

Typical Process Conditions for Oxygen Delignification of SW Kraft Pulps

	Medium consistency	High consistency
Pulp consistency (%)	10-14	25-34
Retention time (min)	50-60	30-45
Initial temperature (°C)	70-105	100-115
Inlet pressure (kPa)	610-800	415-600
Outlet pressure (kPa)	260-550	415-600
Alkali (kg/t)	18-28	18-23
Oxygen consumption (kg/t)	20-24	15-24
MgSO ₄ (kg/t)	0-2.5	0-1.5

Phenolic Group Content (mmol/g) in SW Kraft Lignin after Oxygen Delignification

Time of O-delignification (min)	Non-condensed guaiacyl units	Total condensed units	5,5' condensed units	p-Hydroxyl-phenyl units	Total free phenolic units
0	0.87	0.96	0.44	0.04	1.87
10	0.63	0.69	0.34	0.10	1.42
20	0.55	0.77	0.38	0.12	1.44
50	0.42	0.70	0.37	0.15	1.27
80	0.44	0.75	0.42	0.15	1.34
160	0.44	0.72	0.49	0.15	1.31

10% pulp consistency, 2.5% NaOH, 680 kPa O₂, and 90 °C