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4,4'-ไดไฮดรอกซีซาลิไซลิกแอซิดโดยมีไดแอลกอฮอล์หรือไดเอมีน

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**SYNTHESIS OF COPOLYURETHANE-UREAS CONTAINING NICKEL AND
ZINC 4,4'-DIHYDROXYSALTRIEN COMPLEXES IN THE PRESENCE
OF DIALCOHOLS OR DIAMINES**

Miss Prakaywan Tachprasertporn

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By Miss Prakaywan Tachprasertporn

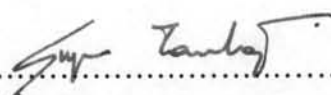
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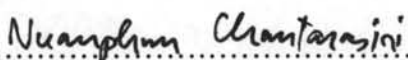
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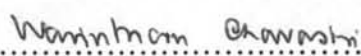
Accepted by the Faculty of Science, Chulalongkorn University in Partial
Fulfillment of the Requirements for the Master's Degree


.....Dean of the Faculty of Science
(Professor Piamsak Menasveta, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Associate Professor Supawan Tantayanon, Ph.D.)

.....Thesis Advisor
(Associate Professor Nuanphun Chantarasiri, Ph.D.)

.....Member
(Assistant Professor Warinthorn Chavasiri, Ph.D.)

.....Member
(Assistant Professor Varawut Tangpasuthadol, Ph.D.)

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4,4'-Dihydroxysaltrien metal complexes (ML, where $M = \text{Zn}^{2+}$ and Ni^{2+}) were synthesized from the reaction between 2,4-dihydroxybenzaldehyde, metal (II) acetate and triethylenetetramine at the mole ratio of 2:1:1. These metal complexes were characterized by IR and NMR. The metal complexes were used for the synthesis of copolyurethane-ureas containing nickel and zinc 4,4'-dihydroxysaltrien complexes in the presence of dialcohols or diamines. They were done by polymerization of 4,4'-dihydroxysaltrien metal complexes (ML), 4,4'-methylenebis(phenyl isocyanate) (MDI) and various diamines or diols. The diamines used were methylenedianiline (MTDA) and hexamethylenediamine (HMDA). The diols employed were bisphenol A (BA) and 1,6-hexanediol (HD). Dibutyltin dilaurate (DBTDL) was used as a catalyst. The polymers were characterized by IR, NMR. Moreover, the solubility and viscosity were used for characterization as well. Thermal properties were determined by thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC). Flammability of the polymers was studied by measuring limiting oxygen index (LOI). It was found that the copolyurethane-ureas showed high thermal stability and good solubility in polar organic solvents.

Field of study Petrochemistry and Polymer Science Student's signature *Prakaywan Tachaprasertp*
 Academic year.....2006..... Advisor's signature *N. Chantarasiri*

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LIST OF SYMBOLS AND ABBREVIATIONS

BA	Bisphenol A
DBTDL	Dibutyltin dilaurate
DMF	Dimethyl formamide
DMSO	Dimethyl sulphoxide
DSC	Differential scanning calorimetry
HD	1,6-Hexanediol
HMDA	Hexamethylenediamine
IDT	Initial decomposition temperature
LOI	Limiting oxygen index
MDI	4,4'-Methylenebis(phenyl isocyanate)
MDI-BA	Polymer synthesized from MDI and BA
MDI-HD	Polymer synthesized from MDI and HD
MDI-HMDA	Polymer synthesized from MDI and HMDA
MDI-MTDA	Polymer synthesized from MDI and MTDA
ML	4,4'-Dihydroxysaltrien metal complexes
ML-coPUU	Metal-containing copolyurethane-ureas
ML-MDI	Polymer synthesized from ML and MDI
ML-MDI-BA	Polymer synthesized from ML, MDI and BA
ML-MDI-HD	Polymer synthesized from ML, MDI and HD
ML-MDI-HMDA	Polymer synthesized from ML, MDI and HMDA
ML-MDI-MTDA	Polymer synthesized from ML, MDI and MTDA
ML-PUU	Metal-containing polyurethane-ureas
MTDA	Methylenedianiline
NiL	4,4'-Dihydroxysaltrien nickel complexes
T _g	Glass transition temperature
TGA	Thermogravimetric analysis
XRD	X-ray diffraction
ZnL	4,4'-Dihydroxysaltrien zinc complexes