

AD-A187 441

INFLUENCE OF COMPLEXING ON THE REACTIVITY OF POLAR
UNSATURATED MONOMERS(U) FOREIGN TECHNOLOGY DIV
WRIGHT-PATTERSON AFB OH B L VERUSALIMSKIY ET AL

1/1

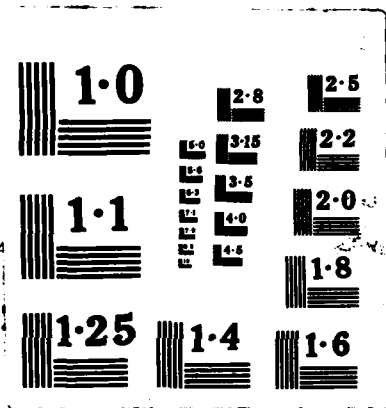
UNCLASSIFIED

18 NOV 87 FTD-ID(RS)T-8849-87

F/G 7/3

NL





2

FTD-ID(RS)T-0849-87

AD-A187 441

DTIC FILE COPY

FOREIGN TECHNOLOGY DIVISION



INFLUENCE OF COMPLEXING ON THE REACTIVITY OF POLAR UNSATURATED MONOMERS

by

B.L. Yerusalimskiy, V.N. Krasulina, Yu. Ye. Eyzner



DTIC
ELECTE
DEC 29 1987
S D

87 12 11 003

Approved for public release;
Distribution unlimited.



PARTIALLY EDITED MACHINE TRANSLATION

FTD-ID(RS)T-0849-87

18 November 1987

MICROFICHE NR: FTD-87-C-001012

INFLUENCE OF COMPLEXING ON THE REACTIVITY OF POLAR
UNSATURATED MONOMERS

By: B.L. Yerusalimskiy, V.N. Krasulina, Yu. Ye. Eyzner

English pages: 3

Source: Vysokomolekulyarnyye Soyedineniya, Seriya B,
Kratkiye Soobshcheniya, Vol. 12, Nr. 5,
May 1970, pp. 327-328

Country of origin: USSR

This document is a machine translation.

Input and Merged by: Janet L. Fox

Approved for public release; Distribution unlimited.



Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:

TRANSLATION DIVISION
FOREIGN TECHNOLOGY DIVISION
WPAFB, OHIO.

U. S. BOARD ON GEOGRAPHIC NAMES transliteration SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>А а</i>	A, a	Р р	<i>Р р</i>	R, r
Б б	<i>Б б</i>	B, b	С с	<i>С с</i>	S, s
В в	<i>В в</i>	V, v	Т т	<i>Т т</i>	T, t
Г г	<i>Г г</i>	G, g	У у	<i>У у</i>	U, u
Д д	<i>Д д</i>	D, d	Ф ф	<i>Ф ф</i>	F, f
Е е	<i>Е е</i>	Ye, ye; E, e*	Х х	<i>Х х</i>	Kh, kh
Ж ж	<i>Ж ж</i>	Zh, zh	Ц ц	<i>Ц ц</i>	Ts, ts
З з	<i>З з</i>	Z, z	Ч ч	<i>Ч ч</i>	Ch, ch
И и	<i>И и</i>	I, i	Ш ш	<i>Ш ш</i>	Sh, sh
Й й	<i>Й й</i>	Y, y	Щ щ	<i>Щ щ</i>	Shch, shch
К к	<i>К к</i>	K, k	Ъ ъ	<i>Ъ ъ</i>	"
Л л	<i>Л л</i>	L, l	Ы ы	<i>Ы ы</i>	Y, y
М м	<i>М м</i>	M, m	Ь ь	<i>Ь ь</i>	'
Н н	<i>Н н</i>	N, n	Э э	<i>Э э</i>	E, e
О о	<i>О о</i>	O, o	Ю ю	<i>Ю ю</i>	Yu, yu
П п	<i>П п</i>	P, p	Я я	<i>Я я</i>	Ya, ya

*ye initially, after vowels, and after Ъ, Ь; e elsewhere.
When written as ѐ in Russian, transliterate as yě or ě.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian English

rot	curl
lg	log

GRAPHICS DISCLAIMER

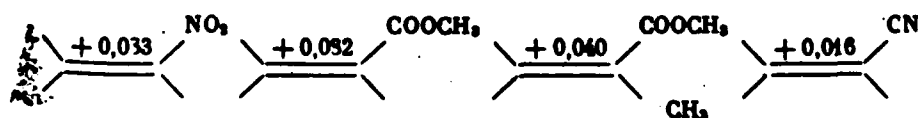
All figures, graphics, tables, equations, etc.
merged into this translation were extracted
from the best quality copy available.

INFLUENCE OF COMPLEXING ON THE REACTIVITY OF POLAR UNSATURATED MONOMERS

B. L. Yerusalimskiy, V. N. Krasulina, Yu. Ye. Eyzner

Dear editor!

The known data about the behavior of vinyl monomers (M) during anionic polymerization conform to the following order of activity: nitroethylene > acrylonitrile (AN) > methylacrylate (MA) > methyl methacrylate. At the same time the calculations of distribution of electron energy, made by us according to the method of zero differential overlapping [1], lead to another order, as this show π -components of charge of β carbon atom of vinyl group in the monomers indicated:



over

Copolymerization of AN with MA in toluene at -60° .
(Molar ratio AN:MA=1. Concentration of lithium butyl 0.01 mole/l).

(1) [DMB], ммоль/л	(2) Выход сополимера, %	(3) MA в сополимере, %
—	7,0	36,6
0,01	17,6	57,3
0,03	10,6	70,0

Key: (1). [DMB], mole/l. (2). Yield of copolymer, %. (3). MA in copolymer, %.

Page 328

Cont'd → We assumed that this nonconformity is caused by different relative contribution of the course of reaction of propagation for each of the monomers through the stage of complexing with the gegenion. About a significant change of the electron density in the vinyl group of monomer with the formation of complexes of the type $\text{CH}_2=\text{CHX} \leftrightarrow \text{MeR}$ (where X - polar group, MeR - metal-alkyl) testify our calculations, which relate to the complexes AN and MA with lithiummethyl [2]. The role of complexing as the factor, which influences monomer activity, appeared during the comparison of copolymers - AN-MA, obtained by us under the action of lithiumbutyl and its complex with 2,3-dimethoxybutane (DMB). As it turned out, the coordination saturation of gegenion by the independent base of Lewis leads to the formation of copolymer with the preferred content MA (table), i.e. such composition, which will agree with the results of quantum-chemical calculations.

Apparently, with the formation of complexes $M \rightarrow MeR$ is important not only selection of one of the monomers, but also its activation, caused by the change of the electronic characteristic of double bond [2], since the reaction of propagation, which takes place besides the stage of complexing, is not excluded.

Received by the editorial staff 16.I.1970.

Literature.

1. J. A. Pople, G. A. Segal, J. Chem. Phys., 44, 3289, 1966.
2. Б. Л. Ерусалимский, International Symposium on Macromolecular Chemistry, Plenary and Main Lectures, Sect. 3, Budapest, 1970.

DISTRIBUTION LIST
DISTRIBUTION DIRECT TO RECIPIENT

<u>ORGANIZATION</u>	<u>MICROFICHE</u>
A205 DMAHTC	1
A210 DMAAC	1
B344 DIA/RTS-2C	9
C043 USAMIA	1
C500 TRADOC	1
C509 BALLISTIC RES LAB	1
C510 R&T LABS/AVRADCOM	1
C513 AVRADCOM	1
C535 AVRADCOM/TSARCOM	1
C539 TRASANA	1
C591 PSTC	4
C619 MIA REDSTONE	1
D008 NISC	1
E053 HQ USAF/INET	1
E404 AEDC/DOF	1
E408 AFWL	1
E410 AD/IND	1
E429 SD/IND	1
P005 DOE/ISA/DDI	1
P050 CIA/OCR/ADD/SD	2
AFIT/LDE	1
FTD	
CCN	
NLA/PHS	1
LLNL/Code L-389	1
NASA/NST-44	1
NSA/1213/TDL	2
ASD/FTD/IQIA	1

END

FEB.

1988

DTic