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## LIST OF ABBREVIATIONS

AI	Aromaticity index
ANOVA	Analysis of variance
BASIL	Biphasic Acid Scavenging utilizing Ionic Liquids
BT	Benzothiophene
CCD	Central Composite Design
COSMO-RS	Conductor-like Screening Model for Realistic Solvents
DBE	Double bond equivalent
DBT	Dibenzothiophene
DMDBT	Dimethyldibenzothiophene
DoE	Design of experiments
EPA	Environmental Protection Agency
FTIR	Fourier Transform Infrared spectroscopy
GC-MS	Gas Chromatography with Mass Spectroscopy
GC-SCD-FID	Gas Chromatography with Sulfur Chemiluminescence Detector and Flame Ionization Detector
H <sub>2</sub> S	Hydrogen sulfide
HCl	Hydrogen chloride
HDS	Hydrodesulfurization
HF	Hydroden fluoride
HPLC	High Performance Liquid Chromatography
ILs	Ionic liquids
KCl	Potassium chloride
KDHP	Potassium dihydrogen phosphate
LLE	Liquid-liquid extraction
MATLAB	Matrix Laboratory software
MDBT	Methyldibenzothiophene
MT	Methylthiophene
NaCl	Sodium Chloride

NMR	Nuclear Magnetic Resonance analyzer
PI	Performance Index
RI	Refractive index
RSM	Response Surface Methodology
SO <sub>2</sub>	Sulfur dioxide
SO <sub>3</sub>	Sulfur trioxide
TS	Thiophene
UNIFAC	UNIQUAC Functional-group Activity Coefficients

## LIST OF SYMBOLS

$S_{298}$	Absolute entropy
$\gamma^{\infty}$	Activity coefficient at infinite dilution
$Z_{Calc}$	Calculated values
$C^{\infty}$	Capacity at infinite dilution
$\alpha_p$	Coefficient of thermal expansion
$[C]_{IL}$	Concentration of the ionic liquids
$[C]_{s,IL}$	Concentration of BT in ionic liquids phase
$[C]_{s,MO}$	Concentration of BT in model oil phase
$\rho$	Density
$Z_{Expt}$	Experimental values
$U_{POT}$	Lattice potential energy
$R$	Loading factor
$V_m$	Molecular volume
$M_w$	Molecular weight
$N_i$	Number of atom
$n_{DAT}$	Number of experiment
$V_i$	Number of valence
$K_d$	Partition coefficient
$n_D$	Refractive index
$S^{\infty}$	Selectivity at infinite dilution
$\beta$	Solute distribution ratio
$K_N$	Sulfur partition coefficient
$V_{IL}$	Volume of ionic liquid phase
$V_{MO}$	Volume of model oil phase

