

Improving Peroxide Kraft Bleaching

Peroxide: Introduction

Project Objective

Identify bleaching conditions that maximize efficiency of oxygen and hydrogen peroxide for D_0 bleached pulps.

Peroxide: Introduction

Research Deliverables

- Effect of brownstock cooking history and D_0 bleaching conditions on chromophore removal in an EPO-stage.
- Examine changes in fundamental lignin structure of peroxide delignified (QP) kraft brownstocks

Peroxide: Experimental Conditions

Pulp: Southern SW kraft

D₀: k.f. 0.05, 0.10, 0.20

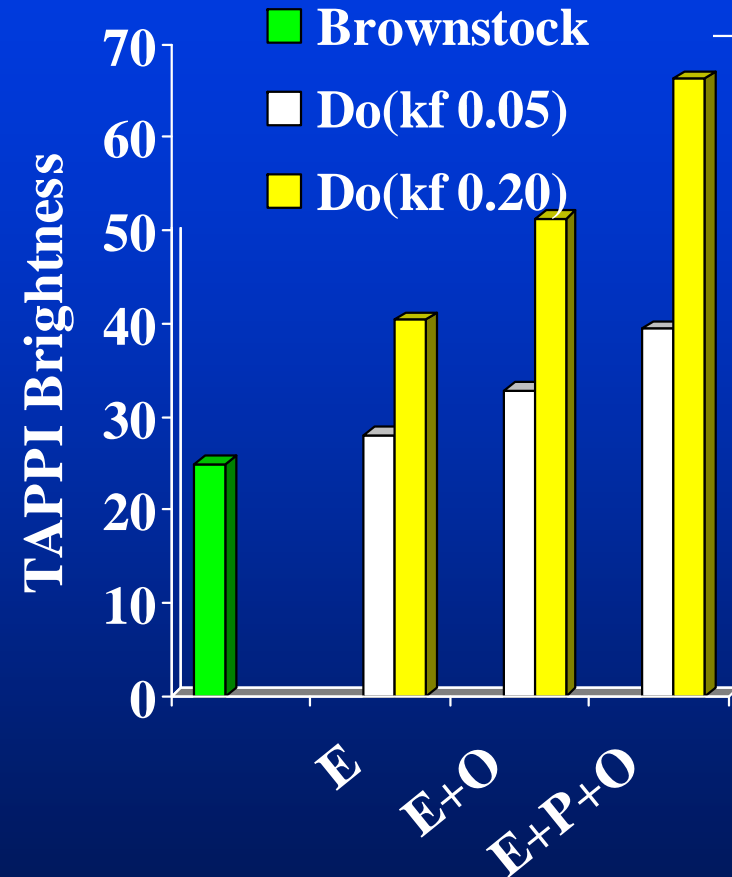
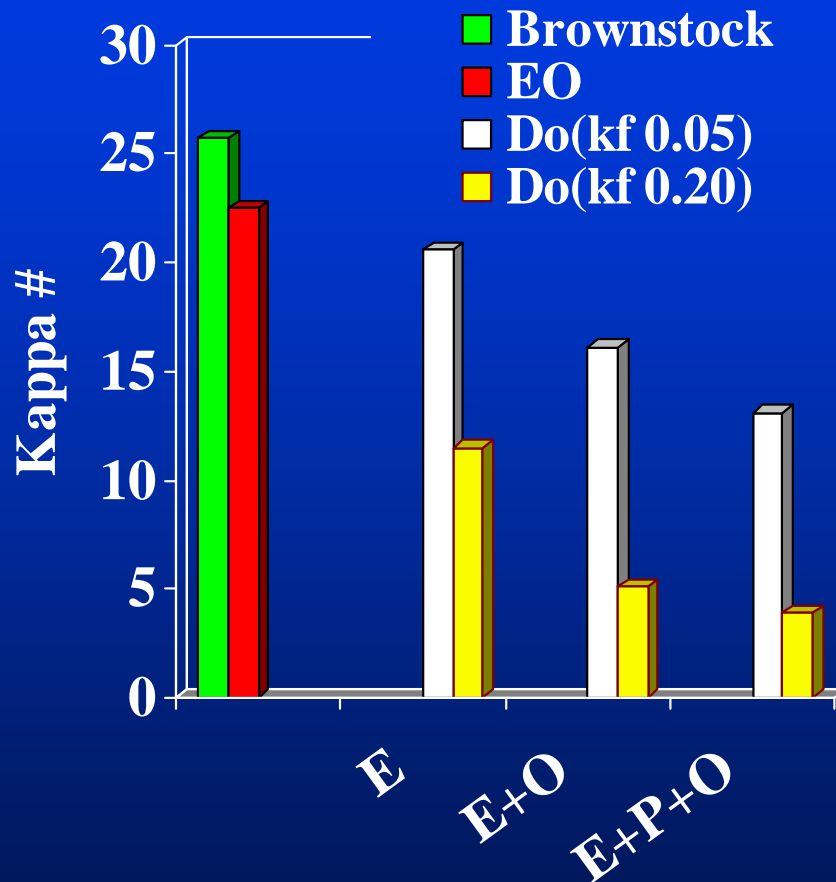
45 min., 45°C, 3.5% csc

E-stage: 10% csc, 80°C, 35 min., 2.5% NaOH

EO O₂ 60 psig

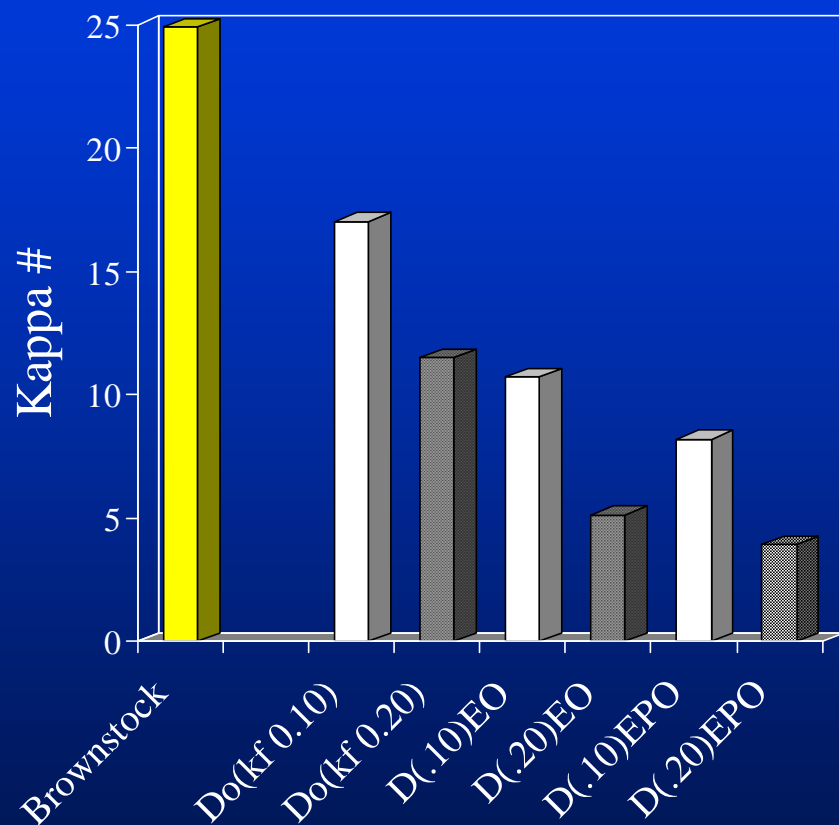
EOP O₂ 60 psig, 0.5% H₂O₂

Peroxide: Delign. of D_0 (kf. 0.05 & 0.20) with E, (E+O), and (E+P+O).



-changes in O_2 pressure, temp. or use of Mn^{2+} or Fe^{2+} does not extend delignification.

Peroxide: Delign. of D₀ (kf. 0.10 & 0.20) with E, (E+O), and (E+P+O)



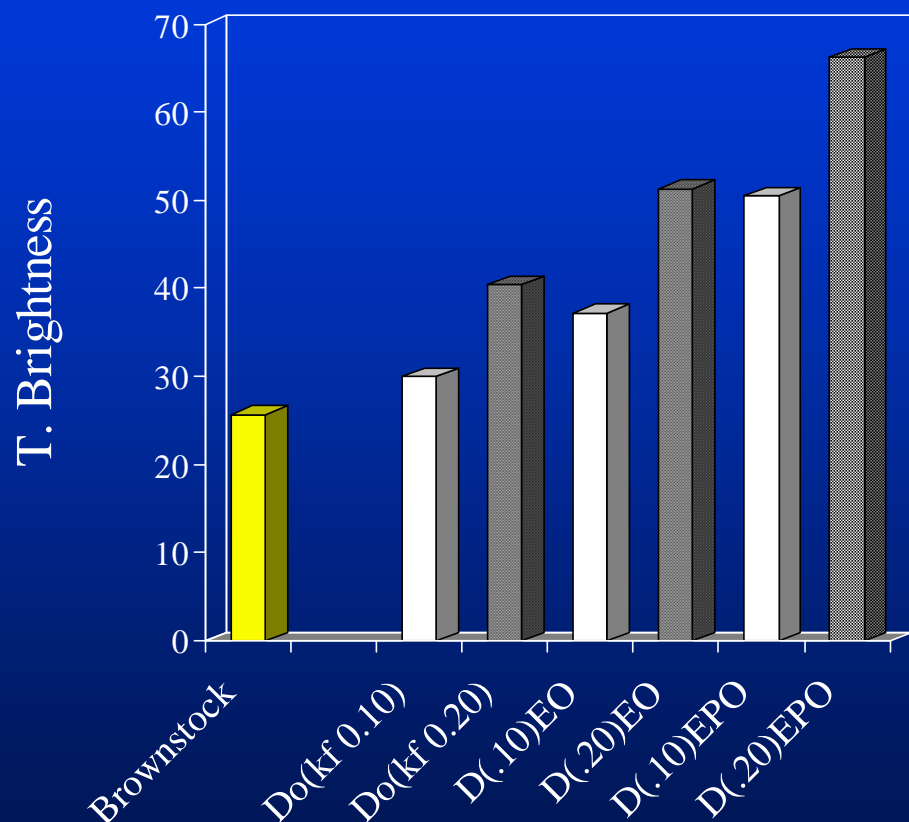
EO: 35 min at 80°C, 60 psig

EPO: EO + 0.5% H₂O₂

D(kf 0.10) pulp less bleachable than

D(kf 0.05)

Peroxide: Delign. of D_0 (kf. 0.10 & 0.20) with E, (E+O), and (E+P+O).



Bleaching D(EO) and D(EPO)

D1 charge of 1%

TAPPI Bright.

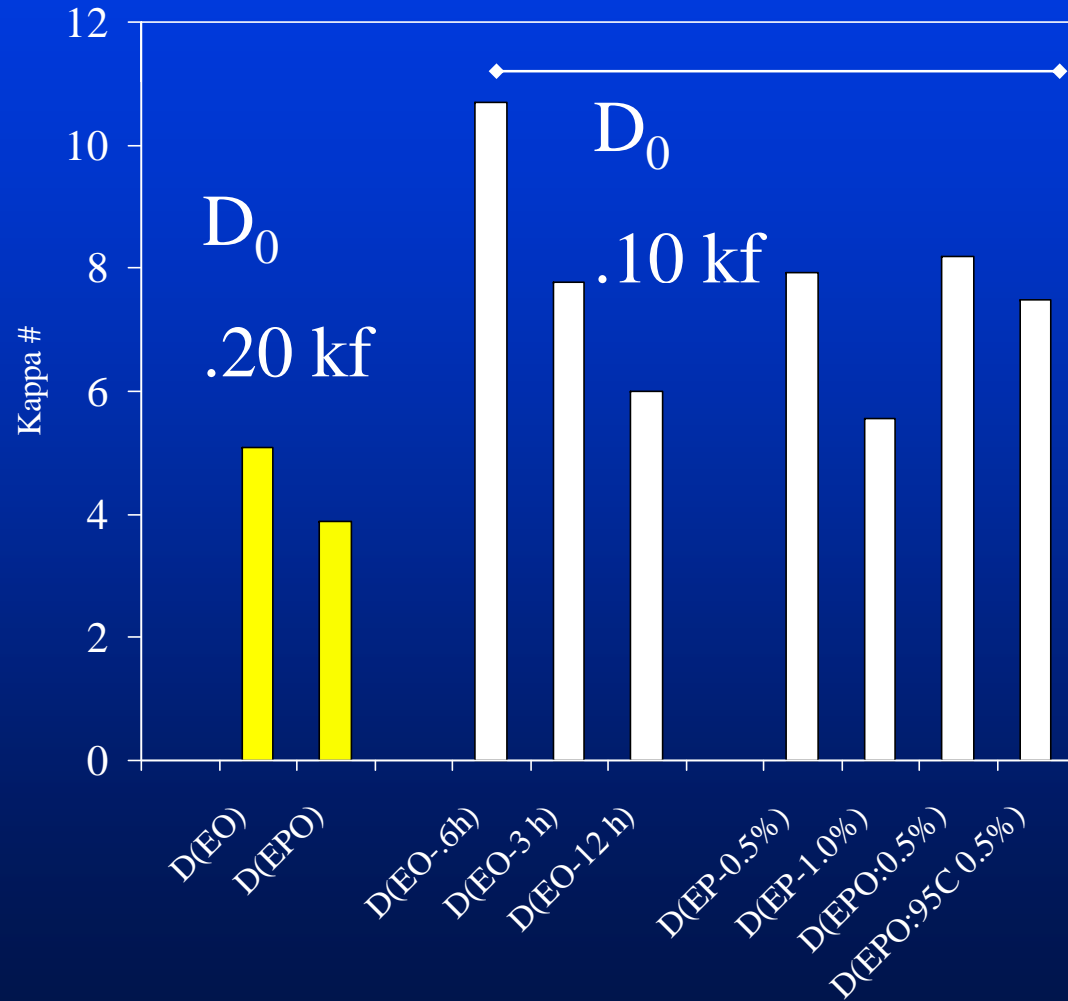
D{kf0.1}(EO) 66

D{kf0.1}(EPO) 69

D{kf0.2}(EO) 77

D{kf0.2}(EPO) 81

Peroxide: Delign. of D_0 (kf. 0.10 & 0.20) with E, (E+P), (E+O), and (E+P+O)



Peroxide: Delign. of D_0 (kf. 0.10 & 0.20) with E, (E+P), (E+O), and (E+P+O)

