

Stereospecific Polymerization of Styrene

S/064/60/000/005/003/009  
B015/B058

of the molar ratio of triethyl aluminum to  $TiCl_3$  above 1 : 1 at a concentration of the former of 7% and an experimental temperature of 90° and 120°C leads to increased formation of amorphous fraction, but it does not change the yield of isotactic fraction (Table 2). Temperature (with variations of from 60° to 150°C) exerted a marked influence on the yield of amorphous fraction, but not on that of the isotactic fraction. The following polymerization conditions are recommended: concentration of triethyl aluminum in the solution: 5.0-7.0%, molar ratio between triethyl aluminum and  $TiCl_3$  = 1 : 1, weight ratio between styrene and  $TiCl_3$  = 12-20 : 1, reaction temperature 90-150°C, duration of reaction 3-5 hours. The properties of polystyrene obtained in the stereospecific synthesis are finally discussed and the advantages of the crystalline product (Table 3) are pointed out. There are 3 figures, 3 tables, and 20 references: 6 Soviet, 5 US, 2 British, 2 German, 4 Italian, and 1 Japanese. ✓

Card 2/2

SHEVLYAKOV, A. S.; ETLIS, V. S.; MINSKER, K. S.; DEGTYAREVA, L. M.;  
FEDOSEYEVA, G. T.; KUCHERENKO, M. M.

Stereospecific polymerisation of styrene. Khim.prom. no.5:362-  
367 J1-Ag '60. (MIRA 13:9)  
(Styrene) (Polymerization)

RYLOV, Ye.Ye.; BORT, D.N.; MINSKER, K.S.; KRONMAN, A.G.; TEPLOV, B.F.

Some data on the crystalline polyvinyl chloride structure.  
Zhur.strukt.khim. 2 no.5:615-616 S-0 '61. (MIRA 14:11)  
(Ethylene) (Crystals)

L 17189-63 EPR/EWP(j)/EPF(1)/EWT(m)/BDS AFTG/ASD Ps-1/Pc-1/  
Pr-1 RM/WW  
ACCESSION NR: AR3004191 s/0081/63/000/009/0626/0626  
SOURCE: RZh. Khimiya, Abs. 9346 71  
AUTHOR: Minsker, K. S.; Durnaykina, V. V.  
TITLE: Stereospecific polymerization of propylene in the liquid phase in the presence of triethylaluminum in the strongly oxidized state  
CITED SOURCE: Tr. po khimii i khim. tekhnol., (Gor'kiy), vy'p. 1, 1962, 190-194  
TOPIC TAGS: polymerization, stereospecific polymerization, propylene, triethylaluminum, titanium chloride, polypropylene, crystallinity, isotactic polymer, polymer  
TRANSLATION: Propylene (I) of a high degree of purity was polymerized at 10-30° above a system of  $TiCl_3$  (II) - mixture of  $Al(C_2H_5)_3$  (III) with the oxidation products of III in the liquid phase in the absence of a solvent. Under these conditions up to 800-850 grams of the polymer is formed per gram of II. The yield of the polymer increases sharply with increasing temperature. The oxidation products of III lower the rate of polymerization of I. The total crystallinity of the polypropylene obtained is ~92%, while the content of the isotactic fraction is 73-85%. A. Litmanovich  
DATE ACQ: 19Jun63 SUB CODE: CH ENCL: 00  
Card 1/1

31961  
S/190/62/004/003/004/023  
B110/B144

15. 8061  
AUTHORS: Minsker, K. S., Shapiro, I. Z., Razuvayev, G. A.

TITLE: Modification of polypropylene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962, 351-356

TEXT: The modification of polypropylene (I) was investigated by introducing functional groups into the macromolecule. The destruction of the hydroperoxides, first formed owing to the rather easy oxidation of I, was possible (1) by graft copolymerization of I with vinyl monomers polymerizing through the radical mechanism, and (2) by characteristic

hydroperoxide reactions. Thereby, the number of  $\begin{array}{c} | \\ - C - H \\ | \end{array}$  bonds of the unsymmetric C atom, oxidation, and aging are reduced, and ordinary dyes can be fixed at the surface of newly formed polar groups. I can be graft-copolymerized with methyl methacrylate (II), with methacryl amide, methacrylic acid, and acrylonitrile. In the last three compounds, however, the copolymers are poorly separable from the homopolymers. The graft polymer of I and II can be dyed well with azo dyes, the fiber color

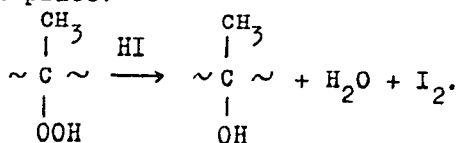
Card 1/2

Modification of polypropylene

S/190/62/004/003/004/023  
B110/B144

being characterized by brilliance and resistance to boiling soapsuds. The mechanical strength ( $\sigma$ ) was found to increase, but the relative elongation ( $\epsilon$ ) in the case of rupture decreased considerably due to elasticity loss. Oxidation of I only affected  $\sigma$  and  $\epsilon$  if it was protracted (> 6 hrs) or combined with UV irradiation ( $\sigma = 60 \text{ kg/mm}^2$ ,  $\epsilon = 425 \%$ ;  $\sigma = 79 \text{ kg/mm}^2$ ,

$\epsilon = 350 \%$ ). Only surface oxidation took place without secondary aging. The macromolecular hydroperoxide groups were identified by iodine separation. Oxidized I was treated for 6 hrs with KI acetate solution at  $20^\circ\text{C}$ , and the following reaction took place:



The OH groups thus formed were identified by IR spectroscopy. Here also, coloring with azo dyes was successful, and  $\sigma$  and  $\epsilon$  increased. I fibers were made suitable for dyeing by being treated with solutions of triethyl aluminum in n-heptane and with 0.1 N HCl. The initial strength was preserved, and even partly increased. The frequency  $333 \text{ cm}^{-1}$ , identifying

Card 2/3

34990  
S/190/62/004/003/010/023  
B110/B144

15. 2050

AUTHORS: Minsker, E. S., Kronman, A. G., Teplov, B. F., Rylov, Ye. Ye.,  
Bort, D. N.

TITLE: Stereospecific homogeneous vinyl chloride polymerization

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962, 383-388

TEXT: The effect of various polar solvents (nitro compounds, amines, amides, nitriles, ethers, esters, ketones, aldehydes, acids, anhydrides, and heterocyclic compounds) on the polymerization of vinyl chloride (I) was studied to determine the structure of the polymer formed. Polymerization was conducted for 18 hrs between 0 and 60°C in an N<sub>2</sub> atmosphere with radical initiators ( $8 \cdot 10^{-4}$  moles/mole of monomer). Films kept at 120°C for 2.5 hrs were used for the electronographic determination of crystallinity. Only few solvents yielded stereoregular PVC structures. Electron diffraction patterns showed four diffuse rings. HCOOH, CH<sub>3</sub>COOH, C<sub>2</sub>H<sub>5</sub>COOH, C<sub>3</sub>H<sub>7</sub>COOH lead to a higher order of the polymer chain and produce two more diffuse bands of aliphatic aldehydes yielded crystalline PVC. Electron diffraction patterns showed some new lines with  $d = 5.07, 5.27 \text{ \AA}$  (instead of 5.16);  
Card 1/3

Stereospecific homogeneous ...

S/190/62/004/003/010/C23  
B110/B144

2.52, 2.62 Å (instead of 2.56); 2.26, 2.31 Å (instead of 2.28); 1.74 and 1.69 Å. Low yields and molecular weights suggest: (1) that aldehydes regulate the molecular weight in radical polymerization of I; and (2) chain transfer.  $\text{CHCl}_3$  and  $\text{CHI}_3$  were used for chain rupture, since the formation of a regular structure is easier at low molecular weights. PVC with the characteristic viscosity of 0.1 was obtained with 1 mole  $\text{CHCl}_3$  per monomer-mole. Absence of aldehyde in the system (monomer initiator and aldehyde) leads to amorphous PVC. Substitution of azoisobutyric dinitrile by peroxide initiators yielded poorly crystalline PVC. Peroxide on the basis of butyric aldehyde yielded highly crystalline PVC. Electron diffraction patterns of PVC twice reprecipitated PVC showed further new bands with  $d = 1.89, 1.54, \text{ and } 1.44 \text{ \AA}$ . Free radicals formed by the decomposition of the hydroperoxide group in peracids initiate the radical polymerization of I in the presence of aldehydes so that adding of initiators becomes unnecessary. Complexes of aldehyde and vinyl chloride cause the formation of crystalline PVC. Conclusions. (1) The C=O groups do not affect the crystallinity, since amides, esters, ketones, acids, and anhydrides are ineffective. (2) Regularity (but not crystallinity) is increased in the

Card 2/3



Stereospecific homogeneous ...

S/190/62/004/003/C10/023  
B110/B144

systems containing COOH groups. (3) Crystallinity is caused by aliphatic aldehydes only. Stereospecificity is affected by substituents in aldehydes and acids ( $(\text{CH}_3)_2\text{CHCHO}$ ,  $\text{CCl}_3\text{COOH}$ ). There are 1 figure and 1 table. The reference to the English-language publication reads as follows: P. H. Burleigh, J. Amer. Chem. Soc., 82, 749, 1960.

SUBMITTED: February 23, 1961

+

Card 3/3

S/190/62/004/010/006/010  
B101/B186

AUTHORS: Razuvayev, G. A., Minsker, K. S., Fedoseyeva, G. T.

TITLE: Heterogeneous catalytic polymerization of ethylene in the presence of  $TiCl_3 + Al + AlCl_3$  or  $TiCl_3 + (Al + HCl)$

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 10, 1962, 1495-1502

TEXT: Polyethylene (PE) and ethylene were synthesized at  $60^{\circ}C$  and a pressure of 10 atm in different solvents to obtain more exact data on the polymerization of ethylene with a catalyst suggested by K. Fukui et al. (J. Polymer Sci., 37, 341, 1959; *ibid.*, 37, 353, 1959). The system  $TiCl_3 + Al + AlCl_3$  was very active, whereas its components alone or paired did not form PE.  $TiCl_3 + Al$  which yields small amounts of PE, is an exception. For the first time, the activity of the catalyst was found to depend on the type of solvent (Fig. 1). The catalyst system is assumed to form a catalytically effective complex with the solvent, where  $AlCl_3$  acts

Card 1/13

Heterogeneous catalytic polymerization ...

8/190/62/004/010/006/010  
B701/B106

as activator of the Al surface and of  $TiCl_3$  and forms complexes with aromatic hydrocarbons. Hence, the catalytic effect of the system  $TiCl_3 + (Al + HCl)$  was tested, with Al having been treated with anhydrous HCl in an aromatic or saturated hydrocarbon medium. Treatment of Al with HCl in benzene yielded a yellowish brown  $AlCl_3$  deposit which, without  $TiCl_3$ , was a highly active catalyst of alkylation. Benzene yielded considerable amounts of hexaethylene benzene. An addition of  $TiCl_3$  caused the formation of PE. The complex thus formed, excludes structures causing alkylation of aromatics. The effectiveness of the system  $TiCl_3 + (Al + HCl)$  depended on the contact time of the components before the reaction. After a contact time of 0.5 hrs, the ratio PE : hexaethyl benzene was 4 : 110, after 24 hrs 11 : 70, after 90 hrs 75 : 3, and after 120 hrs 350 : 0.  $TiCl_3 + (Al + HCl)$  was more active than  $TiCl_3 + Al + AlCl_3$ , its presence intensified the ethylene adsorption. After an addition of  $TiCl_3$ , Al activated with HCl in n-heptane, did not yield PE which was only obtained

Card 2/13

Heterogeneous catalytic polymerization ...

S/190/62/004/010/006/010  
B101/B186

when benzene was used for the activation, and the system was suspended in n-heptane. Both systems yielded PE with m.p. = 120 - 135°C and with physicomechanical properties consistent with those of PE produced with Ziegler catalysts. The active centers of polymerization are on the metal surface on which TiCl<sub>3</sub> is deposited. Micro- and macroformations, fibrils, spherulites, etc were observed under the polarization microscope. There are 5 figures and 3 tables.

SUBMITTED: June 10, 1961

Fig. 1: Yield of PE versus time when different solvents are used.  
(1) Benzene; (2) chloro benzene; (3) toluene; (4) o-xylene; (5) cyclohexane;  
(6) p-dichloro benzene; (7) n-heptane.  
Legend: (a) polymer yield; (b) time, hrs.

Card 3/1/3

1)  
C1  
y3  
-  
3C  
nt

S/190/62/004/012/009/015  
B101/B186

AUTHORS: Razuvayev, G. A., Minsker, K. S., Shapiro, I. Z.

TITLE: Copolymerization of styrene and propylene in the presence of the heterogeneous Ziegler-Natta catalytic system

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 12, 1962, 1833-1838

TEXT: Styrene and propylene in the initial ratio 65:35 were polymerized in the autoclave at 60°C in the presence of  $TiCl_3 + Al(C_2H_5)_3$ . The above-mentioned ratio was chosen in order to obtain a polymer the softening point of which is only slightly below that of isotactic polystyrene. Results: (1) The polymerization of propylene is anomalously accelerated in the presence of styrene. The initial product contains almost no styrene. Only after prolonged heating (10-15 hrs) is a copolymer obtained, which differs from the initial product and also from a mechanical mixture of the homopolymers. The thermomechanical curve for the mixture shows transition points at 160° and at 200-210°C, whereas the copolymer has a softening point only at 195-205°C. The same product is

Card 1/3

Copolymerization of styrene and...

S/190/62/004/012/009/015  
B101/B186

obtained by addition of propylene in portions. This suggests that a block copolymer is formed. (2) If an aromatic hydrocarbon (benzene, xylene) is used as solvent instead of a saturated hydrocarbon (benzine, n-heptane), polymerization is accelerated. (3) The rate of polymerization also depends on the method of producing  $TiCl_3$ . The latter was obtained by reduction of  $TiCl_4$  with  $H_2$ , Al, Sb, or Si. The use of  $TiCl_3$  obtained by reduction with  $H_2$  or Si yielded a copolymer with s.p. 150-155°C and relative breaking elongation of 200-680%, whereas the catalyst reduced with Al or Sb yielded a copolymer with s.p. 195-208°C and relative breaking elongation 30-70%. This is explained by the difference in quality of the catalyst surface. (4) The softening point of the copolymer depends on the styrene content. In copolymers with a styrene-propylene ratio >10:1, an amorphous product is formed, the s.p. of which lies below that of polypropylene. (5) Composition and physico-mechanical properties of the copolymer can thus be regulated by the method of adding propylene, the reaction time, and the type of  $TiCl_3$  used. There are 5 figures and 3 tables. The most important English-language reference is: N.G. Gaylord, H.F. Mark, Linear and Stereoregular Addition Polymers, Intersci. Publ. Inc., N.Y., 1959.

Card 2/3

Copolymerization of styrene and...

S/190/62/004/012/009/015  
B101/B186

SUBMITTED: July 7, 1961

Card 3/3

RAZUVAYEV, G.A.; GRAYEVSKIY, A.I.; MINSKER, K.S.; ZAKHAROVA, V.N.

Synthesis and some properties of diethoxyaluminum peroxyacetal. *Izv.AN SSSR.Otd.khim.nauk no.9:1555-1559 S '62.* (MIRA 15:10)

1. Nauchno-issledovatel'skiy institut khimii, g. Gor'kiy.  
(Aluminum organic compounds)



RAZUVAYEV, G.A.; MINSKER, K.S.; KRONMAN, A.G.; SANGALOV, Yu.A.; BORT, D.N.

Mechanism of homogeneous radical stereospecific polymerization  
of vinyl chloride in aldehydes. Dokl. AN SSSR 143 no.5:1116-  
1118 Ap '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom  
gosudarstvennom universitete im. N.I.Lobachevskogo. 2. Chlen-  
korrespondent AN SSSR (for Razuvayev).  
(Vinyl compound polymers)

S/020/62/143/006/015/024  
B106/B138

AUTHORS: Bort, D. P., Kronman, A. G., Minsker, K. S., Shtarkman, B. P.,  
and Kargin, V. A., Academician

TITLE: Electron microscopic study of crystalline polyvinyl chloride

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 6, 1962, 1345-1347

TEXT: Electron microscopic investigations of highly crystalline polyvinyl chloride were carried out for the first time. To prepare the specimens, one drop of a solution of the polymer in cyclohexanone was put on the surface of distilled water saturated with cyclohexanone. The resulting film was applied to a collodion base. Such specimens were crystallized by heating to 80, 100, and 120°C for different periods and were compared against amorphous specimens obtained by drying the film at room temperature. In the electron microscope specimens heated to 100°C for 30 min showed, compact formations consisting of parallel bands, the number and dimensions of which increased with heating time. In shape, they were either reminiscent of extended concertinas, crabs, claws, or macromolecules in bundles. These bundles were sometimes bent, the bands re-

Card 1/3

S/020/62/143/006/015/024  
B106/B138

Electron microscopic study...

maining parallel and the density in the bends being lower owing to the more defective crystal structure. The specimens heated to 120°C showed basically the same structures. Specimens crystallized at 80°C (near the brittle temperature of the polymer) showed triangles and rhombs as morphological formations. Strangely bent stripes and disks always formed the background of the preparations. When the surface of the crystalline foils was etched in dichlorethane, the bands showed a transversely folded structure (thickness of the folds 300 Å, length 800 Å). The position of the folds in the bands fitted very well into the formation mechanism for bands proposed by V. A. Kargin and G. L. Slonimskiy (Vvedeniye v fiziko-khimiya polimerov (Introduction to the physical chemistry of polymers), M., 1960, p. 118). After etching, the background surface also changed a fibrous structure. It is probable that these fibrous structures cannot produce more perfect shapes (bands) due to the prevailing kinetic conditions. The stability of the crystalline structures was studied by intense electron irradiation of the film base in the electron microscope. The crystallites showed high strength in all cases. In crystalline forms obtained from a solution of polyvinyl chloride in dichlorethane, no new forms were observed other than the morphological ones described. There are 3 figures. The English-language reference reads as follows: P. H. Till,

Card 2/3

Electron microscopic study...

J. Polym. Sci., 24, 301 (1957).

SUBMITTED: January 19, 1962

S/020/62/143/006/015/024  
B106/B138

Card 3/3

S/O20/62/145/CO4/O15/O24  
B110/B144

AUTHORS: Bort, D. N., Minsker, K. S., Okladnov, N. A., Shtarkman, B. P.,  
and Kargin, V. A., Academician

TITLE: Direct formation of secondary polyethylene structures in  
polymerization processes

PERIODICAL: Akademiya nauk SSSR. Dcklady, v. 145, no. 4, 1962, 787 - 788

TEXT: Crystalline polymer structures ranging from primary supermolecular forms (packets) to higher secondary structures were studied directly in the course of the polymerization. Polyethylene synthesized in benzene (60°C, 10 atm) with a catalytic mixture of partially chlorinated metallic Al and  $TiCl_3$  forms a layer  $\sim 4-5$  mm thick on the Al surface. This layer consists of fibers perpendicular to the Al surface with cross stripes  $1.5 \mu$  wide. After dispersion of the fibers in water and separation of the larger particles, helical bands with distinct transverse folds ( $3.5-4.5 \mu$ ) of striated structure ( $150 - 250 \text{ \AA}$  packets) were observed by electron microscope. This proves the stepwise development of the supermolecular structure, corresponding to the structure of the crystalline polymer phase  
Card 1/2

Direct formation of secondary ...

S/020/62/145/004/015/024  
B110/B144

according to V. A. Kargin, G. L. Slonimskiy (Kratkiye ocherki po fiziko-khimii polimerov (The physical chemistry of polymers in brief outline), M. 1960). The distribution of molecular weight indicates that polyethylene consists of homologs having an average molecular weight of 100,000. The melting point (121 - 132°C), the heat of fusion (35.9 cal/g), and the degree of crystallization (67 %) were determined thermographically. The density was 0.955 g/cm<sup>3</sup>. The assumption of V. A. Kargin, G. L. Slonimskiy (Usp. khim., 24, 785 (1955)) that internal stresses affect the shape of the crystals is confirmed. There are 3 figures.

SUBMITTED: April 6, 1962

Card 2/2

S/020/62/147/003/026/027  
B101/B186

AUTHORS: Razuvayev, G. A., Corresponding Member AS USSR, Minsker, K. S.,  
Chernovskaya, R. P.

TITLE: Effect of organic compounds with a closed conjugated system  
of  $\pi$ -bonds on the stereospecific polymerization of propylene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 3, 1962, 636 - 638

TEXT: The effects of compounds containing conjugated  $\pi$ -bonds of benzene, diphenyl, naphthalene, and anthracene were studied on the basis of the effect of styrene on the polymerization of propylene with Ziegler catalysts as studied in previous papers (Vysokomolek. soyed., 4, no. 12, (1962)). For this purpose, the  $k_g/k_o$  ratio was determined, where  $k_g$  is the constant of propylene polymerization in the presence of the aromatic compound, and  $k_o$  is the constant of polymerization in a pure aliphatic solvent (benzine, b.p. 96 - 102°C). Polymerization was conducted at 45°C, a propylene pressure of 4.5 - 5 atm, and a catalyst concentration  $C_{TiCl_3} = 0.0265 \text{ mole/l.}$

Card 1/3

Effect of organic compounds with a ...

S/O20/62/147/003/026/0.7  
B101/B186

Figure 1 shows that the polymerization rate is decelerated by small additions (0.3 moles/l) of aromatic compounds, and is accelerated by higher compounds. Anthracene additions could be used only up to 0.1 moles/l owing to their poor solubility in benzene. A complex with intensive donor or acceptor properties is assumed to be formed by aromatic hydrocarbon and one catalyst component. The equilibrium of this reaction depends on the structure and concentration of the additive, thus affecting the electron state of the active centers, and their ability to initiate polymerization. There is 1 figure. The most important English-language reference is: K. Vesely, J. Ambroz et al., J. Polymer Sci., 55, 25 (1961). ✓

SUBMITTED: August 29, 1962

Card 2/3



ACCESSION NR: AT4020699

S/0000/63/000/000/0045/0047

AUTHOR: Minsker, K. S. ; Kronman, A. G. ; Sangalov, Yu. A. ; Bort, D. N. ; Razuvayev, G. A.

TITLE: Crystalline polyvinyl bromide

SOURCE: Karbotsepnny\*ye vy\*sokomolekulyarny\*ye soyedineniya (Carbon-chain macromolecular compounds); sbornik statey. Moscow, Izd-vo AN SSSR, 1963, 45-47

TOPIC TAGS: polymerization, stereospecific polymerization, crystalline polymer, block polymerization, polyvinyl chloride, polyvinyl bromide, butyraldehyde

ABSTRACT: Crystalline polyvinyl bromide was prepared by homogeneous free-radical stereospecific polymerization at room temperature in a butyraldehyde medium. After 5 hours, the yield of polyvinyl bromide was 5-6% with a 0.02% active oxygen content in the aldehyde. The resulting polymer was a white powder with an absolute viscosity of 0.912 cp at 20C in dichlorethane. The absolute viscosity of highly crystalline polyvinyl chloride obtained under the same conditions was 0.939 cp. X-ray patterns of annealed unoriented polyvinyl bromide films obtained by block polymerization and by the polymerization of the monomer in a butyraldehyde solution are given. The maximum degree of crystallinity of polyvinyl bromide was obtained at a molar ratio of monomer to aldehyde = 1 : 1. Addition of water and alcohols to

Card 1/2

ACCESSION NR: AT4020699

the homogeneous stereospecific system produced a strongly amorphous polymer structure. By polymerizing the monomer in ether solutions, a sufficiently high degree of crystallinity could be retained. Orig. art. has: 1 figure.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo (Scientific Research Institute of Chemistry, Gor'kiy State University)

SUBMITTED: 09Apr62

DATE ACQ: 20Mar64

ENCL: 00

SUB CODE: OC

NO REF SOV: 005

OTHER: 003

Card 2/2

L 17062-63 EPF(c)/EWP(q)/EWT(m)/BDS S/062/63/000/004/006/022  
AFETC Pr-4 RM/WW/JD  
AUTHOR: ~~Minsker, K.S., Biryukov, V.I., Grayevskiy, A.I., and Razuvayev,~~ 63  
G.A.

TITLE: Interaction Between Aluminum Alkyls and Hydrogen

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, 27 27  
no. 4, 1963, 637-640

TEXT: The interaction of triethylaluminum with hydrogen on Ziegler type heterogenic complex catalysts was studied. In the gaseous phase of the reaction ethane is accumulated with the simultaneous formation of diethylaluminum hydride. A connection is shown for interaction of triethylaluminum and hydrogen with the effect of molecular hydrogen on the stereospecific polymerization of olefine under the effect of Ziegler catalysts. An analogy was noted in the activation mechanism of olefin and hydrogen molecules on the Ziegler complex catalysts. There are 2 figures.

SUBMITTED: June 19, 1962

Card 1/1

L 13545-63

EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3000689

8/0190/63/005/005/0655/0658

67

AUTHOR: Minsker, K. S.; Fedosyeva, G. T.; Razuvayev, G. A.

66

TITLE: The role of the hetero-component in stereospecific polymerization on Ziegler-Natta catalysts

SOURCE: Vy\*sokomolekulyarny\*ye soyadineniya, v. 5, no. 5, 1963, 655-658

TOPIC TAGS: catalytic activity, hetero-component, stereospecific polymerization, activation of bonds, styrene, TiCl sub 3, CrCl sub 3, propylene, ethylene

ABSTRACT: The present work was carried out because of the scarcity of information on the catalytic performance of the alpha-modification of TiCl sub 3 and the purple and pink modification of CrCl sub 3 in initiating the polymerization of ethylene, propylene, and styrene. The polymerization of ethylene was conducted in metallic reactors, four liters in capacity, that of propylene and styrene in ampules. A nonstereospecific polymerization was obtained, accompanied by the formation of low-molecular reaction products, confirmed by an electronogram. The theory is advanced that activation of the double bond occurs on chemisorption of the monomer by the active heterogeneous catalyst centers. The doubling of the yield in the presence of benzene lends support to this theory. Orig. art. has: 1 table and 1 figure.

Scientific Research Inst. of Chemistry, Gorkiy State Un.

Card 1/1

L 17078-63

EWP(j)/EPF(c)/EWP(q)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW/JD  
S/020/63/149/006/018/027

71

AUTHOR: Minsker, K. S., Fedoseyeva, G. T., Vorob'yeva, N. A., and Corresponding  
Member of the Academy of Sciences USSR G. A. Razuvaev

SOURCE: ANSSSR, Doklady, v. 149, no. 6 p. 1351, 1963

TITLE: Polymerization of ethylene on a chlorinated mixture of titanium and  
aluminum

27

27

TEXT: By polymerizing ethylene at low pressure in the presence of a chlorinated mixture of titanium and aluminum the authors obtained a high yield of solid polyethylene with a pour point of 120-135°C. The titanium-aluminum mixtures used for this purpose were prepared from  $\alpha\text{-TiCl}_3 + \text{AlCl}_3 + \text{Al}$ ,  $\alpha\text{-TiCl}_3$  (Al + HCl), and treated with chlorine before being used as catalysts in the polymerization. The authors conclude that in the process of the treatment of the mixture of metals Al + Ti with hydrogen chloride or chlorine in benzene there forms a new type of an active ethylene-polymerization catalyst whose structure most closely approaches the formula  $[\text{Ti}^{2+}\text{Al}_2\text{Cl}_8] \cdot \text{C}_6\text{H}_6$ . In this connection the formation of phenol is occasioned not by the oxidation of the aryl-metal Me-Ph by oxygen but by the oxidation of benzene in the presence of  $\text{AlCl}_3$  and titanium chlorides.

SUBMITTED: June 25, 1962

Card 1/1

L 13705-63

EMP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3003513

S/0020/63/151/001/0110/0113 66

AUTHORS: Razuvayev, G. A. (Corr. member, AN SSSR); Minsker, K. S.; Sengalov, Yu. A.; Grayevakiy, A. I.

TITLE: Initiating low-temperature polymerization of vinyl chloride with triethylaluminum by co-catalytic action of oxygen

SOURCE: AN SSSR. Doklady, v. 151, no. 1, 1963, 110-115

TOPIC TAGS: low-temperature polymerization, vinyl chloride, triethylaluminum, oxygen, diethoxyethylaluminum, syndiotactic macromolecule

ABSTRACT: The induction period of low-temperature (-30C) polymerization of vinyl chloride with triethylaluminum and oxygen depends on the oxidation of triethylaluminum. A study of its 3 oxidation stages indicated high polymerization in the 2nd stage (diethoxyethylaluminum) but no or very small polymerization in the 1st (diethylaluminum ethoxide) and 3rd (diethoxyaluminum peroxyethyl) stages. PVC yield depends on solvent, increasing with solvents in which it is soluble, e.g. in dichloroethane or in halobenzene yield is 5 times greater than in aliphatic or aromatic hydrocarbons, in which PVC is not too soluble. In oxygen-containing solvents PVC yield is lowered: the electron-donor agents complex with TEA,

Card 1/2

L 13705-63

ACCESSION NR: AP3003513

competing with O for the catalyst. The PVC obtained by TEA-O catalyzed low-temperature polymerization differs from normal atactic and from highly crystalline macromolecules, almost similar to the syndiotactic PVC obtained by free-radical polymerization at analogous temperature. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 25Dec62

DATE ACQ: 30Jul65

ENCL: 00

SUB CODE: OH

NO REF SOV: 005

OTHER: 004

Card

2/2

MINSKER, K.S.; GRAYEVSKIY, A.I.; RAZUVAYEV, G.A.

Polymerisation of methyl methacrylate in the presence of organo-  
aluminum compounds. Izv.AN SSSR.Ser.khim. no.8:1483-1487 Ag  
'63. (MIRA 16:9)

(Methacrylic acid) (Polymerisation)  
(Aluminum organic compounds)



MINSKER, K.S.; FEDOSEYEVA, G.T.; RAZUVAYEV, G.A.

Role of the heterogeneous component in stereospecific polymerization taking place in the presence of Ziegler-Natta catalysts.  
Vysokom.soed. 5 no.5:655-658 My '63. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete.

RAZUVAYEV, G.A.; MINSKER, K.S.; FEDOSEYEVA, G.T.; SHTARKMAN, B.P.

Heterogeneous catalytic polymerization of ethylene in the presence of the metal - metal chloride system. Voskom.soed. 5 no.9:1371-1375 S '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennoy universitete.

RAZUVAYEV, G.A.; MINSKER, K.S.; KRONMAN, A.G.; SANGALOV, Yu.A.

Stereospecific effect in the homogeneous free radical polymerization of vinyl chloride in aldehydes. *Vysokom.soed.* 5 no.11:1615-1619 N '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni Lobachevskogo.

MINSKER, K.S.; CHERNOVSKAYA, R.P.; ZAKHAROVA, A.S.

Kinetics and mechanism of propylene polymerization in the presence of styrene on the  $\alpha$ -TiCl<sub>3</sub> + AlR<sub>3</sub> system. Vysokom.soed. 5 no.11:1627-1631 N '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni N.I.Lobachevskogo.

RAZUVAYEV, G.A.; GRAYEVSKIY, A.I.; MINSKER, K.S.; BELOVA, M.D.

Oxidation of aluminum alkyls. Dokl. AN SSSR 152 no.1:114-116  
S '63. (MIRA 16:9)

1. Chlen-korrespondent AN SSSR (for Razuvayev).  
(Aluminum organic compounds) (Oxidation)

AUTHOR: Erzuvayev, G. A.; Minsker, K. S.; Fedoseyeva, G. T. 30  
B

TITLE: Catalytic systems for the polymerization of ethylene

SOURCE: Neftekhimiya, v. 4, no. 4, 1964, 572-575

TOPIC TAGS: catalysis, polymerization, ethylene, aluminum, titanium, chloride, po  
ethylene plastic, polymerization kinetics, macromolecular chemistry

Abstract: The polymerization of ethylene was studied on catalytic systems  
produced by the reaction of titanium trichloride with chlorinated aluminum  
or by joint chlorination of titanium and aluminum in benzene. A mixture of  
titanium trichloride and aluminum chloride was inactive in the polymerization

Card 1/2

L 36474-65

ACCESSION NR: AP5010004

into three distinct periods: a brief increase in the rate, constant polymerisation rate at a maximum value, then a decrease in the polymerization

polymerization rate at a maximum value, then a decrease in the polymerization rate, evidently due to blocking of part of the active sites by the polyethylene formed. The apparent activation energy of the polymerization of ethylene was 12.8 kcal/mole. The properties of the polymer obtained were analogous to the properties of polyethylene produced in the presence of a Ziegler catalyst  $[(C_2H_5)_3Al + TiCl_4]$ . Orig. art. has 2 graphs and 2 tables.

ASSOCIATION: none

SUBMITTED: 06May63

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 000

OTHER: 002

JPBS

Card 2/2



ACCESSION NR: AP4017628

S/0190/64/006/002/0189/0192

AUTHORS: Kargin, V. A.; Bort, D. N.; Shtarkman, B. P.; Minsker, K. S.

TITLE: Supramolecular structures arising directly in the polymerization process

SOURCE: Vyssokomolekulyarnyye soyedineniya, v. 6, no. 2, 1964, 189-192

TOPIC TAGS: polymerization, polymer, polyvinylchloride, polyethylene, supermolecular formation, catalyst, aluminum, chlorinated aluminum, tape formation, fibrillar formation, fagot, fibrillar orientation, solution, film, suspension, folded structure, crystalline structure

ABSTRACT: This investigation was conducted on crystalline polyvinylchloride (obtained in a butyraldehyde medium) and on polyethylene prepared in a benzene medium. In both instances partly chlorinated aluminum in combination with the alpha-alpha modification of titanium trichloride was used as catalyst. The obtained polyvinylchloride was dried, ground in a porcelain mortar, suspended in aqueous alcohol, spread on a collodion film, dried and subjected to examination on a Tesla-242M electron microscope at a 10 000-20 000 magnification. The polyethylene was split into fibers by means of a needle, and treated as in the preceding case. The electron microscopic picture of polyvinylchloride showed that the

Card 1/2

ACCESSION NR: AP4017628

particles consisted of fibrillar aggregate formations, the structure of which resembled accumulations of tapes and macrofagot packages. The authors assume that these structures were formed directly during the process of polymerization and were reconstructed only in the course of the subsequent procedure. Samples of polyethylene showed a similar structure but were more distinct. Here the tape formations revealed distinct transverse striations of folded fibers 150-200 Å in diameter. Another structural type of polyethylene was dendritic, seemingly growing from the bit of aluminum. Similar structures were also obtained from solution in ortho-xylene. Orig. art. has: 3 pictures.

ASSOCIATION: none

SUBMITTED: 30Jun62

DATE ACQ: 23Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 018

OTHER: 003

Card 2/2

MINSKER, K.S.; SANGALOV, Yu.A.; GRAYEVSKIY, A.I.; RAZUVAYEV, G.A.

Low-temperature polymerization of vinyl chloride in the presence of the  
system organoaluminum compound - oxygen. Vysokom.soed. 6 no.2:269-273  
F '64. (MIRA 17:2)

CHERNOVSKAYA, H.P.; LEBEDEV, V.P.; MINSKER, K.S.; RAZUVAYEV, G.A.

Copolymerization of propylene with styrene in the presence  
of  $\alpha\text{-TiCl}_3 + \text{Al}(\text{C}_2\text{H}_5)_3$ . Vysokom. soed. 6 no.7:1313-1317  
Jl '64 (MIRA 18:2)

SANGALOV, Yu.A.; MINSKER, K.S.; RAZUVAYEV, G.A.

Catalytic activity of the system aluminum - organic compound -  
peroxide. Vysokom. soed. 6 no.7:1323-1326 JI '64(MIRA 18:2)

ACCESSION NR: AP4045432

S/0190/64/006/009/1656/1661

AUTHOR: Chernovskaya, R.P., Minsker, K.S., Razuvayev, G.A.

TITLE: Nature of the modifying action of aromatic compounds on the stereospecific polymerization of propylene

SOURCE: Vy<sup>s</sup>sokomolekulyarny<sup>e</sup> soyedineniya, v. 6, no. 9, 1964, 1656-1661

TOPIC TAGS: propylene, propylene polymerization, stereospecific polymerization, benzene, naphtriethyl aluminum, alkyl aluminum, thalene, titanium trichloride, polymerization catalyst

ABSTRACT: The effect of naphthalene, a very effective modifier, on the catalyst  $\alpha$ - $\text{TiCl}_3 + \text{Al}(\text{C}_2\text{H}_5)_3$  was studied during the stereospecific polymerization of propylene, and the relative propylene polymerization rate ( $k_n : k_0$  where  $k_n$  and  $k_0$  are rate constants in the presence and absence of naphthalene, respectively) was plotted against both  $\text{C}_{10}\text{H}_8$  concentration and the molar ratio of  $\text{Al}(\text{C}_2\text{H}_5)_3 : \text{TiCl}_3$  with a constant  $\text{TiCl}_3$  content, with an increasing molar ratio of  $\text{Al}(\text{C}_2\text{H}_5)_3 : \text{TiCl}_3$ , a smaller amount of  $\text{C}_{10}\text{H}_8$  is needed to increase the polymerization rate: A plot of the polymerization rate against catalyst concentration and the molar ratio of  $\text{C}_{10}\text{H}_8$ : catalyst showed that naphthalene

Card 1/3

ACCESSION NR: AP4045432

increases the activity of the catalyst. Two series of experiments were carried out to clarify the role of each catalyst component. In the first series, the concentration of alkylaluminum was varied with a constant  $\text{TiCl}_3$  and  $\text{C}_{10}\text{H}_8$  content; in the other, the amount of  $\text{TiCl}_3$  was varied with a constant amount of  $\text{Al}(\text{C}_2\text{H}_5)_3$  and  $\text{C}_{10}\text{H}_8$ . It was found that the variation in the  $\text{Al}(\text{C}_2\text{H}_5)_3$ :  $\text{C}_{10}\text{H}_8$  ratio plays a more important role than the variation in the  $\text{TiCl}_3$ : naphthalene ratio. An increase in the  $\text{Al}(\text{C}_2\text{H}_5)_3$  concentration above a certain value decreases the molecular weight of the polymer, and in the presence of  $\text{C}_{10}\text{H}_8$  the molecular weight decreases more sharply. The proportion of the isotactic fraction in the polymer obtained in the presence of  $\text{C}_{10}\text{H}_8$  varies relatively slightly with an increasing concentration of  $\text{Al}(\text{C}_2\text{H}_5)_3$ . With varying  $\text{TiCl}_3$  content in the presence of  $\text{C}_{10}\text{H}_8$ , the molecular weight of polypropylene remains almost unchanged. This result can be explained by the essential role of the surface electron defects and the impurity crystals in the mechanism of polymerization. Most probably, the system  $\text{TiCl}_3$ - $\text{Al}(\text{C}_2\text{H}_5)_3$  - aromatic compound is an equilibrium system in which alkylaluminum, aromatic compound and their complex in solution are adsorbed to the surface of the  $\text{TiCl}_3$ . The strength of their bond with the active centers of the  $\text{TiCl}_3$  varies. The variation in the activity of the catalyst with the concentration of aromatic

Card 2/3

ACCESSION NR: AP4045432

compounds is discussed in detail. As expected, in experiments with  $C_{10}H_8$  in the range of maximum catalytic activity, the degree of stereoregulation is lower than that found in parallel experiments without naphthalene. On the other hand, for varying  $TiCl_3$  content, an increase in the amount of  $TiCl_3$  at a constant concentration of  $Al(C_2H_5)_3$  and  $C_{10}H_8$  (1.56 mole/liter) leads to disproportionation of the activating portion of naphthalene. With a decrease in the  $TiCl_3$  content, the activity of the modified catalyst decreases. The concentration of very active centers increases more slowly than the total  $TiCl_3$  content. Thus, the variation in the relative rate of polymerization depending on the molar ratio  $Al(C_2H_5)_3: TiCl_3$  is smoother than that due to a varying concentration of  $Al(C_2H_5)_3$  at a constant amount of  $TiCl_3$ . When experimental data for coarsely dispersed  $TiCl_3$  ( $S=12\text{ m}^2$ ) and  $TiCl_3$  ground in a vibration mill ( $S=18\text{ m}^2$ ) were compared, it was found that the position and size of the rate extremes and the other characteristics of the process depend on the individual specimens of  $TiCl_3$  employed. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 02Nov63

NO REF SOV: 008

ENCL: 00

OTHER: 007

SUB CODE: OC, MT

Card 3/3



ACCESSION NR: AP4019979

S/0020/64/154/006/1398/1401

AUTHORS: Razuvaev, G.A. (Corresponding Member); Mtsaker, K.S.;  
Sangalov, Yu.A.

TITLE: Polymerization of some olefins and vinyl monomers in diethyl-  
butene-1-yl-1-aluminum (DEBA) in the presence of titanium halides

SOURCE: AN SSSR. Doklady\*, v.154, no.6, 1964, 1398-1401, insert fa-  
cing p.1329

TOPIC TAGS: polymerization olefine monomer, vinyl monomer, diethyl-  
butenealuminum, titanium halide, electrophilic property.

ABSTRACT: The catalytic action of DEBA in a polymerization reaction of  
some monomers was studied. The catalytic system on a DEBA base com-  
bined with titanium chlorides possesses unusual properties which per-  
mit both the polar and nonpolar monomers to be polymerized. Such beha-  
vior can be explained by a reduction of its electrophilic properties  
(as compared to triethylaluminum), as occurred in the use of  $(C_2H_5)_2Al$   
 $-OC_2H_5$  or  $(C_2H_5)_3Al$  with additions of donor agents. Thus, properties

Card 1/2

ACCESSION NR: AP4019979

of DEBA include both the properties of its hydroxy and halide derivatives. Such a peculiarity of properties of the unsaturated aluminum-organic compound signifies that the catalytic systems, while being active in olefinic polymerization, are also capable of causing polymerization, are also capable of causing polymerisation of polar monomers. Orig. art. has: 4 figures, 1 table

ASSOCIATION: None

SUBMITTED: 20Nov63

DATE ACQ: 23Mar64

ENCL: 00

SUB CODE: CH

NR REF SOV: 011

OTHER: 001

Card 2/2

L 19590-65 EWT(m)/EPF(c)/EWP(j)/T Pr-4 ASD(m)-3/AFETR RM

ACCESSION NR: AP4045102

S/0020/64/158/001/0170/0172

AUTHOR: Razuwanyev, G. A. (Corresponding member AN SSSR); Minsker, K. S.; Sangalov, Yu. A. B

TITLE: Initiation of vinyl chloride polymerization by the reactions of triethylaluminum with halogen-containing organic compounds

SOURCE: AN SSSR. Doklady\*, v. 158, no. 1, 1964, 170-172

TOPIC TAGS: vinyl chloride, polymerization, polymerization initiation, triethylaluminum catalyst system, titanium trichloride catalyst system, chloroorganic catalyst system, polyvinyl chloride, catalyst

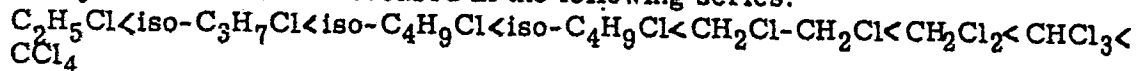
ABSTRACT: The initiation of the vinyl chloride polymerization reaction by the interaction of triethylaluminum (TEA) with certain haloorganic compounds was studied. Vinyl chloride did not polymerize in the presence of TEA-TiCl<sub>3</sub> and non-polar hydrocarbons. Polymerization with yields of 4-5% to 80-85% was obtained in TEA-TiCl<sub>3</sub>-RCl systems (RCl= alkyl or aryl chlorides and di- and polychloro derivatives of saturated and unsaturated hydrocarbons). The compounds

Card 1/3

L 19590-65

ACCESSION NR: AP4045102

containing chemically inert chlorine atoms did not initiate polymerization; the activity of the chlorine increased in the following series:



The very low polymerization in the presence of compounds such as t-butyl chloride, benzylchloride and allyl chloride was believed due to their rapid reaction with TEA. It was concluded that the act of polymerization initiation is associated with the reaction between the TEA and RCl, and  $TiCl_3$  accelerated this reaction and monomer polymerization. The catalyst system comprising aluminumalkyl and titanium halide did not cause vinyl chloride polymerization. Changing the component ratio in the catalyst system or changing the reactivity of the aluminumalkyl affected the polymerization. The TEA-RCl- $TiCl_3$  catalyst system was effective in the -50 to +50 C temperature range, with the yield lowered at the lower temperature. The PVC<sup>12</sup> produced by this catalyst system was of relatively low molecular weight, had uniform globules of ~0.1 micron diameter, and other properties corresponding to those of PVC produced by free radical polymerization. Orig. art. has: 3 figures and 1 table

Card 2/3

L 19590-65

ACCESSION NR: AP4045102

ASSOCIATION: None

SUBMITTED: 15Apr64

ENCL: 00

SUB CODE: GC, OC

NO REF SOV: 000

OTHER: 002

Card 3/3

L 18221-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 ASD(m)-3/AFETR/SSD/AFWL RM

ACCESSION NR: AP4049140

S/0020/64/159/001/0158/0159

AUTHORS: Razuvayev, G. A. (Corresponding member AN SSSR); Minsker, K. S.; Sangalov, Yu. A.

TITLE: Low-temperature polymerization of vinylchloride, initiated by the reaction of aluminumalkyls with halogens

SOURCE: AN SSSR. Doklady\*, v. 159, no. 1, 1964, 158-159

TOPIC TAGS: polymerization, low temperature research, vinylchloride, polyvinylchloride, aluminumalkyl compound

ABSTRACT: It was the purpose of this experiment to polymerize vinylchloride at low temperatures (initiating this process with  $(C_2H_5)_3Al-Cl_2$ ). Experimental results showed that the polymerization of vinylchloride was related to the reaction of chloride or bromide with aluminumalkyl. It was observed that upon constant addition of chlorine gas (at the rate of 25-30 ml/min) to the reaction solution (1.5 moles of triethylaluminum in 100 g of vinylchloride) polyvinylchloride was obtained in a wide range of temperatures (-15 to -70C), as shown in Fig. 1 on the Enclosure. A vital factor in the polymerization process was the rate of introduction of the chlorine into the reaction zone. Increasing the concentration of vinylchloride from 1.6 to

Card 1/3

L 18221-65

ACCESSION NR: AP4049140

3.2 moles (for every 0.024 moles  $(C_2H_5)_3Al$ ) increased the conversion by 2.5 times in the same polymerization time. Polymerization was initiated only when the chlorine reacted with the aluminum-organic-compound containing at least one alkyl group. The nature of the alkyl group in the aluminumalkyl compound determined this compound's activity in the polymerization. The largest yields of polyvinylchloride were obtained with  $(iso-C_4H_9)_3Al$  and  $(C_2H_5)_3Al$ . When the chlorine was replaced by bromine in the presence of  $(C_2H_5)_3Al$ , there was a conversion drop from 15 to 25%.

Iodine gave no reaction. It was shown that by using the reaction of halogens with aluminumalkyl compounds it was possible to polymerize other vinyl monomers such as vinylacetate at low temperatures. Orig. art. has: 1 table and 2 figures.

ASSOCIATION: none

SUBMITTED: 08Jun64

ENCL: 01

SUB CODE: OC, TD

NO REF SOV: 002

OTHER: 002

Card 2/3

L 18221-65  
 ACCESSION NR: AF4049140

ENCLOSURE: 01

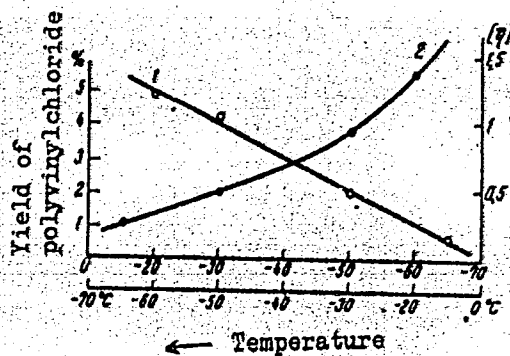


Fig. 1. Influence of the temperature of polymerization on yield (1) and characteristic viscosity of polyvinylchloride (2) during the polymerization of vinylchloride in system:  $(C_2H_5)_3Al-Cl_2$ ;  $(C_2H_5)_3Al = 0.024$  moles, vinylchloride = 1.6 moles, 2.5 hours).

Card 3/3



L 8496-66 ENT(m)/ENP(J)/T RM

ACC NR: AP5026479

SOURCE CODE: UR/0195/65/006/005/0941/0944

AUTHOR: Razuvayev, G.A.; Chernovskaya, R.P.; Minsker, K.S.

ORG: none

TITLE: On Modifying Ziegler catalysts

SOURCE: Kinetika i kataliz, v. 6, no. 5, 1965, 941-944

TOPIC TAGS: heterogeneous catalysis, titanium compound, organoaluminum compound, propylene, catalytic polymerization

ABSTRACT: During the polymerization of propylene, the authors noted a modifying effect of aromatic compounds on the catalyst  $\text{TiCl}_3(\text{Si}) + (\text{C}_2\text{H}_5)_3\text{Al}$  at 45C: small amounts of benzene, naphthalene, toluene, and tetrahydronaphthalene slowed down the polymerization, and large amounts accelerated it. In large concentrations, ethylbenzene and isopropylbenzene also accelerated the process, but chlorobenzene slowed it down. The properties of the polypropylene obtained (average degree of polymerization and content of fractions soluble in n-heptane) also depended on the concentration of the aromatic impurity added. Nonaromatic compounds (triethylamine) also were found to have a modifying effect. The

Card 1/2

UDC 541.128'64

L 8496-66

ACC NR: AP5026479

authors note the common nature of the modifying effect of both nucleophilic and electrophilic additive on Ziegler-Natta catalysts; this is accounted for by the concepts of heterogeneous catalysis. It is concluded that in the system  $\alpha\text{-TiCl}_3 + (\text{C}_2\text{H}_5)_3\text{Al} +$  aromatic compound (+ propylene), associates are formed which are very labile and promote a qualitative change of the heterogeneous surface of the catalytic system and a change in its activity. The equilibrium state of this interaction depends both on the chemical nature and concentration of the reagents. Orig. art. has: 3 figures.

SUB CODE: 07 / SUBM DATE: 30Mar64 / ORIG REF: 004 / OTH REF: 002

BVK  
Card 2/2

RAZUVAYEV, G.A.; MINSKER, K.S.; CHERNOVSKAYA, R.P.; BURLAKOVA, G.I.

Modification of the Ziegler-Natta catalysts in the polymerization  
of olefins. *Vysokom.sped.* 7 no.1:39-44. Ja '65.

(MIRA 18:5)

RAZUVAYEV, G.A.; SANGALOV, Yu.A.; MINSKER, K.S.; KOVALEVA, N.V.

Polymerization of vinyl chloride in the presence of the system  
alkylaluminum - alkyl halide. Vysokom. soed. 7 no.3:539-545  
Mr '65. (MIRA 18:7)

1. Institut khlororganicheskikh produktov i akrilatov.

LEBEDEV, V.P.; OKLADNOV, N.A.; MINSKER, K.S.; SHTARKMAN, B.P.

X-ray diffraction study of polyvinyl chloride. Vysokom.  
soed. 7 no.4:655-660 Ap '65. (MIRA 18:6)

1. Institut khlorganicheskikh produktov i akrilatov,  
Dzerzhinsk.

RAZUVAYEV, G.A.; GRAYEVSKIY, A.I.; MINSKER, K.S.; SANGALOV, Yu.A.; MALYSHEVA,  
K.M.

Some regularities in the polymerization of vinyl chloride in the  
presence of Ziegler-type catalysts. Vysokom. soed. 7 no.8:1364-  
1367 Ag '65. (MIRA 18:9)

1. Nauchno-issledovatel'skiy institut khlororganicheskikh produktov  
i akrilatov.

RAZUVAYEV, G.A.; SANGALOV, Yu.A.; MINSKER, K.S.; KOGAN, L.M.; RABOVSKAYA, N.S.

Initiation of vinyl chloride polymerization by reactions between  
lower unsaturated chlorocarbons and triethylaluminum. Dokl. AN SSSR  
160 no.1:143-144 Ja '65. (MIRA 18:2)

1. Moskovskiy gosudarstvennyy universitet. 2. Chlen-korrespondent  
AN SSSR (for Razuvayev).

L 33530-55 EWT(m)/E-F(c)/ZPR/EWP(3)/T Pc-h/Pr-h/Pa-h EPL WW/RM

ACCESSION NR: AP5007567

S/0020/65/160/005/1093/1096

AUTHOR: Razuvayev, G. A. (Corresponding member AN SSSR); Minsker, K. S.; Grayevskiy, A. I.; Chernovskaya, R. P.

25  
34  
B

TITLE: Copolymerization of vinyl chloride with olefins on Ziegler systems

SOURCE: AN SSSR. Doklady, v. 160, no. 5, 1965, 1093-1096

TOPIC TAGS: polyvinylchloride, poly(vinyl chloride), polyolefin, Ziegler catalyst, alkylaluminum, titanium tetrachloride, copolymerization, vinyl chloride olefin copolymerization, ethylene, propylene

ABSTRACT: Copolymerization of vinyl chloride and ethylene or propylene was attempted on catalytic mixtures of the Ziegler catalyst type. Previous studies by some of the authors had indicated that vinyl chloride does not polymerize to solid polymers in the presence of mixtures of trialkylaluminum or dialkylaluminum halide with titanium tetrachloride, and that alkoxy derivatives of alkylated aluminum were catalytically active. Therefore, copolymerization of vinyl chloride with ethylene or propylene was conducted in the presence of a catalytic system consisting of diethylaluminum ethoxide and titanium tetrachloride or diethylaluminum ethoxide, ethyl(ethoxy)bromoaluminum, and titanium tetrachloride. The

Card 1/3



L 33530-65

ACCESSION NR: AP5007567

copolymerization was conducted at 60C and 10 atm. The polymers obtained contained 42—53% chlorine. The yields depended on the catalyst concentration in the reacting mixture. Di-isobutylaluminum isobutoxide was also catalytically active, but to a lesser degree. The copolymers obtained were either a fine white powder (in the case of ethylene) or a slightly granulated powder (in the case of polyethylene). The chlorine content affected the physical, physicochemical, and thermomechanical properties of the copolymers. As compared with homopolymers, the copolymers had a higher solubility in organic solvents; the glass transition temperature of copolymers was higher than that of the poly(vinyl chloride), but lower than that of the polyolefins. The flow point, according to the thermomechanical curves, was in the 60—90C range for the propylene copolymer and in the 90—128C range for the ethylene copolymer. Thermal stability of the copolymers changed within an interval of 3 to 40 minutes with a change in the chlorine content from 50 to 1%. The temperature of decomposition changed in the same manner. Orig. art. has: 1 table and 3 figures. [RN]

ASSOCIATION: Gosudarstvennyy soyuznyy nauchno-issledovatel'skiy institut khlororganicheskikh produktov i akrilatov (State All-Union Scientific Research Institute of Chloroorganic Products and Acrylates)

Card 2/3

L 33530-65

0

ACCESSION NR: AP5007567

SUBMITTED: 08Oct64

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 003

OTHER: 000

ATD PRESS: 3208

Card 3/3

RAZUVAYEV, G.A.; MINSKER, E.S.; IATYAYEVA, V.N.; SANGALOV, Yu.A.

Polymerization of vinyl chloride initiated by the reaction of carbon tetrachloride with titanium organometallic compounds. Dokl. AN SSSR 163 no.4:906-908 Ag '65. (MIRA 18:8)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom Gosudarstvennom universiteta im. N.I.Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

L 01045-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6019541

(A)

SOURCE CODE: UR/0190/66/008/006/1028/1034

AUTHOR: Minsker, K. S.; Zavarova, T. B.; Bubis, L. D.; Fedoseyeva, G. T.; Burlakova, G. I.; Pakhomova, I. K.

58  
B

ORG: All-Union Scientific-Research Institute of Chloroorganic Products and Acrylates (Vsesoyuznyy nauchno-issledovatel'skiy institut khlororganicheskikh productov i akri-  
latov)

TITLE: Assessment of the thermal stability of polyvinyl chloride and the efficiency of thermostabilizers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1028-1034

TOPIC TAGS: polyvinyl chloride, solid mechanical property, chemical stabilizer,  
*THERMAL STABILITY*

ABSTRACT: A critical evaluation of the methods of assessment of the thermal- and therm-  
al-oxidative stability of PVC is given and the efficiency of the thermostabilizing ad-  
ditives to PVC are discussed. The thermal stability of polyvinyl chlorides containing  
such stabilizers as 3PbO·PbSO<sub>4</sub>, dibutyl lead maleinate, disbutyl lead laureate, cal-  
cium stearate, diphenylolpropane, bis-(2-methyl-4-oxy-5-teritary-butylphenyl)-sulfide,  
bis-3-(methyl-4-oxy-5-teritary-butylphenyl)methane, dibutyl-4,5-epoxyhexahydrophtha-  
late, lead stearinate, and 2-oxy-4-methoxy benzophenone was examined by means of mea-  
suring HCl liberation during the heating of various stabilized PVC samples at 170°C

UDC: 678.01:54+678.743

Card 1/2

L 01045-67

ACC NR: AP6019541

for 0-300 minutes. It was found that for the evaluation of the thermal stability of the stabilized PVC, the commonly used indices such as "integral rate of HCl liberation for 180 min heating at standard conditions" and "thermostability" are inapplicable. The following indices are recommended as a basis for evaluating the thermal- and thermal-oxidative stability of the PVC stabilizers: (1) the time from the beginning of the decomposition reaction to the point at which the reaction rate becomes constant; (2) the rate constant of the dehydrochlorination reaction; and (3) the temperature dependence of the time of initiation of the PVC thermal decomposition at 170°C. Orig. art. has: 4 figures, 1 table. 0

SUB CODE: 07/

SUBM DATE: 31May65/

ORIG REF: 012/

OTH REF: 007

arm

Card 2/2

L 08135-67 EWT(m)/EWP(j)/ IJP(c) WW/RM  
ACC NR: AP6030857 (A,N) SOURCE CODE: UR/0191/66/000/009/0056/0059

AUTHOR: Minsker, K. S.; Zavarova, T. B.; Bubis, L. D.; Fedoseyeva, G. T.; Burlakova, G. I.; Pakhomova, I. K.

ORG: none

TITLE: Evaluation of the thermal stability of polyvinyl chloride

SOURCE: Plasticheskiye massy, no. 9, 1966, 56-59

TOPIC TAGS: polyvinyl chloride, polymer stability, antioxidant additive, chemical stabilizer

ABSTRACT: A study of the thermal stability of polyvinyl chloride (PVC) containing various antioxidant stabilizers (HCl acceptors) showed that the rate of decomposition of PVC and the time  $\theta$  required for a first-order dehydrochlorination reaction to be established can be used for characterizing PVC, and that  $\theta$  can serve as a criterion for the effectiveness of stabilizer action. A correct and unambiguous estimate of the stabilizer additives introduced into PVC requires that the initial polymer be characterized by a value of  $\theta$  close to zero. It was noted that an increase in the content of antioxidant stabilizers caused a change in the rate constant of the dehydrochlorination reaction. The effectiveness of the stabilizer action can in this case be determined from the change in the rate constant of HCl evolution. Another criterion of stabilizer action is  $\tau$ , the duration of the induction period up to the start of

Card 1/2

UDC: 678.743.22.01:536.495

L 08435-67

ACC NR: AP6030857

liberation of HCl, also called thermal stability;  $\tau$  is described by the Arrhenius equation  $1/\tau = A \exp(E/RT)$ . It was found that A and E characterize the chemical nature of PVC. The use of this equation for estimating PVC compositions should aid in obtaining a definite picture of the action of stabilizers introduced into PVC. Another equation which also applies to the PVC - stabilizer systems studied expresses the dependence of the thermal stability on the concentration of stabilizers introduced,  $\tau = B \cdot C^{1/n}$ , where C is the concentration of the stabilizer and B and n are constants for a given series of experiments. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 011/ OTH REF: 006

Card 2/2

1s

ASNIN, D.I.; MINSKER, O.B.

Actinomyosis of the male genitalia. Urologia 26 no.2:32-36 '61.  
(MIRA 14:3)

(GENERATIVE ORGANS, MALE—DISEASES)  
(ACTINOMYOSIS)



MINSKER, O.B.

Actinomycosis of the breast. Khirurgiia 39 no.9:107-112  
S'63 (MIRA 17:3)

1. Iz otdela bor'by aktinomikozom Instituta meditsinskoy parazitologii i tropicheskoy meditsiny imeni Y.I. Martsinovskogo (dir. - deystvitel'nyy chlen AMN SSSR prof. P.G.Sergiyev).

MINSKER, O.B. (Moskva)

Significance of immunodiagnosis in the recognition of  
cervicofacial actinomycosis. Klin. med. 41 no.6:135-139  
Je '63. (MIRA 17:1)

1. Iz otdela bor'by s aktinomikozom Instituta meditsinskoy  
parazitologii i tropicheskoy meditsiny imeni Ye.I. Martsinov-  
skogo (dir. - deystvitel'nyy chlen AMN SSSR prof. P.G.  
Sergiyev) Ministerstva zdравookhraneniya SSSR.

AGARUNOVA, Yu.S.; MINSKER, O.B.; SUTEYEVA, T.G.

Etiology of actinomycosis; a review of literature. Vest. dermat.  
i ven. 38 no.1:34-41. Ia. 64. (MIRA 17:8)

I. Otdel ber'by s aktinomikozom Instituta meditsinskey para-  
zitologii i tropicheskey meditsiny imeni Ye.I. Martynovskogo  
(dir. - deystvitel'nyy chlen AMN SSSR prof. P.G. Sergiyev)  
Ministerstva zdravookhraneniya SSSR.

MINSKER, R.P.; FRLOVA, L.Z.; YANOVSKIY, D.M.

Suspension method for the polymerization of vinyl chloride with  
the use of magnesium hydroxide as emulsion stabilizer. Part.  
massy no.6:3-6 '64. (MIRA 1964)

MINSKER, S., inzh.

Portable instrument for checking taximeter equipment. Avt. transp.  
37 no.5:51-53 My '59. (MIRA 12:8)  
(Taxicabs) (Electric instruments)

MINSKER, S.M., doktor meditsinskikh nauk [deceased]

Lesions of external female genitalia in trichomonal vaginitis. Vest.  
ven. i derm. no.6:24-25 N-D '54. (MLRA 8:2)

1. Is otdela dermatologii (zav.-prof. L.N.Mashkileyson) Tsentral'-  
nogo koshno-venerologicheskogo instituta (dir.-kand. med. nauk N.M.  
Turanov) Ministerstva zdravookhraneniya SSSR.

(VAGINITIS

trichomonal, differ. diag. from chancroid)

(CHANCROID, differ. diagnosis

vaginitis, trichomonal)

(TRICHOMONAL

vaginalis, differ. diag. from chancroid)

MINSKER, S.S.; PESKOVA, L.M., red.; KHITROV, P.A., tekhn.red.

[Expansion of railroad transportation during the seven-year period] Razvitie zheleznodorozhnogo transporta v semiletii; sbornik statei. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va putei soobshcheniia, 1960. 373 p. (MIRA 13:7)  
(Railroads)

MINSKER, Yefim Grigor'yevich; TIMOKHINA, V.I., red.; BORUNOV, N.I.,  
tekh.red.

[Assembly of small and medium-sized oil transformers] Sborka  
maslianykh transformatorov maloi i srednei moshchnosti. Moskva,  
Gos.energ.isd-vo, 1959. 133 p. (Transformatory, no.4).

(MIRA 13:4)

(Electric transformers)



MINSKER, Yefim Grigor'yevich; ANSHIN, Vladimir Shayevich;  
KOBRINSKAYA, M.V., red.

[Assembly of oil-filled transformers] Sborka maslianykh  
transformatorov. Moskva, Vysshaya shkola, 1964. 252 p.  
(MIRA 17:5)

1. Rabotniki Moskovskogo elektrozavoda im. Kuybysheva (for  
Minsker, Anshin).

L 27/15-65 EWT(m)/EPF(c)/T/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5005558

S/0079/65/035/002/0396/0397

AUTHOR: Losev, V. B.; Minsker, Ye. I.

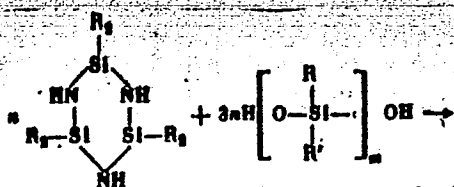
TITLE: Reaction of an organocyclosilazane with dihydroxypolyorganosiloxanes

SOURCE: Zhurnal obshchey khimii. v. 35, no. 2, 1965, 396-397

TOPIC TAGS: siloxane, disiloxane, trisiloxane, silazane, cyclosilazane, polymer

ABSTRACT: A study has been made of the reaction of organocyclosilazanes with dihydroxypolyorganosiloxanes. Dihydroxydimethyldiphenyldisiloxane or dihydroxytrimethyltriphenyltrisiloxane was condensed with hexamethylcyclotrisilazane at 200C to form rubber-like polymers in a 60% yield. It was established that the reaction

is exothermic and proceeds as follows:

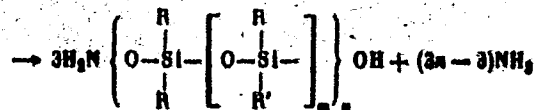


Card 1/2

L 27415-65

ACCESSION NR: AP5005558

0



(I) m=2, n=16, R=CH<sub>3</sub>, R'=C<sub>6</sub>H<sub>5</sub>; (II) m=3, n=10, R=CH<sub>3</sub>, R'=C<sub>6</sub>H<sub>5</sub>

The cryoscopic molecular weight was 5100 for I and 4981 for II. Orig. art. has: 1 table and 1 formula. [SM]

ASSOCIATION: none

SUBMITTED: 29Jun64

ENCL: 00

SUB CODE: GC

NO REF SOV: 000

OTHER: 001

ATD PRESS: 3192

Card 2/2

L 24860-65 EPA(s)-2/EWT(m)/EPE(c)/EPR/EWP(j)/T/EWA(c) Pc-4/Pr-4/Ps-4/Pt-10 WH/RM  
ACCESSION NR: AP5008143 S/0286/65/000/005/0022/0022

AUTHOR: Minsker, Ye. I.; Solovey, G. G.; Borisov, M. F.; Orlov, N. E.

TITLE: A method of preparing polyaluminodiorganosiloxanes, Class 12, No. 168689

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 22

TOPIC TAGS: elastomer, polymer, aluminum containing polymer, polysiloxane

ABSTRACT: This Author Certificate introduces an improved preparative method for aluminum-containing polysiloxanes utilizing dihydroxypolydiorganosiloxanes and methylpropylsiloxy-bis-( $\beta$ -chloroalkoxy)-aluminum and triphenylsiloxydiisopropoxy-aluminum as starting materials. This results in a product with improved thermal stability. [VS]

ASSOCIATION: none

SUBMITTED: 29Dec63

ENCL: 00

SUB CODE: 00,00

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3211

Card 1/1

MINSKI, J.

Gospodarka Zbosowa - Vol. 6, no. 5, May 1955.

Campaign of grain purchasing is approaching. p. 1.

Fighting pod mottle by temperature and light. p. 13.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955  
Uncl.

*MINSKI, JOZEF*  
POLAND/Chemical Technology, Chemical Products and Their  
Application, Part 3. - Food Industry.

H-28

Abs Jour: Referat. Zhurnal Khimiya, No 10, 1958, 34222.

Author : Jozef Minski.  
Inst : Not given.  
Title : Pea Sorting at Stores.

Orig Pub: Przegl. zboz.-mlynarski, 1957, 1, No 6, 29.

Abstract: No abstract.

Card : 1/1

4

POLAND/~~Chemical~~ Technology. Chemical Products and      H  
Their Uses. Part III. Food Industry.

Abs Jour : Ref Zhur-Khimiya, No 15, 1958, 51819

Author : Minski, Josef  
Inst : -  
Title : Drying of Bean Seeds.

Orig Pub : Przegl. zbez.-mlynarski, 1957, 1, No 7, 27

Abstract : Tests were conducted on bean-seed drying  
by mixing the latter (water content 18-20  
percent) with rye and oats (water content  
13.5-13.8 percent) in a ratio of 1:2. The  
results obtained were positive, but the  
subsequent separation of the grains was  
cumbersome and not justifiable. -- Z.  
Fabinskiy

Card : 1/1



*Minski, K.*

POLAND/Safety Engineering. Sanitation Engineering. Sanitation. L

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 10700

Author : Minski, K.

Inst : Not given

Title : Safety and Sanitation in Petroleum Processing Plants

Orig Pub: Nafta (Krakow), 1955, Vol 11, No 12, 284-286 (in Polish)

Abstract: The author gives a brief description of the investigative methods used in the analysis of accidents which occurred in petroleum processing plants during 1953-1954 as well as of the topics treated in safety education, and of sanitation measures.

Card 1/1

MINSKIN, Ye.

Let's make the equipment for the game room ourselves. Un.tekh. 5  
no.6:75-77 Je '61. (MIRA 14:9)

(Recreation rooms)

MINSKIY, A.

Survey of a conference on the development of the productive forces  
of eastern Siberia. Vop.ekon. no.11:154-159 N '58. (MIRA 11:11).  
(Siberia, Eastern--Natural resources)

MINSKIY, I.A.; BORISENKO, N.F.; CHICHIKALO, D.I.

Pay proper attention to preventive sanitary inspection. Vrach. delo  
no. 1:100-101 '61. (MIRA 14:4)

1. Cherkasskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya.  
(CHERKASSY PROVINCE—PUBLIC HEALTH)

MINSKIY, K.; SEVEROV, S.

This is how innovations are born.... Sov. tovg. 33 no. 4:35-38 Ap '60.

(MIRA 14:5)

(Moscow--Butter trade) (Personnel management)

BEDRITSKIY, A. (Kiyev): MINSKIY, K. (Kiyev)

A self-service store in Darnitsa. Sov. torg. 36 no.5:31-34  
My '63. (MIRA 16:5)  
(Kiev--Self-service stores)

MINSKIY, K.; SARKIN, TS.

There is corn on the counters. Sov.torg. 36 no.12:37-38 D '62.  
(MIRA 16:1)

(Moscow—Corn products)

KOROBKINA, G., kand. tekhn. nauk; MINSKIY, K.; LYADOVA, V.N., red.;  
EL'KINA, E.M., tekhn. red.

[From wonderful earcorn] Iz chudesnogo pochatka. Moskva,  
Gostorgizdat, 1963. 98 p. (MIRA 16:10)  
(Corn (Maize))



LYUDSKOV, Boris Pavlovich; MINSKIY, K. (pseudonym); NIKOLAYEVA,  
N.G., red.

[A thousand household gadgets] Tysiacha domashnikh melochei.  
Moskva, Ekonomika, 1964. 94 p. (MIRA 17:12)

MINSKIY, N. A.

"The Increase of Precision and Output in the Rapid Machining of Bores in the Barrels of Hunting Rifles." Cand Tech Sci, Moscow Machine Tool and Tool Inst imeni I. V. Stalin, 29 Dec 54. (VM, 21 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)  
SO: Sum. No. 556, 24 Jun 55

25(1) *MINSKIY, N.A.* PHASE I BOOK EXPLOITATION

SOV/2245

Moscow. Stankoinstrumental'nyy institut

Voprosy tochnosti v tekhnologii mashinostroyeniya (Problems of Accuracy in Machine-Building Technology) Moscow, Mashgiz, 1959. 90 p. Errata slip inserted. 3,500 copies printed.

Ed.: B.S. Balaskshin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: M.N. Morozova; Tech. Ed.: L.P. Gordeyeva; Managing Ed. for Literature on Metal Working and Instrument Making (Mashgiz): R.D. Beyzel'man, Engineer.

PURPOSE: This collection of articles is intended for engineering and technical personnel of plants and laboratories and also for personnel of higher educational institutions and scientific institutes.

COVERAGE: The collection includes articles by members of the department of Machine-building Technology of the Stankoinstrumental'nyy institut imeni I.V. Stalin (Machine Tool and Small Tool Institute imeni I.V. Stalin) dealing with accuracy in the manufacture of

Card 1/4

Problems of Accuracy in Machine-Building (Cont.)

SOV/2245

machines. Various problems concerning accuracy in cylindrical grinding and machining of rigid steel parts by the method of fine turning on an ordinary lathe, the effect of machine tool rigidity on accuracy of machining, accuracy in high-speed reaming of deep holes, and problems concerning automatic assembly are discussed.

TABLE OF CONTENTS:

Preface	3
Gleyzer, L.A., Candidate of Technical Sciences, Docent. On the Nature of the Cylindrical Grinding Process	5
The process of cylindrical grinding was investigated. The results obtained show that the productivity, wear and life of a grinding wheel and the finish of a ground surface for a given grinding wheel and work depend only on radial pressure.	
Solov'yev, S.N., Candidate of Technical Sciences. Investigating the Accuracy of Machining Rigid Parts by the Methods of Fine Turning	25
Optimum conditions for obtaining 2nd class accuracy and class 7 to 8 surface roughness in high-speed machining on an ordinary turning lathe were determined.	

Card 2/4