

# Modern Pulp Bleaching Basics

Chemical Reagent	Chlorine Dioxide $\text{ClO}_2$	Hydrogen Peroxide: $\text{H}_2\text{O}_2$	Peracetic Acid $\text{CH}_3\text{CO}_3\text{H}$	Oxygen $\text{O}_2$	Ozone $\text{O}_3$
Stage Designation	D	P	Paa	O	Z
Type of Reaction	Electrophilic	Nucleophilic	Electrophilic	Electrophilic	Electrophilic
pH	Acidic	Basic	Acid	Basic	Acidic
Number of Electrons Transferred/mol	5	2	2	4	6
Reaction Sites	Olefinic Aromatic HexA	Carbonyl Groups Conjugated double bonds	Olefinic Aromatic HexA	Free phenols Double Bonds	Olefinic Aromatic HexA