
ANALYTE LOSSES DURING SAMPLE PREPARATION

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Analyte losses during sampling, sample storage and sample preparation represent a common origin for lacking recovery and related analytical errors. However, researchers only occasionally investigate the causes of lacking recovery in depth. Analyte losses may result from numerous causes ranging from adsorption to sample matrix and / or materials used in sample storage and preparation to (matrix catalysed) analyte degradation. Based on experience and literature, some of the most common causes for analyte loss are illustrated. Examples range from environmental analysis through pharmaceutical analysis to bio-analysis and proteomics. Typically, hydrophobic hydration, hydrogen bonding and / or coulomb interactions are proposed to be responsible for observed losses. Occasionally, more specific binding and / or chemical transformations are suspected. Some strategies are highlighted for development of sample preparation methods based on an intelligent choice of conditions and materials as related to analyte properties and mechanisms suspect for analyte loss.