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LIST OF ABBREVIATIONS

ML	Methyl levulinate
HPA	Gamma-hydroxypentanoate
GVL	Gamma-valerolactone
Ni	Nickel
Cu	Copper
NiCu	Nickel-copper alloy
DI	Deionized
GC-FID	Gas chromatography with flame ionization detector
XRD	X-ray diffraction
SEM	Scanning electron microscopy
EDS	Energy dispersive spectrometry
FTIR	Fourier-transform infrared spectroscopy
ATR	Attenuated total reflectance
CO ₂ -TPD	Temperature-programmed desorption of carbon dioxide
H ₂ -TPR	Temperature-programmed reduction by H ₂
XRF	X-ray fluorescence
BET	Brunauer-Emmett-Teller