

# APPLICATION OF SUPERCRITICAL FLUID EXTRACTION TO THE DETERMINATION OF ADIPATE PLASTICIZERS IN PVC

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Some organic compounds that are employed as plasticizers in PVC plastics (phthalates and adipates, among others) can be toxic by different ways (i.e., contact with skin, ingestion or inhalation).

Recently some European Directives have limited the use of these compounds. Since the limits established for total contents and migration of these species are near to the limits of detection of the techniques of analysis commonly used for these determinations, development of new, more simple and efficient, methods of analysis that allow us to determinate toxic species within the established limits is advisable.

The analytical techniques usually employed in the determination of these toxic compounds are gas chromatography (GC) and high-performance liquid chromatography (HPLC). Nevertheless, conventional methods for sample treatment show serious drawbacks (i.e., low analysis throughput and risk of losses and contamination). Supercritical fluid extraction (SFE) has been used for many years as a powerful tool in many analytical laboratories, and applications of SFE extraction to sample treatment have proved to be a real improvement over the conventional methods in terms of analysis throughput, recovery, easiness of handling and reduction of interferences and contamination.

This work describes the applicability of SFE extraction to the determination of potentially toxic additives in plastics. Operating with an analytical SFE instrument (SFE extractor SFX 200, ISCO Inc., UK), experimental conditions for the extraction of diethylhexyl adipate (DEHA) and others adipate and phthalate plasticizers from PVC plastics have been evaluated in terms of recovery. Moreover, SFE extraction has been compared with microwave-assisted extraction (MAE) in the determination of adipate plasticizers in real samples.

## REFERENCES:

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