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**EFFECT OF pH ON SCREEN DOT SIZE FROM
CROSSLINKING REACTION OF POLY(VINYL ALCOHOL) IN
PHOSPHOR SLURRY FOR CATHODE RAY TUBE PRODUCTION**

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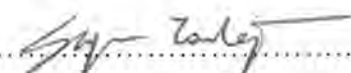
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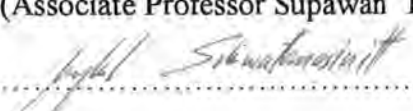
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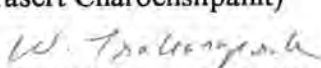
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ได้ศึกษาผลของพีเอชของสารชั้นเรืองแสงในกระบวนการผลิตหลอดภาพคอมพิวเตอร์ที่มี
ต่อขนาดของจุดสี สารละลายบัฟเฟอร์ของฟอสเฟตและคาร์บอกซิเลตถูกนำมาใช้เพื่อควบคุมพีเอช
แต่พบว่าไม่สามารถเข้ากันได้กับสารชั้นเรืองแสง และการยึดเกาะของสีไม่ดี การลดปริมาณสาร
ละลายโซเดียมพอลิอะคริเลต (ทามอล) ซึ่งเป็นสารลดแรงตึงผิวนั้น สามารถลดพีเอชของสารชั้นเรือง
แสงได้เล็กน้อยคือ จากพีเอช 8.2 เป็น 7.8 และ พบว่า คุณภาพของจอภาพที่ดีที่สุดได้จากการลด
ทามอลลง 10% สารชั้นเรืองแสงพีเอช 6.0 ถึง 9.0 ได้ถูกเตรียมขึ้นโดยการเติมสารละลายกรดซัลฟูริก
และ สารละลายแอมโมเนีย พบว่า สารชั้นเรืองแสงที่มีพีเอช 7.0 ถึง 8.2 ให้คุณภาพของจอภาพที่ดีใน
ขณะที่พีเอชอื่นให้คุณภาพที่ไม่ดี สำหรับพีเอช 6.0 ซึ่งมีความเข้มข้นของไบโครเมตไอออนมากที่สุด
พบว่าให้ขนาดของจุดสีที่ใหญ่ แต่คุณภาพอื่น ๆ ไม่สามารถยอมรับได้ การฉายแสงที่ 115% ของ
ปริมาณการฉายแสงที่ใช้ในปัจจุบัน พบว่าขนาดของจุดสีมีแนวโน้มที่ใหญ่ขึ้นเมื่อพีเอชลดลง อย่างไรก็ตาม
ก็ตามทีปริมาณการฉายแสงต่ำลงแนวโน้มดังกล่าวไม่เด่นชัด สภาวะที่ดีที่สุดสำหรับสารชั้นเรืองแสง
ในการผลิตหลอดภาพคอมพิวเตอร์คือ พีเอช 7.0 และปริมาณการฉายแสงมากกว่า 85% ของปริมาณ
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ค่าความขาวสม่ำเสมอ และให้ค่าความสว่างที่มุดดี

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Effect of pH of phosphor slurry in color display tube (CDT) processing on the screen dot size was investigated. A phosphate and carboxylate buffer solutions were used for pH control but they were not compatible with the slurry and generated poor pattern of phosphor adherence. Reduction of sodium polyacrylate solution (tamol), a surfactant, could slightly reduce the slurry pH from 8.2 to 7.8. The screen with best quality was found when tamol was reduced by 10%. Slurry pH 6.0-9.0 were investigated by adding sulfuric acid and ammonia solution. At pH 7.0-8.2, the slurries gave the optimum screen qualities while other pH gave poor screen qualities. For the pH 6.0, at which supposedly the highest concentration of bichromate ions is present, the larger screen dot sizes were observed but other screen qualities were unacceptable. At 115% of the current routine exposure amount, the dot sizes tended to be larger at lower pH, however at lower exposure, this trend became less obvious. The most preferred condition for phosphor slurry in CDT manufacturing was at the slurry pH 7.0 with exposure amount over 85% of the current routine exposure amount since this condition produced good controlled dot sizes, good sharpness, less pin holes, high white uniformity, and satisfied corner brightness.

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LIST OF ABBREVIATIONS

ADC	Ammonium dichromate
CB	Corner brightness
CDTs	Color display tubes
CPTs	Color picture tubes
CRTs	Cathode ray tubes
Cd/m ²	Candella per square metres
DI water	Deionized water
EQ	Exposure quality
FLO (R,G,B)	Field light output of red, green and blue colors
KBht	1000 times of baht
NG	Not good
PVA	Poly(vinyl alcohol)
PVAc	Poly(vinyl acetate)
SG	Specific gravity
WU	White uniformity
cps	Centipoise
eq.	Equation
mW.sec/cm ²	Milliwatt X second/ square centimetres