

สีย้อมทำเครื่องหมายจากอะมิโนเบนโซเอตและอนุพันธ์แอนิลีน



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MARKER DYES FROM AMINOBENZOATE AND ANILINE DERIVATIVES



Mrs. Khwanrudee Keosaeng

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

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ได้สังเคราะห์สีส้อมทำเครื่องหมายในน้ำมันเชื้อเพลิง ประเภทอะมิโนเอไซด์จากปฏิกิริยาควตู่ระหว่างเกลือไดอะโซเนียมของ ไนโตรแอนิลีน, กลอโรแอนิลีน, โทลูอิดีน และ-2-กลอโร-4-ไนโตรแอนิลีน และ อะมิโนเบนโซเอต ได้แก่ เอธิล-2-อะมิโนเบนโซเอต และ เฮกซิล-3-อะมิโนเบนโซเอต สารประกอบอะมิโนเอไซด์ที่มีหมู่แทนที่เป็นหมู่ไนโตรในตำแหน่ง ออร์โท และ เมทา ยกเว้น เฮกซิล-3-อะมิโนเบนโซเอต-2-ไนโตรเฟนิล เอไซด์ เหมาะสำหรับใช้เป็นสีส้อมทำเครื่องหมายในน้ำมันเชื้อเพลิง สามารถตรวจสอบได้โดยการสกัดด้วยสารละลายสกัดที่เป็นด่างให้สีในชั้นสกัดที่เด่นชัด อาจตรวจหาปริมาณได้ที่ระดับต่ำ 1 – 6 ppm โดยใช้เทคนิคยูวี-วิสิเบิล สเปกโตรสโกปี และมีความคงตัวในน้ำมันเชื้อเพลิงอย่างน้อย 3 เดือน

ภาควิชา.....

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สาขาวิชา.....

ปีการศึกษา..... 2542

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Amino azo dyes as markers for fuel oil were prepared from coupling reaction of diazonium salts of nitroanilines, chloroanilines, toluidines and 2-chloro-4-nitroaniline and aminobenzoates such as ethyl-2-aminobenzoate and hexyl-3-aminobenzoate. Amino azo dyes having nitro group substituted at ortho and para positions except hexyl-3-aminobenzoate-2-nitrophenyl azo were suitable to use as marker dyes in fuel oil. These markers were detected by extraction with alkaline medium solution, developing the clearly defined color in extracted phase. They may be detected quantitatively as low as 1 to 6 ppm by UV-Visible Spectroscopy and were stable in tagged fuel for at least 3 months.

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ลายมือชื่ออาจารย์ที่ปรึกษา.....
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

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จุฬาลงกรณ์มหาวิทยาลัย

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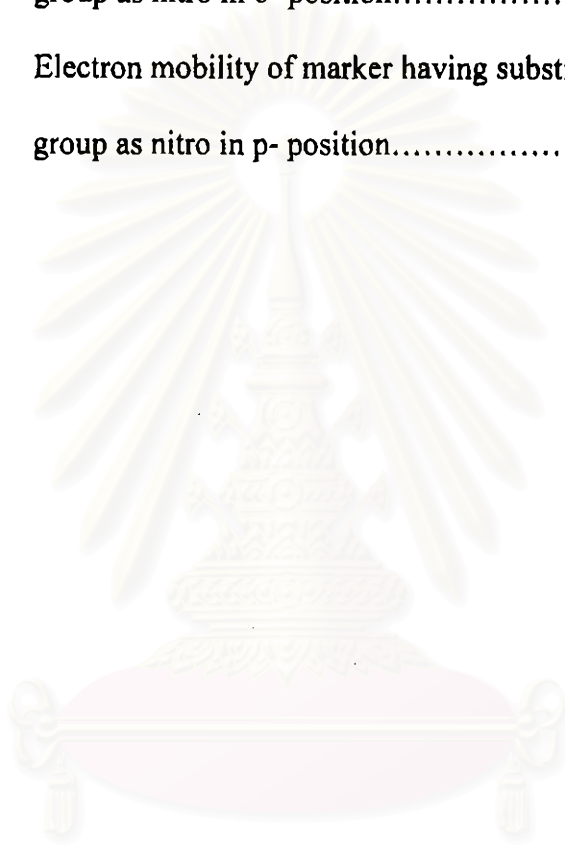
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จุฬาลงกรณ์มหาวิทยาลัย

LIST OF ABBREVIATIONS

| | |
|---------------------|--|
| ASTM | The American Society for Testing and Materials |
| °C | Degree Celsius |
| cm ⁻¹ | Unit of wavenumber |
| ¹³ C-NMR | Carbon 13 nuclear magnetic resonance |
| Cont. | Continue |
| Fig. | Figure |
| FT-IR | Fourier transform – Infrared spectrometer |
| g | Gram(s) |
| ¹ H-NMR | Proton nuclear magnetic resonance |
| HSD | High speed diesel |
| m | Medium (IR) |
| mg | Milligram(s) |
| min. | Minimum |
| ml | Millilitre |
| m.p. | Melting point |
| ppm. | Part(s) per million |
| s | Strong (IR) |
| UV / Vis | Ultraviolet / visible spectroscopy |
| v.s. | Very strong (IR) |
| % wt. | Weight percent |
| λ max | The wavelength of maximum absorption |