

Agilent Technologies

Innovating the HP Way

Upgrading 5973Network MSDs

Introduction

The family of 5973Network MSDs provides flexibility to your organization by offering an expanded number of configurations and the ability to upgrade from one configuration to another. Such an approach enables laboratories to select the particular MSD configuration most appropriate to their business needs at the time of purchase while having the assurance that their capital investment can be enhanced in the future.

Figure 1 summarizes the selection of 5973N MSD mainframes in the context of application flow rates, vacuum system technology, and MS ionization modes.

Key Words

Upgrade, MSD, 5973Network



Figure 1. The selection of 5973N MSD instruments relative to application and business needs.

The availability of upgrade products (Figure 2) enables users to expand the capability of turbopump based instruments as their application needs change.

Extending the Flow Rate Capacity of the Standard Turbo El MSD

As described elsewhere, MSDs based on the standard turbo pump (G2578A, G1778A) are well-matched to chromatographic flow rates up to about 2 mL/min.¹ Such flow rates are encountered for both optimal and fast chromatographic separations for capillary columns of the following inner diameters (ID): 0.100 mm, 0.200 mm, and 0.250 mm. Such a flow rate is also compatible with optimal separations using 0.320 mm ID columns.

However, when analytical needs shift towards larger bore columns or very fast chromatography on 0.320 mm ID columns, a higher capacity vacuum pump is needed. A G1089A Turbo Pump Upgrade is used to enhance the vacuum system, exchanging a standard turbo pump for a performance turbo pump.

Extending the Ionization Modes of the Standard Turbo EI MSD

Information from positive chemical ionization (PCI) is complementary to that produced by EI (electron ionization). Simple, understandable spectra dominated by protonated molecular ions (and molecular ions with adducts) are obtained in PCI^2 for a wide range of compound classes. This makes it a common technique across industries where both molecular weight (from PCI) and fragmentation information (from EI) are desired. Additionally, PCI is quantitative, sensitive, and reproducible.

The G1087A PCI Upgrade product is used by laboratories who want to add this capability to an existing EI instrument.

Extending the Ionization Modes of the Performance Turbo EI MSD

MSDs based on the performance turbo pump EI MSD (G2579A, G1779A) are well-matched to chromatographic flow rates of larger bore capillary columns (0.320 mm and 0.530 mm ID) for EI-based detection. Additionally, the extra pumping capacity afforded by the performance turbomolecular pump makes it suitable for use



Agilent Technologies

Innovating the HP Way

Upgrading 5973Network MSDs

in chemical ionization applications where higher chromatographic flow rates and higher CI gas flow rates are used. In particular, for electron-capture negative ion chemical ionization (ECNI, commonly referred to as NCI), larger cumulative flow rates are encountered, necessitating the use of the performance turbomolecular pumping system.

The G1086A PCI/NCI Upgrade is used to add full CI capabilities to performance turbo EI MSDs. G1086A *in conjunction with* G1089A can be used to upgrade standard turbo EI MSDs to full CI operation.



Figure 2. A summary of the set of upgrade products used to expand capabilities of previously purchased 5973Network MSDs.

References

- "GC column Selection and Pumping Considerations for Electron and Chemical Ionization MSD Operation," Technical Note, Agilent Technologies Pub. No. (23) 5968-7958E (1999).
- "Ionization Methods in Gas Phase Mass Spectrometry; Operating Modes of the 5973Network MSDs," Technical Note, Agilent Technologies Pub. No. (23) 5968-7957E (1999).

Agilent Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance or use of this material.

Information, descriptions and specifications in this publication are subject to change without notice.

Copyright © 1999 Agilent Technologies All rights reserved. Reproduction and adaptation is prohibited.

Printed in the U.S.A. October 1999 (23) 5968-8020E