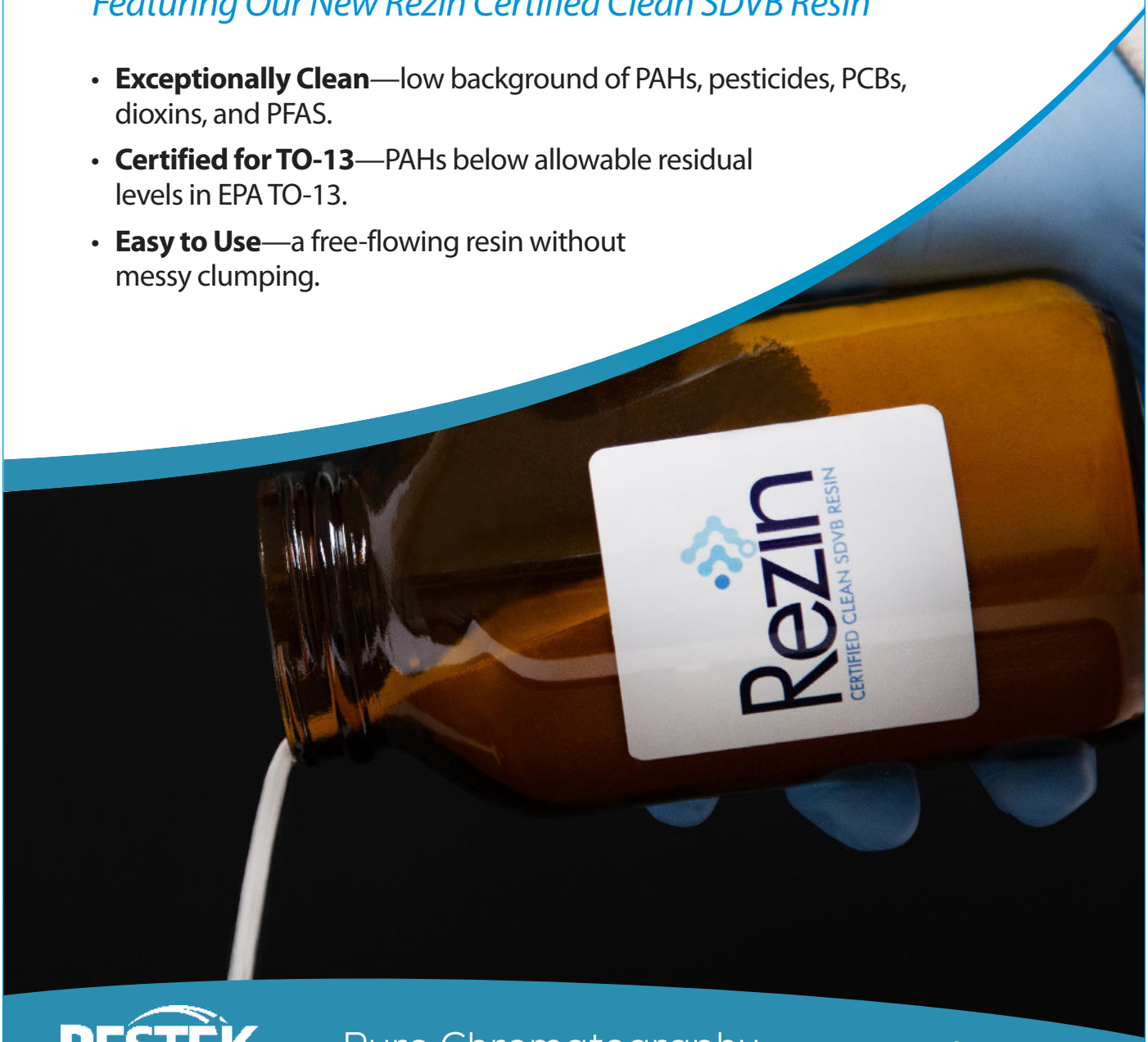
Air Analysis

Exceptionally Clean Resins for Air Analysis

Featuring Our New Rezin Certified Clean SDVB Resin

- **Exceptionally Clean**—low background of PAHs, pesticides, PCBs, dioxins, and PFAS.
- **Certified for TO-13**—PAHs below allowable residual levels in EPA TO-13.
- **Easy to Use**—a free-flowing resin without messy clumping.



RESTEK Pure Chromatography www.restek.com

A Resin Family Developed by Air Analysis Experts

From requiring exceptionally low levels of background to being easy to use, Restek's air chemists understand the challenges labs face when using styrene divinyl benzene (SDVB) resins. Our decades of experience with semivolatile organic compound (SVOC) sampling have helped us develop two resins designed to meet the needs of air analysis labs.

Rezin Certified Clean SDVB Resin

Rezin is a premium, exceptionally clean SDVB resin. A new proprietary cleaning method—designed by our expert chemists—has produced a resin with exceptionally low background levels of contaminants, including PAHs, pesticides, PCBs, PFAS, and dioxins. Rezin adsorbent is below the allowable residual PAH levels in EPA method TO-13 and is certified to show it surpasses these method requirements.

Additionally, Rezin adsorbent is specifically developed for use straight from the bottle. Many applications will not require any further cleaning, eliminating the need for labs to perform this costly, time-consuming step.

Clean SDVB Resin

Clean SDVB resin is ideal for labs needing a reliable and economical solution for SVOC sampling. Using the same base resin as our premium Rezin adsorbent, Clean SDVB resin is rigorously cleaned and purged prior to being bottled. For analyses that don't require the extensive cleanliness and low background levels of contaminants provided by Rezin adsorbent, Clean SDVB resin is a great option.

Exceptional Cleanliness in Every Bottle

Both Rezin certified clean SDVB resin and Clean SDVB resin are used for the active sampling of ambient air and stack gas to collect semivolatile samples, such as airborne polyaromatic hydrocarbons (PAHs); pesticides; PCBs; PFAS; and dioxins. When used for sampling methods; like EPA TO-13 and OTM-45, the cleaned resin is typically placed in a glass holder and held in place with cleaned polyurethane foam plugs or glass frits. Air is pulled through the resin with the aid of a vacuum pump for a set period, after which the resin is removed from the holder and extracted. The extract is then prepared for analysis.

Restek SDVB resins have equivalent physical properties to an XAD-2 resin (Table I).

Table I: Physical Properties of Restek's Resins

Particle Parameter	Specification
Particle Size Distribution	20-60 mesh
Average Surface Area (m^2/g)	350-360
Average Density (g/mL)	1.10-1.15
Average Pore Diameter (Å)	90-100
Average Pore Volume (mL/g)	0.65 +/- 0.1

SDVB resins have inherently high residues left by the manufacturing process, so they must be cleaned using various solvent washing techniques. The analytes being tested will dictate the cleaning techniques and level of acceptable residues. SDVB resins have a high concentration of naphthalene and other PAHs that must be removed to meet the requirements of methods, such as TO-13. We use TO-13 method requirements to certify our Rezin adsorbent meets or exceeds the expected residue specifications (Table II).

Table II: Excerpt from Rezin Certified Clean Resin's Certificate of Analysis

Test	Specification*	Result
Naphthalene	<750 ppb	Pass
Other PAHs†	<150 ppb each	Pass

*PAHs by TO-13 with 20 g of Rezin material used for sampling results in acceptable PAH residue levels.

†Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, 1-Methylnaphthalene, 2-Methylnaphthalene, Phenanthrene, Pyrene

While cleaned resins may have residue levels that are acceptable for specific sampling methods, some residues may remain for other compound classes, necessitating the need for further cleaning. For sampling that requires lower detection limits, Rezin certified clean SDVB resin is ideal due to its greatly reduced residues compared to Ultra-Clean resin and other resins. Depending on your analysis, it may be possible to use Rezin adsorbent directly from the bottle, or if cleaning is required, it will be less intensive compared to other resins.

The ubiquitous presence of PFAS compounds in the environment and the low levels required for analysis means special handling is recommended to ensure cleaned resins remain PFAS free. As such, we have tested Rezin adsorbent for other residues, including PFAS, PCBs, and dioxins. Most analytes tested are below detection limits, or are very low in concentration, if present. Note we do not routinely QC test Rezin adsorbent for these compounds, which is why its certification credentials are focused on TO-13.

Exceptional Cleanliness Compared

While other cleaned XAD-like resins are available from other manufacturers, the residue levels for some compounds are orders of magnitude higher than Restek resins (Table III).

Table III: Exceptional Cleanliness Brings Exceptional Performance

	Restek		Competitor A		
	Rezin Certified Clean SDVB Resin (ppb)	Clean SDVB Resin (ppb)	XAD-2 Resin A (ppb)	XAD-2 Resin B (ppb)	XAD-2 Resin C (ppb)
PFBA	0.1539	2.409	3.288	4.661	1.324
PF4OPeA	ND	3.221	0.611	0.469	0.265
ADONA	ND	0.315	0.424	0.569	0.315

ND = Not Detected
All other OTM-45 compounds tested were not detected in Rezin adsorbent.

Additionally, competitor products are not free-flowing, which makes sample handling difficult. Rezin certified clean SDVB resin is purged of residual solvent and sieved and homogenized before packaging. The result is a smooth, free-flowing resin that's free of clumping, making it easier to use and cleaner for your lab.

Rezin Certified Clean SDVB Resin, 100 grams

27242

- **Exceptionally Clean**–Our new proprietary cleaning method has produced a resin with exceptionally low background levels of contaminants, including PAHs, pesticides, PDBs, dioxins, and PFAS.
- **Certified for TO-13**–Rezin adsorbent is below the allowable residual PAH levels in EPA method TO-13 and is certified to show it surpasses these method requirements.
- **Designed to Be Used Straight from the Bottle**–Many applications will not require any further cleaning, eliminating the need for labs to perform this costly, time-consuming step.
- **Easy to Use**–Sieved and homogenized prior to packaging, Rezin is a free-flowing resin that can easily be extracted from the container without any messy clumping.

Product Name	Units	Cat.#
Rezin Certified Clean SDVB Resin	ea.	27242

Clean SDVB Resin, 100 grams

24230

Clean SDVB resin is ideal for labs needing a reliable and economical solution for semivolatiles sampling. Using the same base resin as our premium Rezin adsorbent, Clean SDVB resin is rigorously cleaned and purged prior to being bottled to minimize PAHs.

If your analysis requires extensive cleanliness and low background levels of contaminants, we recommend Rezin certified clean SDVB resin (cat.# 27242).

- Ideal for adsorbing semivolatiles in air.
- Cleaned and GC tested.
- Available in 100 gram quantities.

Product Name	Units	Cat.#
Clean SDVB Resin	ea.	24230

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Lit. Cat.# EVSS4390A-UNV