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## 铅与光照对镀锌层黑变的影响

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**摘 要:** 在硫酸盐镀锌液中所得的含铅与不含铅的镀锌试片, 经铬酸盐钝化后, 通过湿热试验(HCT)进行了黑变培养。采用试片的表面明度差来表征黑变的程度, 考察了铅和光照对其黑变速率的影响。发现镀液中铅离子的存在使黑变反应的活化能  $E_a$  从34 kJ/mol左右降低到21 kJ/mol左右, 从而加速了黑变反应。光照虽然使  $E_a$  降低了0.5 kJ/mol, 但同时较大幅度地降低了指前因子  $A$  的值, 总的作用结果是抑制了黑变的反应。

**关键字:** 硫酸盐镀锌; 铅离子; 铬酸盐钝化; 光照; 黑变速率

## Effects of lead and illumination on black patina of zinc plating

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**Abstract:** The rates of black patina formation chromated zinc plates were studied by surface lightness difference method and humidity cabinet test (HCT), under the conditions with and without illumination. Zinc plates were obtained from sulphate baths with and without lead ion. It was found that lead ion can decrease the activation energy  $E_a$  of black patina formation from about 34 kJ/mol to about 21 kJ/mol, and accelerates the rate of black patina. Illumination decreases the  $E_a$  by 0.5 kJ/mol, but also decreases pre exponential factor  $A$  to a great extent, and the total effects of illumination withhold the rate of black patina.

**Key words:** sulphate zinc plating; lead ion; chromated; illumination; rate of black patina

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