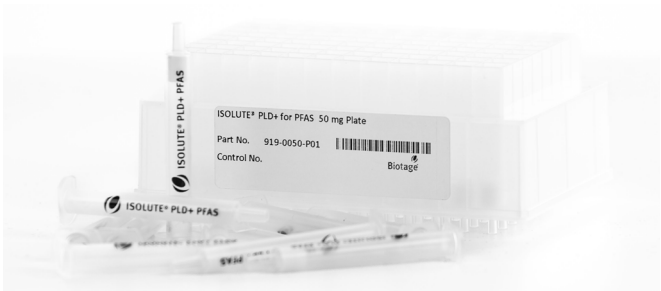
ISOLUTE® PLD+ for PFAS

Fast, effective clean-up for a diverse range of PFAS analytes in biological fluids.



Per and polyfluoroalkyl substances (PFAS) comprise many compounds that occur in a broad range of matrices and environments. Human exposure to PFAS has been linked with changes in metabolism, higher cholesterol, and increased risk of some cancers. Analysis of PFAS in biological fluid samples is challenging due to the need for low level (sub ng/mL) quantitation, matrix complexity, and the need to determine a wide range of analytes with diverse structural characteristics.

ISOLUTE® PLD+ for PFAS plates and columns provide clean, matrix free extracts for accurate, reliable quantitation of PFAS at clinically relevant levels by LC-MS/MS. Reduced PFAS levels in the product components mean that samples won't be contaminated by the sample prep product.

Simple, fast methodology

Unlike SPE based techniques, ISOLUTE® PLD+ for PFAS utilizes a simplified 'crash and filter' approach to extract PFAS from biological matrices. No conditioning or wash steps are required, and time-consuming extract evaporation is eliminated.

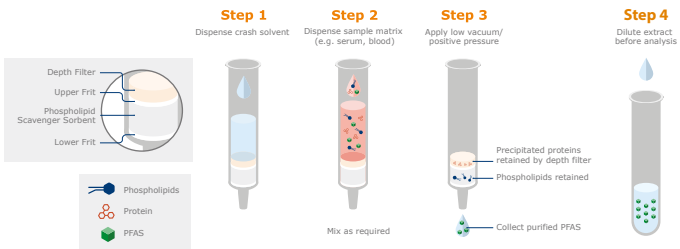


Figure 1. Schematic of the ISOLUTE® PLD+ for PFAS extraction process

Extract a Diverse Range of PFAS Molecules

Because ISOLUTE® PLD+ for PFAS does not rely on a catch and release mechanism to isolate PFAS from the biological matrix, analyte recovery is not limited by structural considerations. Figure 2 shows the high, reproducible analyte recoveries obtained for a range of targeted PFAS analytes in serum. Compared with traditional WAX SPE based methods, improved recovery of some PFAS classes is achieved. Table 1 compares analyte recovery with WAX SPE based methods.

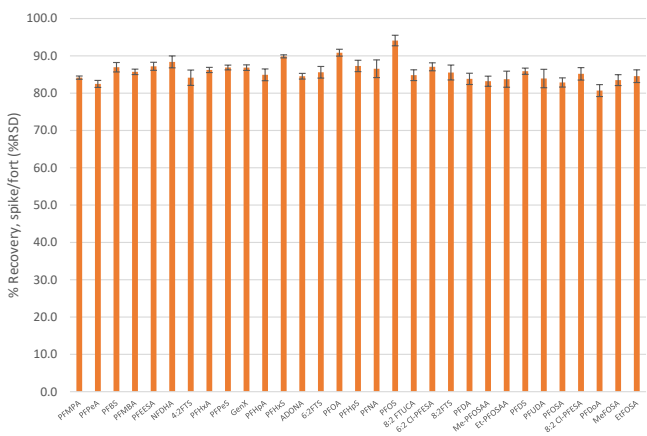


Figure 2. Recovery (%RSD shown as error bars, n=6) of PFAS analytes from 100 µL serum (spiked at a concentration of 1.6 ng/mL)

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Table 1. Typical recovery of different PFAS classes from serum comparing ISOLUTE® PLD+ for PFAS to WAX based SPE

PFAS Class	ISOLUTE® PLD+ for PFAS, % recovery	WAX SPE, % recovery
Alkane carboxylic acids (C5-C9)	83-91	89-96
Alkane/alkene carboxylic acids (C10-C12)	81-84	31-82
Ethoxy carboxylic acids	82-88	86-93
Sulfonic acids, inc. ethoxy/telomers (C4-C8)	84-94	89-98
Sulfonic acids, inc. ethoxy/telomers (>C8)	85-86	28-75
Sulfonamides (and substituted)	83-85	0-19
Cl substituted ethoxysulfonates	85-87	27-47

Note: ISOLUTE® PLD+ for PFAS demonstrates consistent recovery for multiple classes of PFAS. WAX SPE demonstrates comparable performance for some classes, typically short-chain PFAS. WAX SPE recovery performance is compromised for: longer chain PFAS, sulfonamides (including substituted), and chlorine substituted ethoxysulfonates. Loss of performance using WAX based SPE may be related to extraction chemistry or evaporative effects.

Extract Cleanliness

Biological fluids contain matrix components such as proteins and phospholipids which can adversely impact analytical sensitivity, as well as analytical instrument performance, if not removed during sample preparation. The effective matrix scavenging approach employed by ISOLUTE® PLD+ for PFAS removes ›99.9% of serum protein and phospholipids (see figure 3) leading to cleaner extracts, improved analytical sensitivity and reduced instrument downtime.

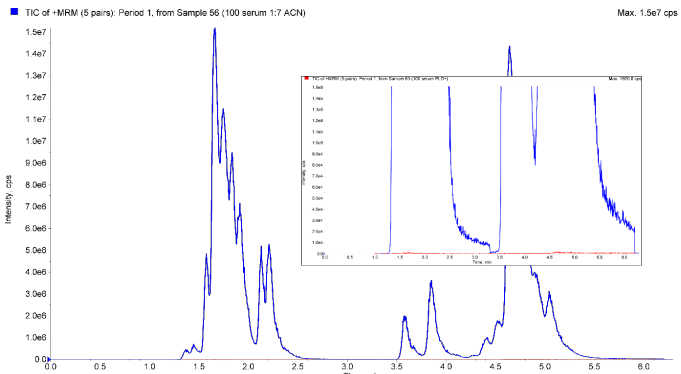

Figure 3. Reduction of phospholipid levels in a serum sample provided by ISOLUTE® PLD+ for PFAS, compared with a sample prepared by protein crash alone. The combined phospholipid (PL) and lysophospholipid (LPL) profile generated from the TICs of phosphatidylcholine and lysophosphatidylcholine MRM transitions respectively with 1.5E7>1.5E5 expanded inset is shown, protein crash (blue) v. ISOLUTE® PLD+ for PFAS (red)

High throughput, automatable sample preparation

The simple 'crash and filter' based methodology means that ISOLUTE® PLD+ for PFAS procedures are easily automated. Using Biotage® Extrahera™ LV-200, 96 samples can be extracted and ready for analysis in ~35 minutes, making this an ideal approach for high throughput applications.

In addition to automated processing, ISOLUTE PLD+ for PFAS products can be processed with manual positive pressure (Biotage® PRESSURE + 96) or vacuum (Biotage® VacMaster™-96) manifolds.

Ordering Information

Description	Part number	Qty
ISOLUTE® PLD+ for PFAS Plate, 50 mg	**919-0050-P01**	1/pk
ISOLUTE® PLD+ for PFAS 50 mg/1 mL (Tabless)	**919-0005-AG**	100/pk
Collection plate, 2 mL, square	**121-5203**	50/pk

Part Number: PPS726

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