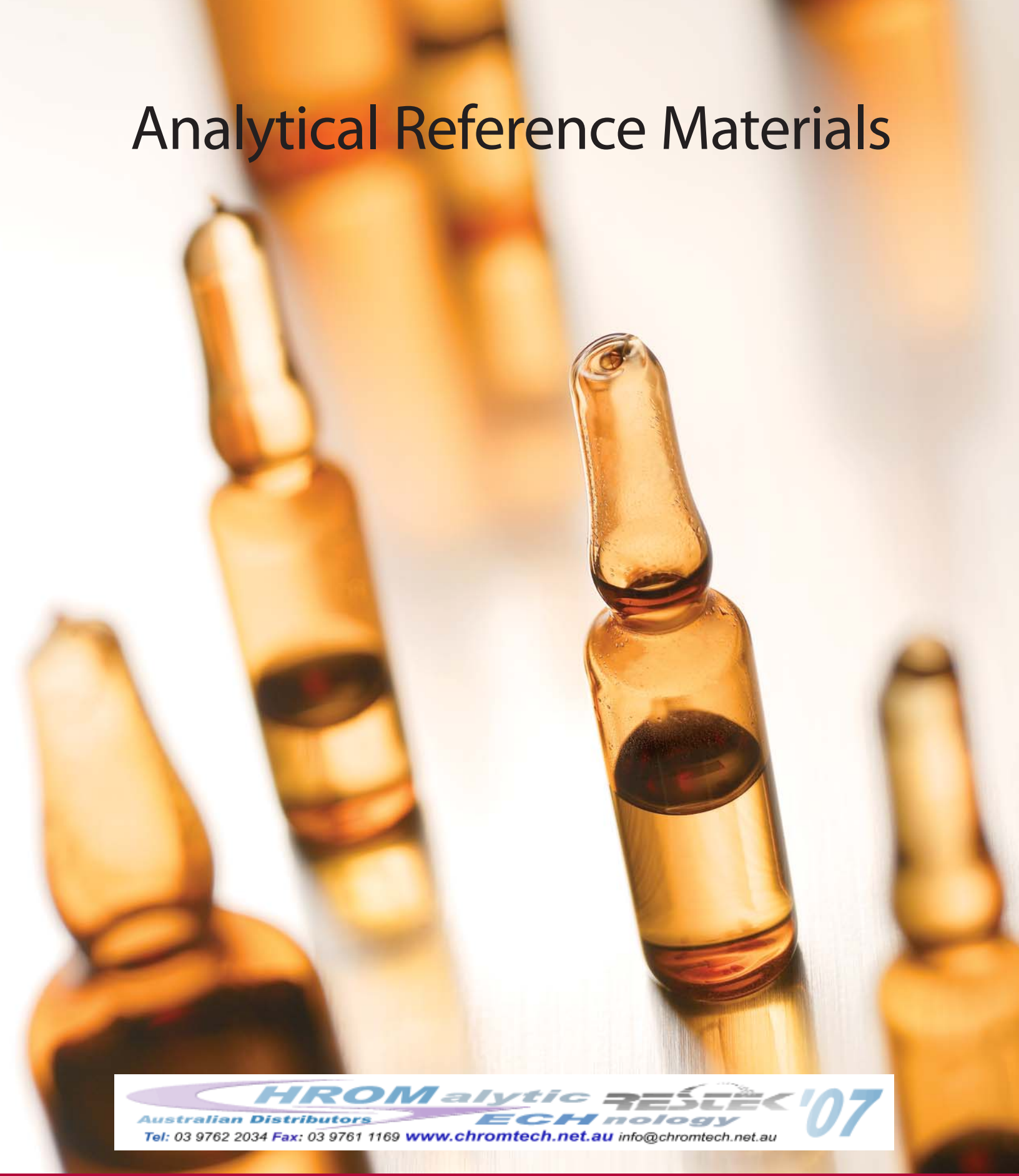
Analytical Reference Materials



RESTEK

Chromatography Products

www.restek.com 800-356-1688 • 814-353-1300

12 CRITICAL STEPS

in reference materials production that separate Restek from the rest!

1 Review Method Requirements

We carefully review the method to determine compound requirements and stock concentrations needed to produce working solutions. Confirming required purity of raw materials and reverifying documentation needed to meet audit requirements are important aspects of this review.

2 Verify Compatibility and Stability

We review chemical compatibility with a goal of long-term stability. We specify raw material purity and mixture composition, and test experimental batches.

3 Thoroughly Characterize Raw Material

We perform GC/FID and/or GC/MS analyses on each solvent and mixture component to confirm identity and determine purity. In addition, we use non-chromatographic techniques to detect water, residual catalysts or surfactants, or inorganic contaminants not detected by chromatographic techniques.

4 Calibrate Balances

Calibration of all analytical balances is verified at seven mass levels each day, using NIST-traceable weights. Balances are serviced and certified by an outside organization, using NIST weights.

5 Deactivate Glassware and Ampuls

Weight/volume mixtures are prepared in ASTM Class A volumetric flasks, using Class A pipettes. All glassware, ampuls, and vials used in product preparation and packaging are deactivated to prevent loss of target analytes through adsorption to glass surfaces.

6 Prepare Two Independent Lots

Two independent preparers, using two independently calibrated analytical balances, prepare two lots of a mixture. Details of preparation are annotated on the certificate of analysis.

7 Assay to Assure Quality

Ampuls from each new lot are analyzed and data are compared to previous lots. Consistent relative response factors for difficult mixtures demonstrate that our production processes are accurate, consistent, reliable, and well controlled.

8 Assign Real-Time Expiration Dates

Expiration dates are assigned to a lot of material based on real-time expiration studies. We retain sample ampuls from each lot of material, and compare data from the earlier lots against data from the newest lot. For new formulations, we make these comparisons every 6 months for 2 years. We continue this study until we determine the shelf life of the product.

9 Use Customer-Friendly Product Packaging

Restek ampuls are packaged in clear plastic shells, so you can see the contents and any special precautions or storage conditions. We also include an ampul breaker, a deactivated screw-top vial to store unused solution, an extra product label to attach to the vial or your lab notebook, and a hazard card summarizing special precautions.

10 Prepare Documentation

Our data pack contains every record, from raw material identity verification and purity data through final testing. Free data packs for our quantitative environmental mixtures are available on our website at **www.restek.com/datapacks**. A certificate of analysis and MSDS are included for all mixtures, and also are available from our website.

11 Comply with ISO 9001:2000 Registration

You can have complete confidence in our documented procedures, and in the accurate, reproducible reference materials we produce.

12 Offer a Custom Reference Materials Program

We can prepare custom mixtures to your specifications under the program we've outlined here. Contact us with your special requirements, and join the thousands of chromatographers worldwide who use Restek custom mixtures. A form for ordering custom materials is on the back page-or, contact us electronically, through our website.

searching for the **perfect** solution?

For our Custom Reference Materials Request Form, see the back page, or visit our website at **www.restek.com/solutions**.

Searching for the **perfect** solution?

Take these eight steps to create the right solution:

1. Mixture Description: _____

2. Solvent: _____

3. Number of Components: _____

4. Volume per ampul (select): 1mL, 2mL, 5mL, 10mL or other _____mL

5. Quantity of ampuls: _____ (no minimum order)

6. Testing and documentation that best meet your requirements:

- ❍ Gravimetric Documentation: Gravimetric Certificate.
- ❍ Qualitative Documentation: Certificate of Composition and Chromatogram.
- ❍ Quantitative Documentation: Certificate of Analysis and Data Pack.

7. Compound(s) (list or attach sheet)

		CAS Number	Concentration
Compound 01:	_____	_____	_____
Compound 02:	_____	_____	_____
Compound 03:	_____	_____	_____
Compound 04:	_____	_____	_____
Compound 05:	_____	_____	_____
Compound 06:	_____	_____	_____
Compound 07:	_____	_____	_____
Compound 08:	_____	_____	_____
Compound 09:	_____	_____	_____
Compound 10:	_____	_____	_____

8. Concentration Units

❍ mg/mL ❍ µg/mL ❍ ng/mL ❍ vol./wt. % ❍ wt./wt. % ❍ other_____

Contact Information:

Name: _____ Date: _____

Company/Location: _____

_____

Phone #:_____ FAX #: _____

E-mail: _____

ALL mixtures are produced in accordance with our ISO 9001:2000 registration.
Analytical balances are calibrated daily at seven mass levels using NIST traceable weights.
ALL raw materials used are a minimum of 97% pure unless otherwise specified.

U.S. Customers • **FAX#:** (814) 355-2895 • **email:** standards@restek.com • **online form:** www.restek.com/solutions

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RESTEK

Lit. Cat.# 59214A

ISO 9001:2000 cert.# FM80397