 °C gravity cycle, retaining seal integrity and low-background performance (no new extractables).
- RSA™ / AQ™ vials: May be autoclaved similarly for complete sterilizable workflows—verify in method.
- Best practice: After any sterilization change, run blank comparisons and document lot/cycle details in your method records.

Click HERE for ordering information and pictures of AQR caps.

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