SUPPLEMENTARY MATERIAL FOR

Optimized Preconcentration Method Using Ionic Liquid Ferrofluid for Ultra-Trace Determination of Cr(VI) in Drinking Water by Inductively Coupled Plasma Mass Spectrometry

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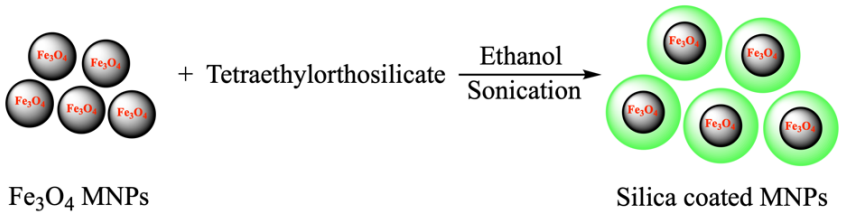
SUPPORTING TABLE

Table S1. Analyte concentration (± standard deviation, n=3, µg L^{-1}) measured initially, in the decanted supernatant and in the eluate after a 20-fold preconcentration using different volumes of 45 µg L^{-1} Cr(VI) sample solution and of 2 M HNO_3 eluent

Analyte	Sample volume	Eluent volume	Initial concentration	Supernatant concentration	Expected eluate concentration	Measured eluate concentration
^{52}Cr	20 mL	1 mL	0.45 ± 0.04	0.081 ± 0.003	8.99	8.6 ± 0.3
^{52}Cr	100 mL	5 mL	0.45 ± 0.06	0.032 ± 0.002	8.96	8.32 ± 0.05

SUPPORTING FIGURES

Synthesis of silica coated MNPs



Grafting of L-cysteine

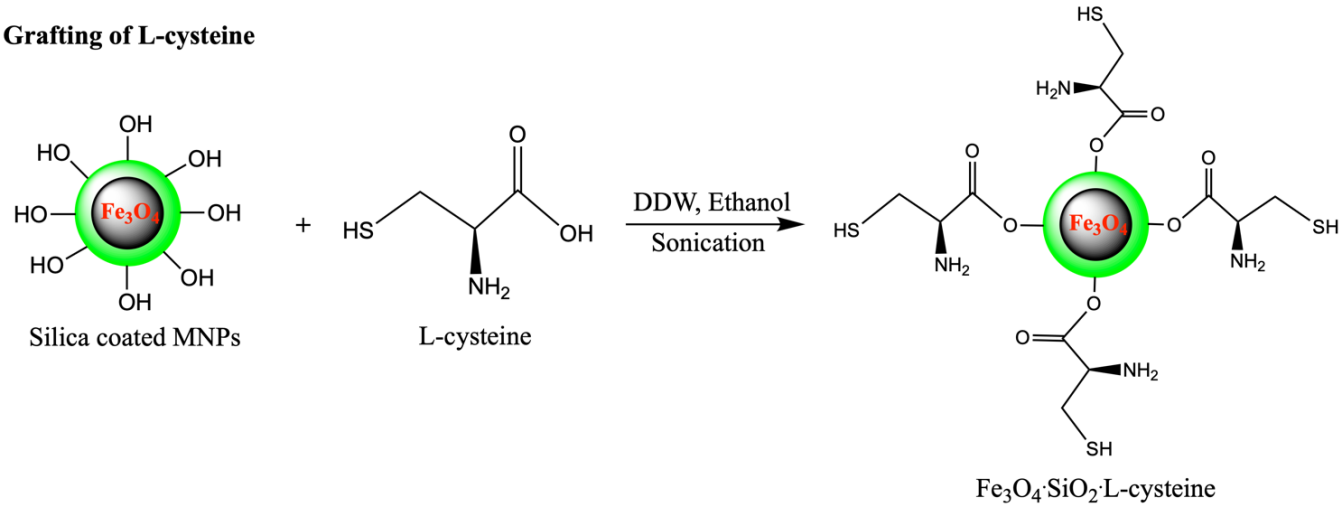


Fig. S1 Steps involved in the synthesis of SCMNPs-Cys used in this work.

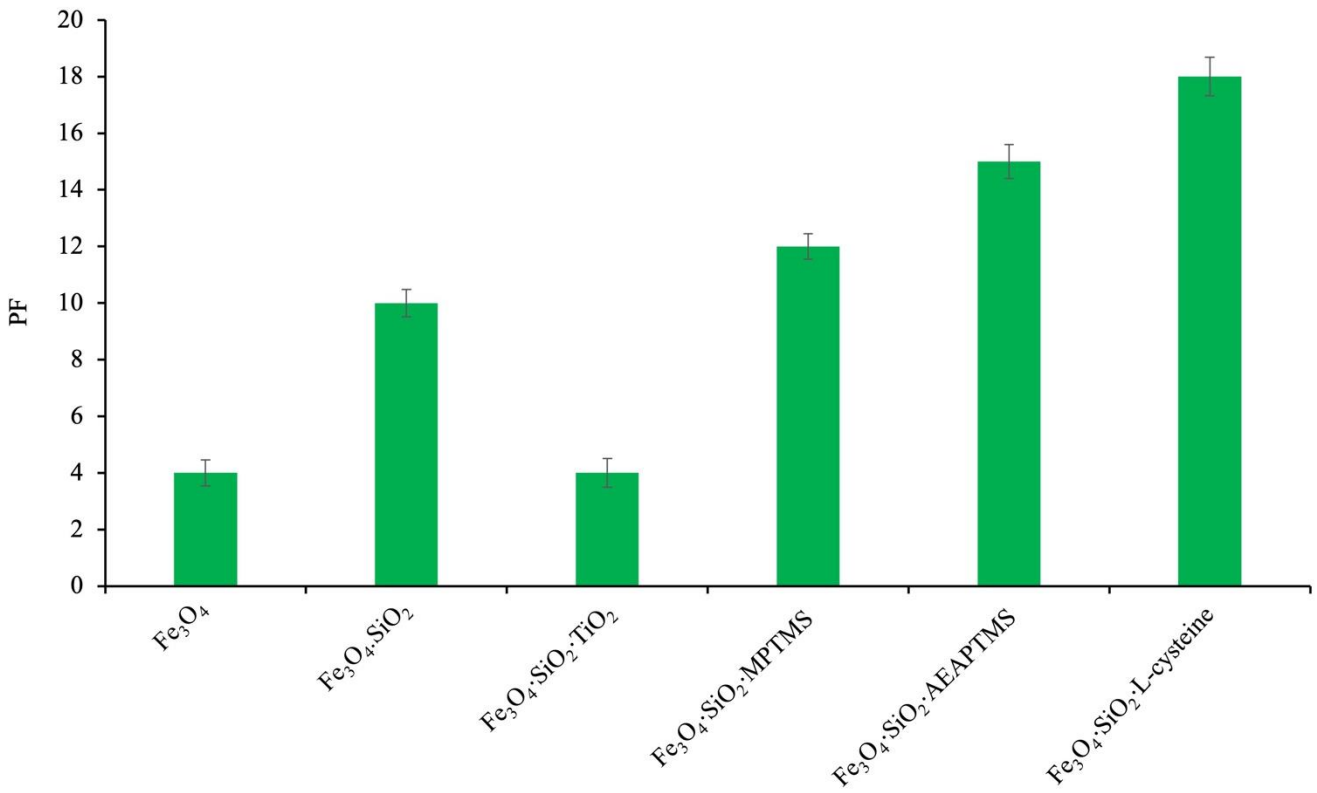


Fig. S2 Preconcentration factor (PF) obtained with different sorbents (analytes from 100 mL of 0.45 µg L^{-1} Cr(VI) sample solution at pH 3.5 were preconcentrated and then eluted with 5 mL of 2 M HNO_3); expected PF = 20 [n=3].

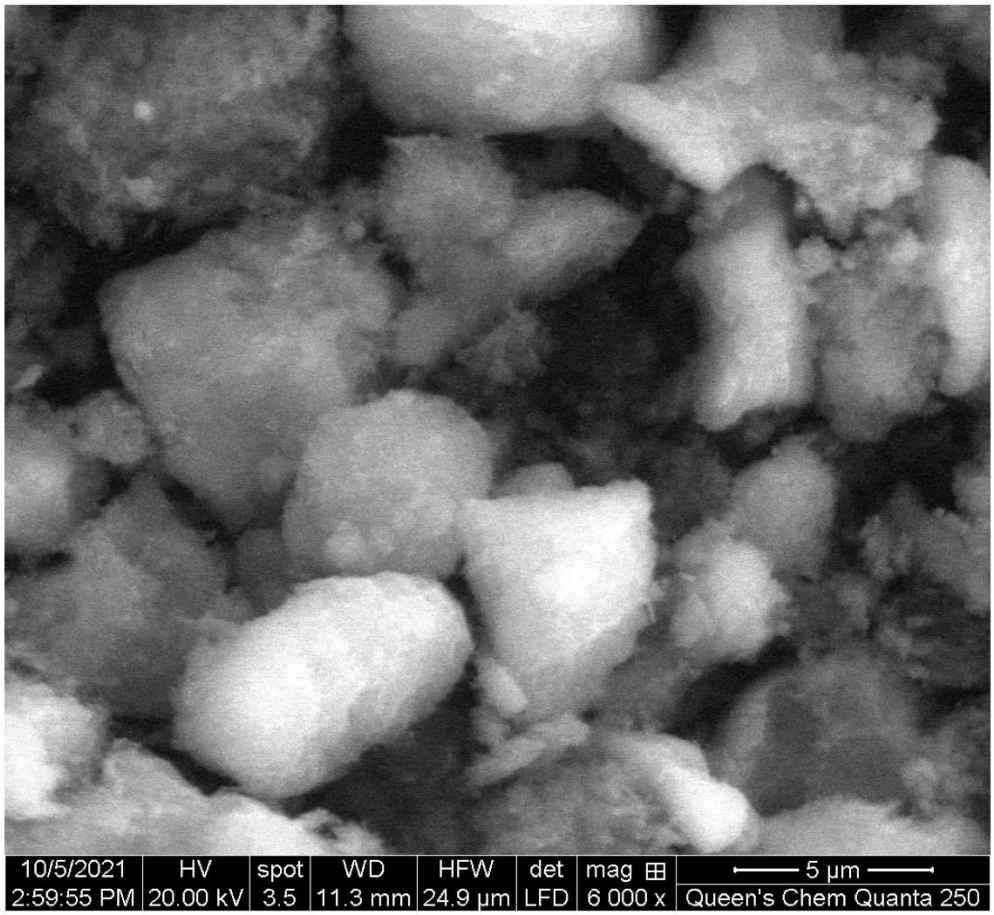


Fig. S3 SEM images of SCMNPs-Cys.

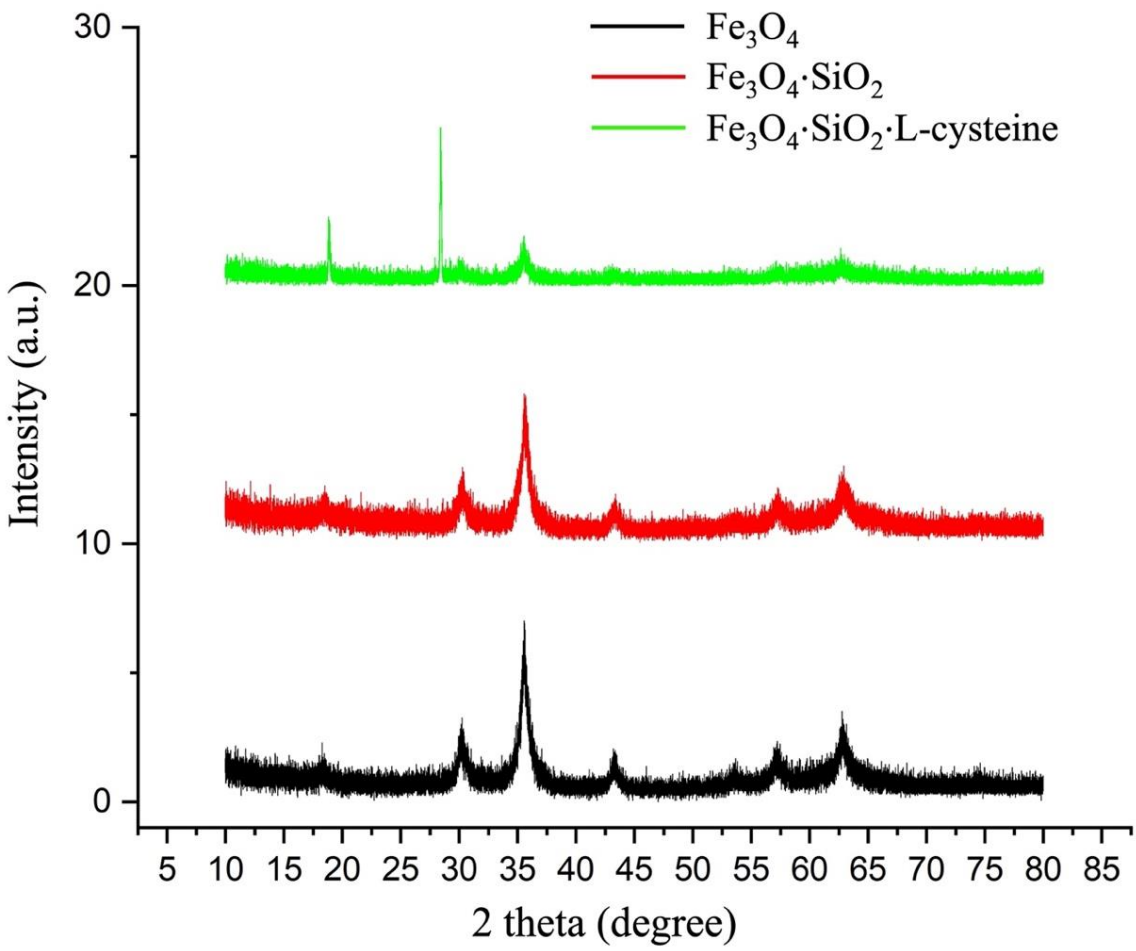


Fig. S4 X-ray diffraction analysis of the MNPs at different stages of their preparation.

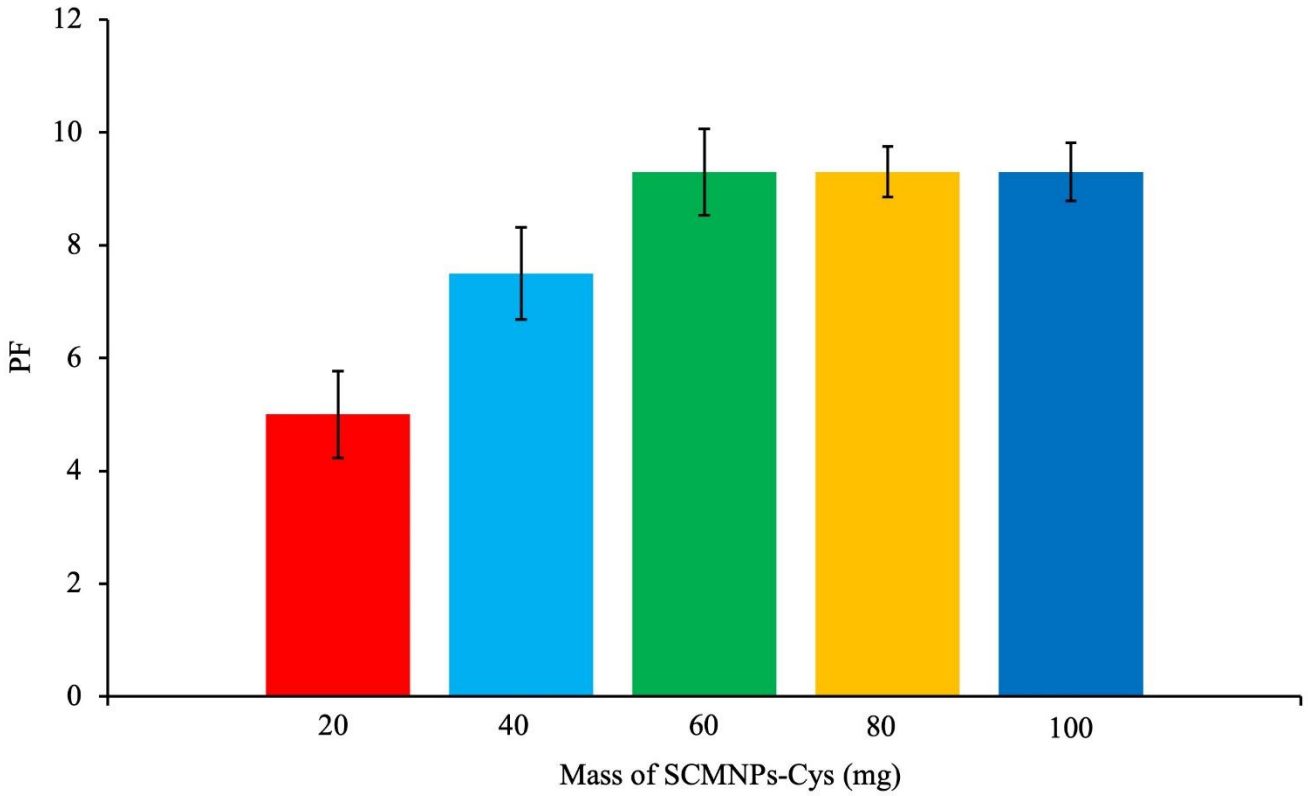


Fig. S5 Effect of the SCMNP-Cys mass in the ferrofluid on the PF after 20 mL of 0.45 µg L^{-1} Cr(VI) sample solution at pH 3.5 was eluted with 2 mL of 2 M HNO_3; expected PF = 10 [n=3].

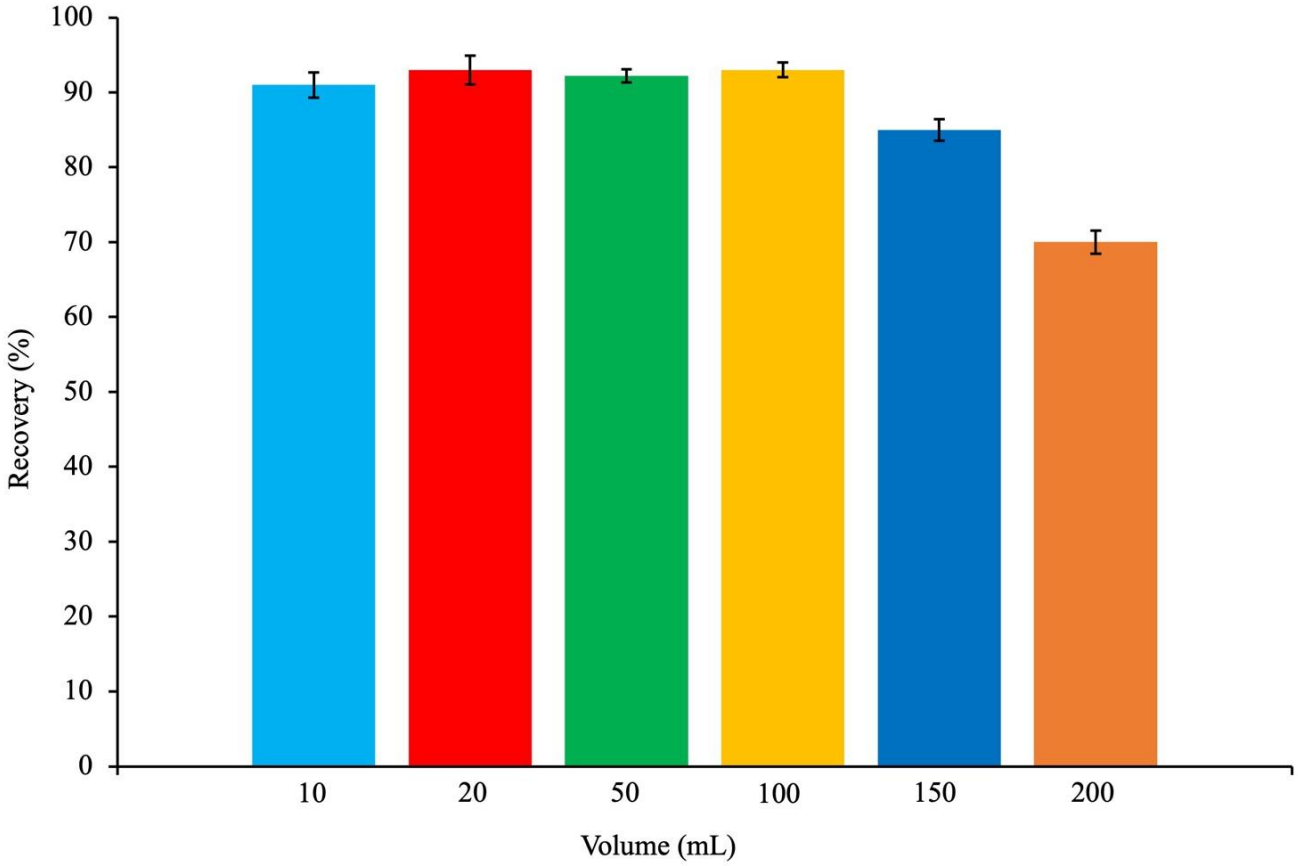


Fig. S6 Effect of sample volume on analyte recovery at pH 3.5 (analyte from a volume of 0.45 µg L^{-1} Cr(VI) was eluted with 2 M HNO_3) [n=3].

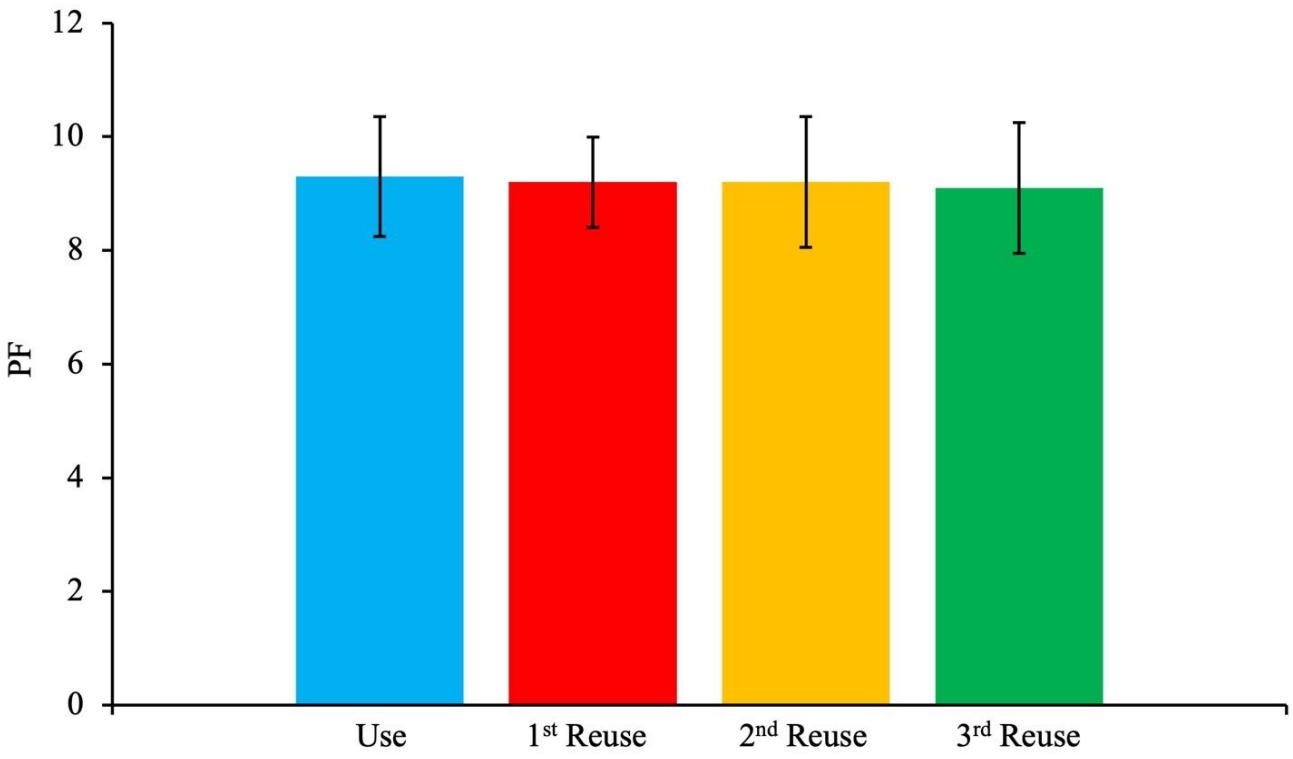


Fig. S7 Reusability of SCMNPs-Cys at pH 3.5 after 20 mL of 0.45 µg L^{-1} Cr(VI) sample solution was eluted with 2 mL of 2 M HNO_3; expected PF = 10 [n=3].