

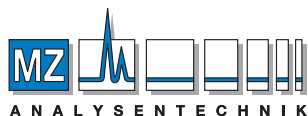
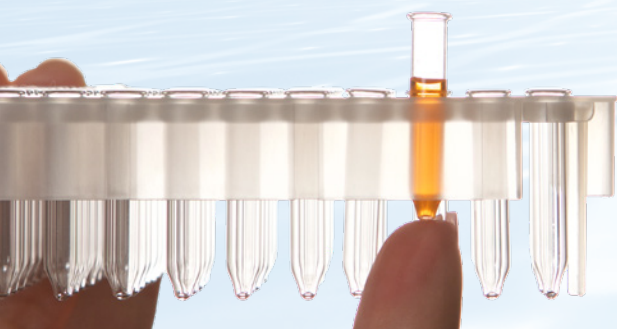
**RSA-Pro X™**  
HYDROPHOBIC GLASS VIALS

**A New Permanent Surface  
Treatment for RSA™ Glass**



# HYDROPHOBIC

- » Prevent Adsorption of Hydrophilic Compounds to Glass Autosampler Vials
- » “Total” Hydrophobic Surface Coverage
- » Extreme Hydrolytic Stability
- » Autoclave or Freeze
- » Better Than Silanizing



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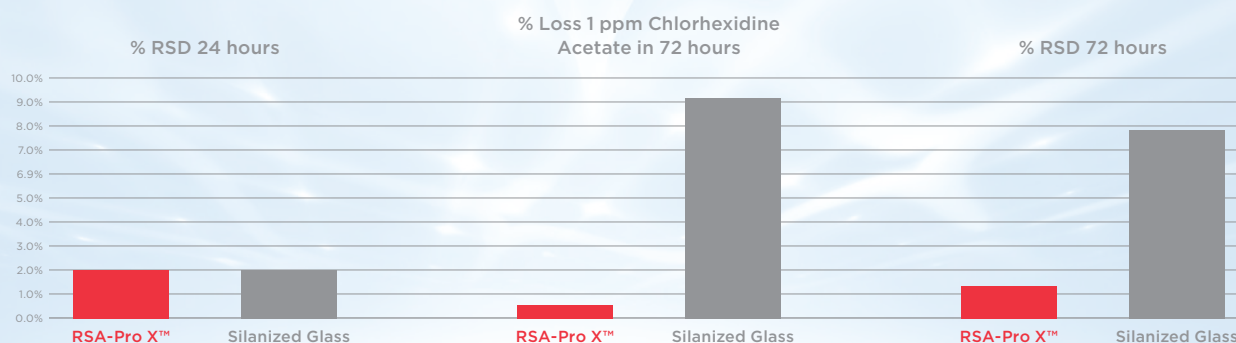
**MICROSOLV** TECHNOLOGY CORPORATION

# New Hydrophobic Glass Autosampler Vials & Inserts with *Extreme Hydrolytic Stability*

## Value Proposition

The **RSA-Pro X™ Technology** was developed for neutral and acidic compounds that are “sticky” with glass surfaces as they interact with the glass structure itself, including siloxane bridges and common surface metals. Proteins, peptides, enzymes and many other compounds fall into this category and often require a “deactivated” glass surface treatment known as silanization to be used. In this process a gaseous silane is applied to convert the glass surface from its natural, hydrophilic state to one that’s hydrophobic. This is old technology with many pitfalls including lack of 100% coverage of the glass, delamination of the coating exposing sections of raw glass and the total loss of the coating over time in the presence of water. These factors often render silanized glass into expensive ordinary glass vials with lost samples, data corruption and work that must be repeated.

## BETTER THAN SILANIZED



*This graph displays data from our lab demonstrating the range of quantitative differences in silanized glass vials versus the RSA-Pro X™ vials over 72 hours, in aqueous conditions compared to “silanized” glass vials.*

*Vials were prepared with 1ppm of Chlorhexidine Acetate in a diluent of DI Water. Samples analyzed within 24 hours show little to no difference of % RSD data, whereas the quantitation over 72 hours illustrates not only that there is some sample loss but that the variability of quantitation in time worsens and can become more and more problematic.*



### WHAT IS RSA-PRO X™ TECHNOLOGY?

A proprietary surface treatment of RSA™ vials to a permanent hydrophobic state that won't degrade with time or in the presence of water. This treatment renders the hydrophobic glass surface very hydrophobic and hydrolytically stable that won't bleed or leach into your chromatograms.

### HOW IS RSA-PRO X™ MANUFACTURED?

Starting with the pristine RSA™ vials an advanced process with covalent bonding of a special compound is applied that completely covers the RSA™ surface making it fully hydrophobic.

### TESTED FOR SURFACE TENSION AND HYDROPHOBICITY

Every batch of RSA-Pro X™ Glass is Tested for surface tension and hydrophobicity. Certificates of Conformance for these QC tests are available and lot support for investigations are available at no charge if needed.

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**RSA-Pro X™ Vials Achieve  
Vial to Vial, Lot to Lot Consistency**

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### GREAT BENEFITS OF RSA-PRO X™ TREATED VIALS

Great benefits of RSA-Pro X™ treated vials is significantly improved Quantitation %RSD from run to run, day to day and vial to vial. You can expect improved data with basic, acidic or neutral compounds including these additional benefits:

- » Get Higher Recovery of your Analytes
- » Produce Higher Sensitivity
- » Improved %RSD, Batch to Batch, Vial to Vial

### WHO SHOULD USE RSA-PRO X™ VIALS AND INSERTS?

- » If you're analyzing hydrophilic analytes such as most proteins, peptides, enzymes and other compounds and need the best container to ensure that your chromatography is the best possible.
- » If you're working with unstable compounds that interact with glass or react with surface metals that are inherent in ordinary borosilicate glass vials.
- » If you need to store compounds for more than 2 weeks or need to transport them.
- » If you have used silanized vials and inserts and have noticed problems with less than complete coverage, inconsistent results from vial to vial, loss of hydrophobicity in water after 2 weeks.

## ACHIEVE BETTER DATA



### Prevent pH Changes in the Vial:

In the manufacturing of ordinary borosilicate glass, autosampler vials, “release agents” are needed and used in the process. These agents are a contamination in the vial and can cause the pH of water based diluents to increase by up to 1.5 pH units over a four-hour period. RSA-Pro X™ vials do not contain any of this common residue and gives you comfort knowing that your chromatography will not change during this period due to pH changes from an invisible vial contamination.



### Great for Bio Active

#### Compounds:

Prevent hydrolysis in the vial. Hydroxyl groups found on the surface of all ordinary glass autosampler vials can become very acidic causing hydrolysis of compounds and reduce bio-activity. The RSA-Pro X™ vial surface has virtually zero exposed silanols or hydrophilicity, making them mostly inert for compounds that are susceptible to acidic degradation.



### Hydrophobic Glass

Will Not Adsorb

Hydrophilic Compounds as they ensure quantitation and

precision, run to run with minimal sample adsorption.

In comparison, ordinary borosilicate glass autosampler vials, will bind many Hydrophilic compounds due to their surface chemistry.

RSA-Pro X™ vials have a hydrophobic surface and every batch is tested for low adsorption and hydrophobicity. Analysis quantitation using these vials is, very precise as they eliminate high %RSD, vial to vial and lot to lot. To prevent “Investigations” due to glass vials retaining or degrading your samples, which are especially noticeable in low sample concentrations or low dosage forms, use RSA-Pro X™ Vials and Inserts.



### Prevent Adducts Seen in LCMS from the Vials:

During the manufacturing process for all ordinary autosampler vials, if the process is not controlled properly, metals such as sodium accumulate on the surface of the glass. These elements create adducts that can cause issues for your LCMS data. All batches of RSA-Pro X™ vials are tested for and have extremely low metal content, making them ideal for LCMS, LCMS/MS and GC/MS.



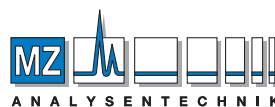
### Cleanest Vials on the Market:

Prevent spurious peaks from glass. The RSA-Pro X™ vial manufacturing process is conducted in an ultra-clean glass conversion facility without the use of any release agents, grease or glass additives. The entire process is fully automated and the vials are never touched by human hands. This provides assurances for the cleanest vials without using a wash process which causes contamination with residual surfactants or acids of the finished vials.



### Superior Dimensional Control:

Protect your sample needle and instruments. RSA-Pro X™ vials are manufactured with the same dimensional tolerances as our AQ™ Brand (i.e. Best in the Industry) vials to meet the most demanding needs of all autosamplers on the market. This includes bottom height control which is critical for Waters® autosamplers. Compare RSA-Pro X™ vials to the internal dimensional control of other HPLC and LCMS Certified™ products on the market.



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