

## Literature Values of Chemical Species, Elemental Composition and Heating Values of North American Black Liquors

Chemical Components in Kraft Black Liquor	%	Elemental Composition of Kraft Black Liquor	%
Alkali Lignin	30-45	Carbon	34-39
Hydroxy Acids	25-35	Hydrogen	3-5
Extractives	3-5	Oxygen	33-38
Acetic Acid	5	Sodium	17-25
Formic Acid	3	Sulfur	3-7
Methanol	1	Potassium	0.1-2
Sulfur	3-5	Chloride	0.2-2
Sodium	15-20	Nitrogen	0.04-0.2
		Others	0.1-0.3
Softwood Lignin	26,900 kJ/kg TDS	Resins/Fatty Acids	37,700 kJ/kg TDS
Hardwood Lignin	25,100	Sodium Sulfide	12,900
Carbohydrates	13,600	Sodium Thiosulphate	5800
<b>Black Liquor Higher Heating Values: 13.4 – 15.5 MJ/kg TDS</b>			