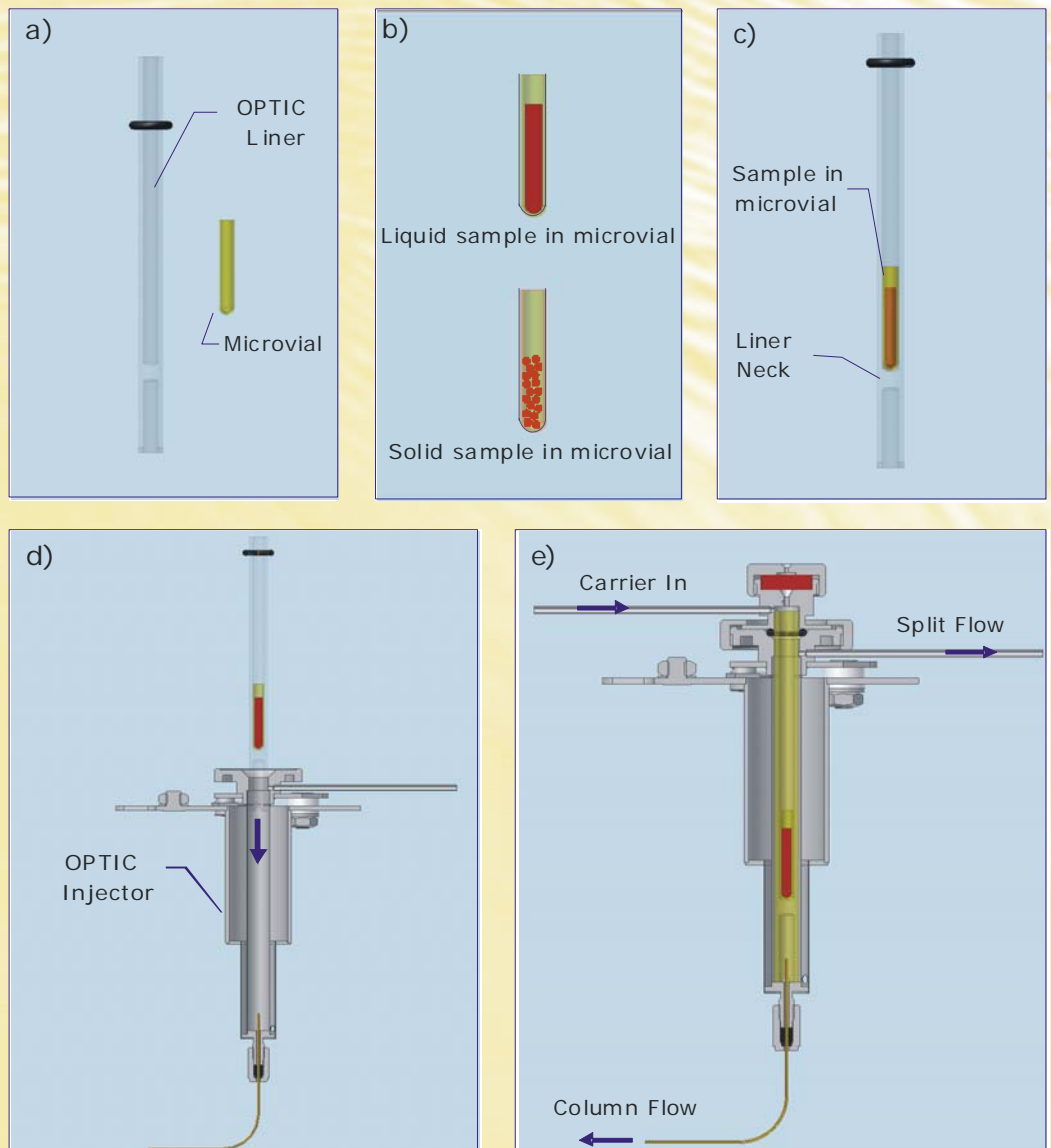
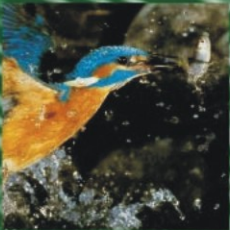


DMI: Difficult Matrix Introduction

GC analysis of dirty sample extracts and even row samples is now possible with Difficult Matrix Introduction. No expensive and time consuming cleanup is required with this technique.

DMI is based on the patented Direct Sample Introduction (DSI) technique*. It enables sample introduction into GC column to be performed from a disposable container (microvial) placed inside the injection liner. This has a great advantage over traditional injection because large volumes (up to 30 μ l) of dirty sample extracts or even row samples can be introduced directly into GC or GC/MS. Using the principle of selective exclusion, the volatiles and semi-volatiles are transferred onto the column, while non-volatile residues are retained in the microvial, which is disposed after analysis.

On itself, DMI is very simple. It requires the use of OPTIC injector that can accommodate a large capacity glass liner with 3.4 mm internal diameter. A fraction of a liquid or solid sample is transferred into a glass microvial, which is supported on the neck of the DMI liner. Further the liner is transported into injector for analysis. The injection conditions are carefully controlled to optimize the transfer of analytes whilst minimizing the transfer of matrix components.



DMI in steps

An automated version of DMI is available with ATAS GL LINEX-DMI. It offers the possibility to automatically exchange the liners between the injector and the liner tray. The liner is transported by the FOCUS sampling robot equipped with a pneumatic gripping arm. Every time, on the completion of the chromatographic run the injection liner, containing the DMI microvial, is changed automatically to avoid the possible build-up of involatile matrix components in the GC system. The microvial is then disposed to waste, but the liner can be cleaned and re-used.

LINEX can be equipped with a Capping-De-Capping (CDC) device. It works with the OPTIC liners which are capped from both sides in order to protect sample from deteriorating influence of the environment or keep them clean after conditioning. With CDC unit, the liner is de-capped just before it is transported into the GC injection port.

Available DMI applications:

- GC-MS analysis of pesticide residues in apple-based baby food
- Analysis of pesticide residues in lettuce
- Analysis of trace level silicon oil in vehicle paint
- The fragrance analysis of liquid soap and soap powder
- Fatty Acid Profile in vegetable oils and bacteria
- Chemical Analysis of Spores and Pollen
- GC-MS analysis of shampoo and washing powder
- Benzene and toluene in crude oil
- Allergens in cosmetic products

For these and other application notes, you are advised to visit ATAS GL web site: www.atasgl.com or contact info@atasgl.com

The application of DMI is not at all limited to the types of samples listed above. In fact any complex total extracts like biological fluids, tissue extracts, food, plant or soil extracts can be analyzed with minor standardized sample preparation. Row samples like powders, bioaerosols, crude oils, glues, shampoos, cosmetic products etc. can be directly put into microvial and analysed using GC or GC-MS system. If your sample is not mentioned here, ask ATAS GL to perform a test run.

*A. Amirav and S. Dagan, *Eur. Mass Spectr.*, 1997, **3**, 105-111.