

Up to 921077-05

921077-05

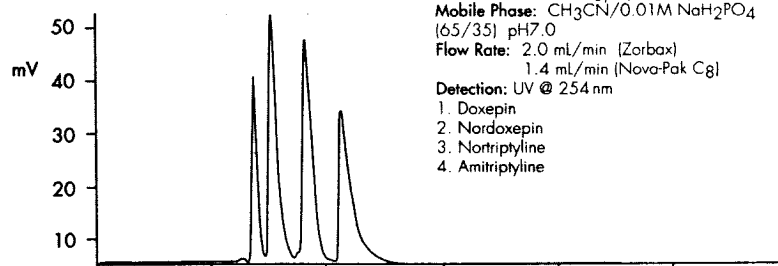
Waters Nova-Pak® Columns and Cartridges Help You Get Reliable, Reproducible Results

Today's analytical separations require rugged, efficient columns that will give you reliable results with each new column you use. Where else would you look for such a column than from Waters, with over 20 years experience in developing and manufacturing HPLC columns. Waters's unique cGMP chromatography manufacturing facility is designed to synthesize chromatographic packings. Over 50 QC tests are conducted to ensure quality and reproducibility at every step of the manufacturing process.

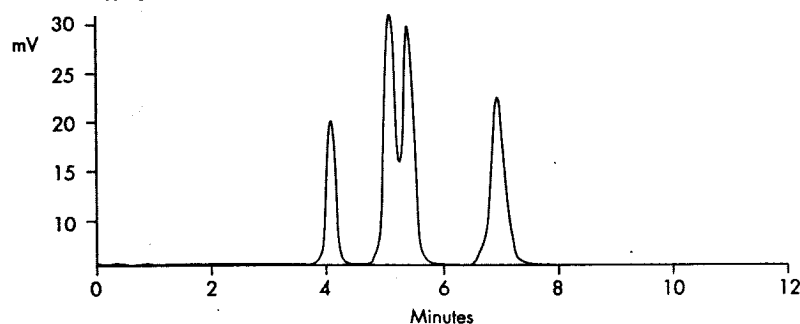
Nova-Pak 4 μ m and Prep Nova-Pak HR 6 μ m spherical packings, manufactured exclusively by Waters, give you the efficiency you expect from today's analytical columns and the reproducibility and durability you need. Nova-Pak 60Å packings are precisely controlled for surface area, pore distribution, and pore volume. Bonding of the C₁₈, C₈, phenyl or cyano ligands onto the packings provides a controlled monolayer for rapid mass transfer. Waters unique sequential end-capping procedure with mono-functional silanes ensures the optimal coverage for the stability and selectivity needed to separate all compound classes and provides the very best column-to-column reproducibility you can get.

Figure 1: Separation of Four Tricyclic Antidepressants on a Nova-Pak C₈ Column vs. a "Base-Deactivated" Column

Nova-Pak C₈ 3.9 mm x 150 mm



Zorbax® Rx C₈ 4.6 mm x 150 mm



Nova-Pak packing material has low surface activity (acidity) and is exhaustively end-capped to minimize silanol interactions and provide improved peak shape for basic molecules (reducing the need for mobile phase additives such as amine modifiers).

Column accountability: Do you know where your column comes from?

Waters's manufacturing facility provides traceability for every packed column and documents complete batch information for the packing material used in every column. We can tell you when it was tested, who tested it and results of the tests for a column packed 3 months ago or 3 years ago. We can trace the production of the Nova-Pak packing material back to its raw materials from the serial number on each Waters Nova-Pak column.

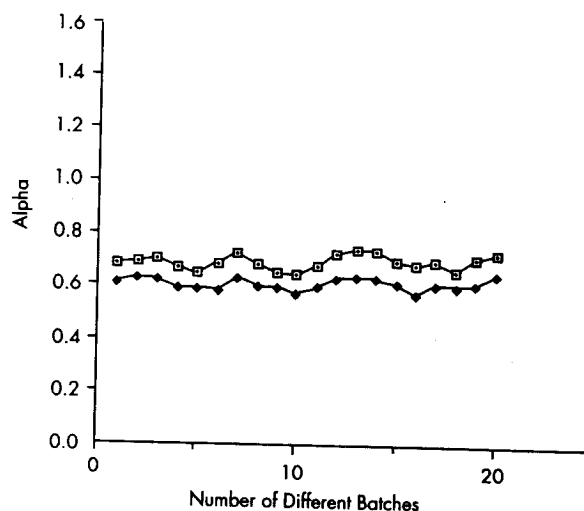
With all this documentation, we can guarantee that when you buy your next Waters Nova-Pak column it will perform the same way as your last column. And, if your method needs to be duplicated at locations around the world, your colleagues will get the same high quality column from their local Waters office.



Figure 2: Data from 20 Batches of Waters Nova-Pak C₁₈ Packing Material Show Guaranteed Reproducibility for Over Six Years of Manufacturing History

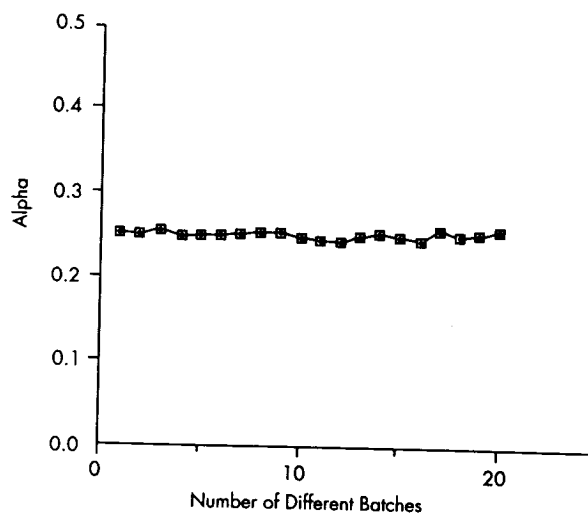
A) Selectivity (alpha) for two base/neutral pairs of compounds

This chart demonstrates why you can count on Nova-Pak columns for guaranteed reproducibility from one column to the next. Nova-Pak packing material has always been tested for reproducible retention times for basic compounds. The data represent 20 different batches of Nova-Pak C₁₈ packing material.



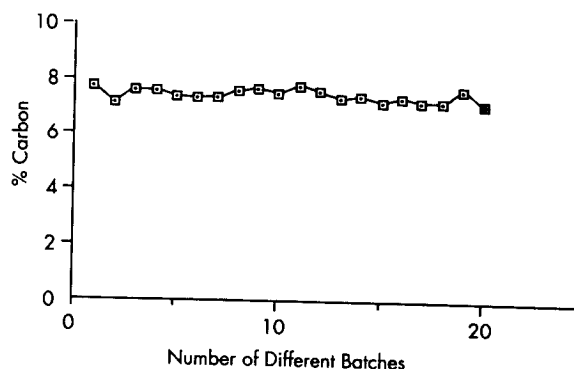
B) Selectivity (alpha) for toluene/acenaphthene

These data were collected from chromatograms of two peaks (toluene and acenaphthene) run on columns from 20 batches of Nova-Pak C₁₈ packing material.

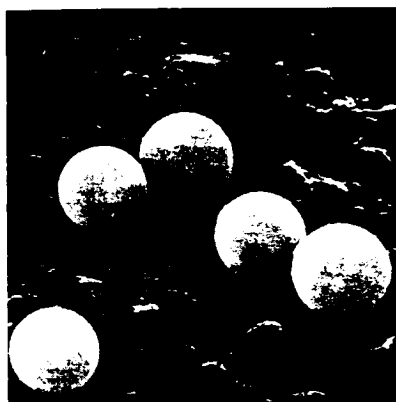


C) % Carbon Load

These data show the consistent carbon load on 20 different batches of Nova-Pak C₁₈ packing material guaranteeing reproducible chromatographic results column to column, year to year.



The figures above show data from batch tests run on all Nova-Pak packing material. Data were collected over the past six years of manufacturing. These tests guarantee reproducible chromatography and peak symmetry.



Electron Microscopy helps characterize and qualify the morphology of 4 μm and 6 μm spherical particles used in Nova-Pak and Prep Nova-Pak HR columns.

For ordering information on Nova-Pak columns, see page 30. For more information on Waters Nova-Pak columns, please check box number 5 on the business reply card and you will receive the 1992 Sourcebook of Chromatography.

Table 1: Over 50 Individual QC Tests Ensure Reproducible Results

Partial list of tests performed on Nova-Pak base silica

Test	Measures	Assures
Mercury porosimetry, BET and Inverse SEC	surface area, pore volume, pore size distribution	reproducible chromatography
Plasma emission	metals	reproducible chromatography
Sedimentation Field flow fractionation	particle size, particle distribution	efficiency, packed bed stability
Electron microscopy	particle shape	efficiency, packed bed stability
NMR, FTIR	silica surface chemistry	minimal and reproducible silanol interactions

Partial list of tests performed on Nova-Pak bonded phases

Test	Measures	Assures
Carbon analysis, silica analysis	% wt/wt bonded phase/ alphas, good RSDs	reproducible chromatography
Chromatography of acids, neutrals and bases	extremes of silanol analyte interactions and peak symmetry	reproducible chromatography
Thermogravimetric analysis	proper and uniform drying	reproducible silica activity
Coulter Counter distribution & fines	particle size determination	efficiency, packed bed stability, low backpressure
NMR	surface chemistry	reproducible chromatography

Partial list of tests performed on Nova-Pak packed columns

Test	Measures	Assures
5 σ test for efficiency	band broadening at 4.4% peak height	most sensitive test for column efficiency

U.S. Grants Assistance Program

We are pleased to announce the start of the Millipore Grants Assistance Program (in the U.S.). This free service is designed to help university and not-for-profit organizations obtain grant funding for Millipore equipment.

This service includes searches of a database of over 4,000 private and public grant programs to determine the appropriate funding source to apply to, and expert grant proposal review by the Millipore Grant Review Board.

To learn more, please call a Millipore Grants Associate at 301-441-4532, there is no obligation.