EPH Fractions Grouped by Surrogates

For the EPH analysis, there are two types of surrogates:

Extraction Surrogates: There are two extraction surrogates added to the sample prior to extraction. Chlorooctadecane is added to evaluate the extraction efficiency and the Aliphatic components. O-Terphenyl is added to evaluate the extraction efficiency of the Aromatic components.

Low Recovery of Chlorooctadecane would indicate the aliphatic results may be bias low.

High Recovery of Chlorooctadecane would indicate the aliphatic results may be bias high.

Low Recovery of O-Terphenyl would indicate that the aromatic results may be bias low.

High Recovery of O-Terphenyl would indicate that the aromatic results may be bias high.

Fractionation Surrogates There are two fractionation surrogates (2-Fluorobiphenyl and 2-Bromonaphthalene). These surrogates are added after the sample extraction and prior to fractionation to determine how well the aliphatic components were separated from the aromatic components. Both fractionation surrogates are aromatic compounds and should appear in the aromatic fraction.

Low Recovery of one or both fractionation surrogates would indicate the aliphatic components were not efficiently separated from the aromatic components. When this happens, the aromatic results may be bias low and the aliphatic results may be bias high.

High Recovery of one or both fractionation surrogates is typically due to sample matrix interference or a procedural error and does not serve as a good indicator of how well the two fractions were separated.

Laboratory corrective action: When an extraction surrogate or fractionations surrogate is outside of control limits, the laboratory should attempt to correct the problem by reanalysis, re-fractionation or re-extraction. If after re-extraction the results do not improve, data is reported outside of control limits with an explanation that poor recovery is most likely due to the sample matrix. In cases where there is insufficient sample for re-extraction, the customer should be notified and results will be reported outside of control limits.

Check associated Blank and BS/BSD data. These surrogates should be within control limits. If any of these surrogates are outside of control and the same surrogates are also outside of control limits in the associated samples, then the problem is procedural and not the sample matrix. The batch should be re-extracted.

EPH Fractions Grouped by Surrogates

Aliphatic Fraction:

Parameter	Analyte Type
1-Chlorooctadecane	Aliphatic Extraction Surrogate
C9-C18 Aliphatics	Aliphatic Range 1
C19-C36 Aliphatics	Aliphatic Range 2
Nonane (C9)	Aliphatic Hydrocarbon
Decane (C10)	Aliphatic Hydrocarbon
Dodecane (C12)	Aliphatic Hydrocarbon
Tetradecane (C14)	Aliphatic Hydrocarbon
Hexadecane (C16)	Aliphatic Hydrocarbon
Octadecane (C18)	Aliphatic Hydrocarbon
Nonadecane (C19)	Aliphatic Hydrocarbon
Eicosane (C20)	Aliphatic Hydrocarbon
Docosane (C22)	Aliphatic Hydrocarbon
Tetracosane (C24)	Aliphatic Hydrocarbon
Hexacosane (C26)	Aliphatic Hydrocarbon
Octacosane (C28)	Aliphatic Hydrocarbon
Triacontane (C30)	Aliphatic Hydrocarbon
Hexatriacontane (C36)	Aliphatic Hydrocarbon

Aromatic Fraction:

Parameter	Analyte Type
O-Terphenyl	Aromatic Extraction Surrogate
2-Fluorobephenyl	Aromatic Fractionation Surrogate
2-Bromonaphthalene	Aromatic Fractionation Surrogate
C11-C22 Unadjusted Aromatics	Aromatic Range
2-Methylnaphthalene	Aromatic Analyte
Acenaphthene	Aromatic Analyte
Naphthalene	Aromatic Analyte
Phenanthrene	Aromatic Analyte
Acenaphthylene	Aromatic Analyte
Anthracene	Aromatic Analyte
Benzo(a)anthracene	Aromatic Analyte
Benzo(a)pyrene	Aromatic Analyte
Benzo(b)fluoranthene	Aromatic Analyte
Benzo(g,h,i)perylene	Aromatic Analyte
Benzo(k)fluoranthene	Aromatic Analyte
Chrysene	Aromatic Analyte
Dibenzo(a,h)Anthracene	Aromatic Analyte
Fluoranthene	Aromatic Analyte
Fluorene	Aromatic Analyte
Indeno(1,2,3-cd)Pyrene	Aromatic Analyte
Pyrene	Aromatic Analyte