

Thermo Scientific Dionex Dispersant and Sorbent Solutions for Sample Pretreatment

Product Spotlight

Dispersants and sorbents designed for in-cell pre-treatment and post extraction clean-up of samples when using the Thermo Scientific Dionex ASE Accelerated Solvent Extractor systems.

Sample Cleanup During and After Accelerated Solvent Extraction

A few of the commonly used extraction techniques are liquid-liquid extraction (LLE), solid-phase extraction (SPE), solid-phase micro-extraction (SPME), supercritical fluid extraction (SFE), microwave-assisted extraction (MAE), and accelerated solvent extraction technique. Of these methods, the accelerated solvent extraction technique is the most suitable for solid and semi-solid samples due to the following advantages: lower solvent volumes, an automated procedure for the simultaneous extraction of multiple samples, in-cell neutralization of acidic and basic samples, in-cell drying of wet or moist samples with short sample preparation time, and higher extraction recoveries. The accelerated solvent extraction technique is gaining in popularity for extraction of environmental and food matrices and uses conventional liquid solvents at elevated temperatures and pressures to extract compounds from solid samples quickly with a small solvent volume. Cleanup of samples during and after extraction is a common practice to remove interferences that may result in a low bias due to an analyte adsorption at the injection port, the front of the GC column or biased high because of an overlap with an interfering peak.



Thermo Scientific Dionex ASE Prep MAP Polymer



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THERMO SCIENTIFIC DIONEX ASE PREP SORBENTS FOR IN-CELL CLEANUP

Water in your samples! Use Dionex ASE Prep MAP Dispersant and Sorbent

Thermo Scientific™ Dionex™ ASE™ Prep MAP Dispersant and Sorbent is a unique polymer designed to remove moisture and increase extraction efficiencies from wet samples including soils, tissues and food products. This unique formulation allows moisture removal under a variety of ionic strength conditions and using accelerated solvent extraction conditions. The polymer is a free flowing white granular material that can be easily mixed with the Thermo Scientific™ Dionex™ ASE™ Prep DE (diatomaceous earth) dispersant in a 1:1 ratio and used for the moisture removal under accelerated solvent extraction conditions. The Dionex ASE Prep MAP by itself can remove up to 5 g of water per gram of the polymer at room temperature. The addition of Dionex ASE Prep DE for in-cell extractions results in improved removal of water under accelerated solvent extraction conditions, where the water absorbing ability of the polymer increases with decreasing temperature.

Neutralize Acid Hydrolyzed Samples using Dionex ASE Prep CR Na+

The Dionex ASE Prep CR Na⁺ is a cation exchange resin consumable in the sodium form when used in conjunction with Dionex ASE Prep DE that allows the neutralization of strong mineral acids during extraction without any post extraction cleanup. This sorbent is useful when pursuing the extraction of lipids from food samples. As lipids are readily complexed with proteins or carbohydrates, they need to be pretreated with acid and heat, to hydrolyze the protein and starch, and disrupt the bonds to allow for the fat to be extracted.

Neutralize Base Hydrolyzed samples using Dionex ASE Prep CR H+

The Dionex ASE Prep CR H⁺ is a cation exchange resin in the hydrogen form when used in conjunction with Dionex ASE Prep DE that allows the neutralization of bases during extraction without any post extraction cleanup. This sorbent is useful when pursuing the extraction of lipids from food samples. As lipids are complexed with proteins or carbohydrates, they need to be pretreated with base and heat, to hydrolyze the protein and starch, and disrupt the bonds to allow for easy extraction of fat.

DIONEX ASE PREP SORBENTS FOR OFFLINE POST EXTRACTION CLEANUP

Dionex ASE Prep Florisil Cartridges

This is a selective normal-phase sorbent used to remove polar interferences and concentrating pesticides, alcohols, aldehydes, amines, herbicides, PCBs, ketones, nitro compounds, organic acids, and phenols from extracts prior to GC or GC-MS analysis. Dionex ASE Prep Florisil cartridge is specially processed to give consistent results when used for column cleanup and separation of chlorinated pesticide residues prior to quantification by GC and is recommended for cleanup of soil extracts for pesticide analysis. The Dionex ASE Prep Florisil cleanup cartridges can be used for post accelerated solvent extraction technique cleanup of extracts to reduce high background levels that result in difficult quantification and frequent detector maintenance. The extracts cleaned with the Dionex ASE Prep Florisil show lower backgrounds and chromatograms with less interferences.

Dionex ASE Prep Alumina Cartridges

Dionex ASE Prep Alumina is a highly porous and granular form of aluminum oxide available in three pH ranges (basic, neutral, and acidic) for use in post extraction cleanup.



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Dionex ASE Prep Alumina Acid

Acidic alumina has a pH of 4-5, with a 50-200 μm particle size for anion exchange and adsorption extraction of polar compounds, such as vitamins

Dionex ASE Prep Alumina Basic

Basic alumina has a pH of 9-10, with a 50-200 μm particle size for adsorption extraction of polar compounds, and cation exchange.

Dionex ASE Prep Alumina Neutral

Neutral alumina has a pH of 6-8, with a 50-200 μm particle size that can be used to separate aldehydes, ketones, quinones, esters, lactones, and glycosides.

The sorbents and post extraction clean-up cartridges offered by Thermo Fisher Scientific can be used to cleanup unwanted interferences. Interferences can be removed by performing in-cell extractions using the sorbents of choice allowing for complete automation of extraction and post-extraction cleanup steps. In-cell extractions provide savings in overall costs and preparation time, and increase sample throughput. The post-extraction clean-up cartridges provide a choice of sorbents to clean-up the extracts while reducing the likelihood of solvent interactions with the sorbents at elevated temperature and pressure.