Autosampler Vials Should Not be Used in a Centrifuge - Tech Information

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Short answer (with a critical exception)

In general, standard autosampler vials and inserts are *not* designed for centrifugation and should not be used in a centrifuge due to the risk of cracking, deformation, or breakage under load.

Exception: MICROSOLV MRQ™ (center-draining / Max Recovery™) style vials—available in AQ™, RSA™, and RSA-Pro™ versions — are engineered with thicker walls and single-piece construction. When used with a compatible centrifuge and adapters, they **can withstand up to 6,000 × g.**

Why most vials shouldn't be spun

Typical 12×32 mm glass or plastic autosampler vials are optimized for dimensional fit, chemical inertness, and injection reliability, *not* for the high radial stresses of centrifugation. Rotational loading can generate microcracks at the base or neck, causing catastrophic failure or dimensional creep that compromises subsequent seal integrity and autosampler alignment. Vendor specifications therefore do not support centrifugation for standard vials.

When centrifugation is required (clarification, phase break, or pellet)

Choose MRQ™ / Max Recovery™ (center-draining) vials in AQ™, RSA™, or RSA-Pro™ brands and observe these constraints:

1. g-limit: Do not exceed 6,000 × g even with MRQ™ / Max Recovery™ vials.
2. Hardware compatibility: Use an appropriate vial-specific rotor/adapters—MICROSOLV references The Vial Centrifuge™—that support the full vial body evenly to prevent point loading and glass stress.
3. Balance and symmetry: Load vials in balanced pairs or multiples; imbalance magnifies bending moments and accelerates failure risk.
4. Visual inspection before/after: Check for chips, hairline cracks, ovalized finishes, or thread damage that could later cause leaks in LC/GC autosamplers.
5. Document method limits: Note vial type, brand, g-limit, rotor type, and spin time in your method file/SOP for auditability and reproducibility.

Selecting vials by use case

Use case	Recommended vial approach	Notes

No centrifugation (routine LC/GC/LC-MS)	Any appropriate MicroSolv vial family selected for solvent/sample chemistry *(e.g., AQ™, RSA™, plastic PP)*	Choose by adsorption/cleanliness needs; centrifuge **not** supported for standard vials.
Gentle to moderate spin (sample clarification, phase separation)	**MRQ™ / Max Recovery™** (center-draining) in AQ™, RSA™, or RSA-Pro™	Up to 6,000 × g with compatible adapters *(e.g., The Vial Centrifuge™).*
High-g pelleting (>6,000 × g)	Not supported with autosampler vials	Use microcentrifuge tubes designed/validated for high g-loads; transfer to vials post-spin.

Practical tips to protect data integrity

- Minimize spin time & g-load to what's method-necessary; higher energy and longer durations raise failure probability.
- Cap off before spin where appropriate to avoid septa deformation; re-cap with consistent torque before autosampler use. (General best practice aligned with vendor guidance.)
- Post-spin leak check: A quick inversion or brief vacuum/pressure check on a few samples can reveal marginal seals before a long LC sequence.
- Storage & handling: Use compatible racks/boxes to prevent impact and neck damage after centrifugation.

Key takeaways

- Standard autosampler vials are not supported for centrifugation.
- MRQ™ / Max Recovery™ vials (AQ™, RSA™, RSA-Pro™) can be centrifuged up to 6,000 × g only with compatible holders/adapters.
- Record vial model and g-limit in your SOPs; for >6,000 × g, use dedicated centrifuge tubes and transfer to vials after spinning.

🔗 Helpful Links

- Click ***HERE*** for MRQ™ Center-Draining Vials – Ordering Info & Images
- Click ***HERE*** for Max Recovery™ Vials – Ordering Info & Images
- Click ***HERE*** for The Vial Centrifuge Product Page

AUTOSAMPLER
VIALS AND CAPS

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