"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A. Ya. and KOCHETKOV, N. K.

"The Triterpenoid Saponins from the root of Aralia manschurica."

REPORT to be submitted for the Symposium on the Chemistry of Natural Products, Intl. Union of Pure and Applied Chem. (IUPAC), Melbourne, Canberra, and Sydney, Australia, 15-25 Aug 60

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A. YA., VAZKOVSKIY, V. [illegible]., ZIVERBLIS, V. [illegible]., SVIDOV, YU. S., KOCHETKOV, N. K. (USSR)

"Investigations of Triterpene Saponins."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 August 1961

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; VAS'KOVSKIY, V.Ye.; ZHVIRBLIS, V.Ye.

Triterpenic saponins. Part 1: Saponins from Manchurian aralia. Zhur. ob. khim. 31 no.2:658-665 F '61. (MIRA 14:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Saponins)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; VOROTNIKOVA, L.A.; KOCHETKOV, N.K.

Amines with gangliolytic activity. Part 4: Tertiary aliphatic amines with a branched chain. Zhur.ob.khim. 31 no.6:1827-1830 Je '61. (MIRA 14:6)

1. Institut farmakologii i khimioterapii Akademii meditsinskikh nauk SSSR.

(Amines)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; CHIZHOV, O.S.

Chemical investigation of Schizandra chinensis. Part 1: Schizandrin and related compounds. Zhur.ob.khim. 31 no.10:3454-3460 O '61. (MIRA 14:10)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Schizandra chinensis)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; BOCHKOV, A.F.

Synthesis of k-strophanthin-β. Dokl. AN SSSR 136 no. 3:613-616 Ja '61. (MIRA 14:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kochetkov).
(Strophanthin)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; CHIZHOV, O.S.; SHEYCHENKO, V.I.

Chemical study of Schizandra chinensis. Report No.2: Structure of schizandrin. Izv. AN SSSR. Otd.khim.nauk no.5:850-856 My '62. (MIRA 15:6)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Schizandra chinensis)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N. K.; KHORLIN, A.Ya.; CHIZHOV, O.S.

Chemical study of Chinese schisandra. Report No. 3: Synthesis and ultraviolet spectra of some derivatives of 2,3,4,2',3',4'-ehxamethoxydiphenyl. Izv. AN SSSR. Otd.khim.nauk no.5:856-861 My '62. (MIRA 15:6)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Schisandra) (Biphenyl)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; BOCHKOV, A.F.

Thin-layer chromatography of glycosides. Izv.AN SSSR.Otd.khim.-nauk no.6:1121-1122 '62. (MIRA 15:8)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Glycosides) (Chromatographic analysis)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

YELYAKOV, G.B.; STRIGINA, L.I.; KHORLIN, A.Ya.; KOCHETKOV, N.K.

Glycosides of Panax ginseng. Izv.AN SSSR.Otd.khim.nauk no.6: 1125 '62. (MIRA 15:8)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR i Institut khimii prirodnykh soyedineniy AN SSSR.
(Glycosides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

YELYAKOV, G.B.; STRIGINA, L.I.; KHORLIN, A.Ya.; KOCHETKOV, N.K.

Glycosides from ginseng roots (Panax ginseng C.A. Mey). Izv. AN SSSR. Otd.khim.nauk no.11:2054-2058 N '62. (MIRA 15:12)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR i Institut khimii prirodnykh soyedineniy AN SSSR.
(Glycosides) (Ginseng)

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

YELYAKOV, G.B.; KHORLIN, A.Ya.; STRIGINA, L.I.; KOCHETKOV, N.K.

Triterpene saponins. Report No.13: Aralozide A from Aralia schmidtii. Izv.AN SSSR.Otd.khim.nauk no.9:1605-1608 S '62. (MIRA 15:10)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR i Institut khimii prirodnykh soyedineniy AN SSSR.
(Saponins) (Glycosides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; OVODOV, Yu.S.; KOCHETKOV, N.K.

Triterpene saponins. Part 2: Saponins from Gypsophila pacifica roots. Zhur.ob.khim. 32 no.3:782-791 Mr '62. (MIRA 15:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Saponins) (Triterpenes)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; KOCHKOV, A.F.; BAKINOVSKIY, L.V.; KOCHETKOV, N.K.

Glucosidation of 2-O-trichloroacetyl-3,4,6-tetraacetyl-β-D-glucopyranozyl chlorides. Dokl. AN SSSR 143 no.5: 1119-1122 Ap '62. (MIRA 15:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kochetkov).
(Glucopyranosyl chloride) (Glycosides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.

Oligosides, a new type of plant glycosides. Dokl. AN SSSR 150 no.6:1289-1292 Je '63. (MIRA 16:8)

1. Institut khimii prirodnykh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kochetkov).

(Glycosides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; VAS'KOVSKIY, V.Ye.

Triterpenic saponins. Report No.5: Structure of aralosides A and B. Izv.AN SSSR.Ser.khim. no.8:1409-1416 Ag '63. (MIRA 16:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Saponins) (Glycosides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, Nikolay Konstantinovich; KHORLIN, A. Ya.;

"Oligosides--New type of plant glycosides."

Report to be submitted for the 3rd Intl. Symposium on the Chemistry of Natural Products (IUPAC), Kyoto, Japan, 12-18 April 1964.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; VAS'KOVSKIY, V.Ye.

Triterpenic saponins. Report No.4: Structure of aralosides A and B. Izv.AN SSSR.Ser.khim. no.8:1398-1408 Ag '63. (MIRA 16:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Saponins) (Glycosides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; OVODOV, Yu.S.; OVODOVA, R.G.

Identity of gypsoside and triterpenic saponin obtained from Gypsophila paniculata L. Izv.AN SSSR.Ser.khim. no.8:1521-1523 Ag '63. (MIRA 16:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Gypsophila) (Glycosides) (Saponins)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; OVODOV, Yu.S.

Triterpenic saponins. Report No.7: Monosaccharide composition and size of the carbohydrate moiety of gypsoside. Izv.AN SSSR. Ser.khim. no.1:83-89 Ja '64.

Triterpenic saponins. Report No.8: Some data on the structure of the carbohydrate moiety of gypsoside. Ibid.:90-99 (MIRA 17:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; BOCHKOV, A.F.

Monosaccharide orthoesters as glycosidation agents. Izv. AN SSSR. Ser. khim. no.12:2234 D '63. (MIRA 17:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; BAKINOVSKIY, L.V.; VAS'KOVSKIY, V.Ye.; VEN'YAMINOVA, A.G.; OVODOV, Yu.S.

Triterpene saponins. Report No.6: Distribution chromatography of triterpene saponins. Izv. AN SSSR. Ser. khim. no.11:2008-2011 N '63. (MIRA 17:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; IVANOVA, V.M.

Detecting and studying the chemical composition of the active substances of Patrinia intermedia. Apt. delo 12 no.6:31-36 N-D '63. (MIRA 17:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR i farmatsevticheskiy fakul'tet I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; VEN'YAMINOVA, A.G.; KOCHETKOV, N.K.

Structure of calopanax-saponin A. Dokl. AN SSSR 155 no. 3:619-622 Mr '64. (MIRA 17:5)

1. Institut khimii prirodynykh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kochetkov).

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; CHIZHOV, O.S.

Chemical analysis of Chinese magnolia vine. Report No.4: Extraction, structure, synthesis of deoxy schizandrine and the structure of γ-schizandrine. Izv. AN SSSR. Ser. khim. no.6:1036-1042 Je '64.

(MIRA 17:11)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; BAKINOVSKIY, L.V.; VAS'KOVSKIY, V.Ye.

Aralosides A, B and C from Aralia elata. Izv. AN SSSR Ser. khim. no.7:1338-1340 Jl '64. (MIRA 17:8)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; OVODOV, Yu.S.

Triterpene saponins. Report No.9: Structure of gypsoside.
Izv. AN SSSR. Ser. khim. no.8:1436-1446 Ag '64.
(MIRA 17:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya; VEN'YAMINOVA, A.G.

Triterpene saponins. Report No.12; Saponins obtained from Kalopanax septemlobum (Thub.) Koidz. Izv. AN SSSR. Ser. khim. no.8:1447-1452 Ag '64. (MIRA 17:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; SNYATKOVA, V.I.

Triterpene saponins. Report No.13: Halolysis of glycosides of the triterpene series and the synthesis of oleanolic acid glycosides. Izv. AN SSSR Ser. khim. no.11:2028-2036 N '64 (MIRA 18:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A. Ya.; BOCHKOV, A.F.; KOCHETKOV, N.K.

New synthesis of sugar orthoesters. Izv. AN SSSR Ser. khim no.12:2214-2216 D '64 (MIRA 18:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; IVANOVA, V.M.

Triterpene saponins. Report No.14: Saponins from Patrinia intermediate (Patrinia intermedia Roem. et Schult.). Izv. AN SSSR Ser. khim. no.2:307-313 '65. (MIRA 18:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Pervyy Moskovskiy ordena Lenina meditsinskiy institut.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; CHIRVA, V.Ya.; KOCHETKOV, N.K.

Triterpenic saponins. Report No.15: Clematoside C, a triterpenic oligoside from roots of Clematis manshurica Rupr. Izv. AN SSSR. Ser. khim. no.5:811-818 '65. (MIRA 18:5)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; VAS'KOVSKIY, V.Ye.; GUDKOVA, I.P.

Triterpene saponins. Report No.16: Structure of araloside C. Izv. AN Izv. AN SSSR. Ser. khim. no.7:1214-1222 '65. (MIRA 18:7)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; DEREVITSKAYA, V.A.; KHORLIN, A.Ya.; ZAFINA, M.G.; BOCHKOV, A.F.

Synthesis of methyl ester of C-(β-D-galactopyranosyl)-L-serine. Izv. AN SSSR. Ser. khim. no.9:1699-1699 '65. (MIRA 18:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; BOCHKOV, A.F.

New way of synthesizing furanosides. Synthesis of 3-O-(β-D-galacto-furanosyl)-D-mannitol. Dokl. AN SSSR 161 no.6:1342-1345 Ap '65.
(MIRA 18:5)

1. Institut prirodnykh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kochetkov).

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KOCHETKOV, N.K.; KHORLIN, A.Ya.; BOCHKOV, A.F.

Synthesis of disaccharides. Dokl. AN SSSR 162 no.1:104-107 My '65.
(MIRA 18:5)

1. Institut khimii prirodnykh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Kochetkov).

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLIN, A.Ya.; BOCHKOV, A.F.; KOCHETKOV, N.K.

Synthesis of laminarabiose derivatives. Izv.AN SSSR. Ser.khim. no.1:168-170 '66. (MIRA 19:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted May 17, 1965.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ACC NR: AP7010718 SOURCE CODE: UR 0062/66/000/012/2207/2208

AUTHOR: Khorlin, A. Ya.; Snyatkova, V. I.; Yevdakov, V. P.; Shlenkova, Yo. K.

ORG: Institute of the Chemistry of Natural Compounds, Academy of Sciences USSR (Institut khimii prirodnykh soyedineniy AN SSSR)

TITLE: Synthesis of 2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyldibutyl-phosphite

SOURCE: AN SSSR. Izestiya. Seriya khimicheskaya, no. 12, 1966, 2207-2208

TOPIC TAGS: chemical synthesis, pyridine, phosphate ester, nuclear magnetic resonance

SUB CODE: 07

ABSTRACT: The action of dibutylacetylphosphite as a phosphorylating agent for carbohydrate derivatives with a free hemiacetal hydroxyl was investigated using 2,3,4,6-tetra-O-acetyl-β-D-glucopyranose as an example. The condensation proceeded without inversion of the configuration, forming 2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyldibutylphosphite. The reaction was conducted in absolute benzene medium, in the presence if absolute pyridine as an acetic acid acceptor. The structure of the reaction product was proven by element analysis, hydrolysis upon standing, acid methanolysis to the methylglucoside, and a study of the nuclear magnetic resonance spectrum. The phosphite could subsequently be oxidized to the corresponding phosphate. Orig. art. has: 1 formula. [JPRS: 40,351]

Card 1/1 UDC: 542.91 + 547.454 + 661.718.1

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

Khorlina, I. M.

USSR/Physical Chemistry - Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B-9

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7257.

Author : A.A. Balandin, M.B. Turova-Polyak, A.Ye. Agronomov, I.M. Khorlina, L.S. Kon'kova.
Inst : Academy of Sciences of USSR.
Title : Catalytic Dehydration of Alcohols on Anhydrous Magnium Sulfate.

Orig Pub: Dokl. AN SSSR, 1957, 114, No 4, 773-776.

Abstract: The dehydration of cyclohexanol, cyclopentanol, pentanol-2 and propanol-2 in the vapor phase at 400 to 410° and at the volume rate of 0.4 in presence of anhydrous $MgSO_4$ proceeds practically to the end. The apparent activation energies in the range from 360 to 400° are from 14370 to 15910 cal per mole, which, in the authors' opinion, is stipulated either by the same orientation of alcohol molecules with reference to the catalyst surface, or by that all these reactions are

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-42-

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

AUTHORS: Zakharkin, L. I., and Khorlina, I. M. 20-3-20/46

TITLE: Production of Aldehydes by Reduction of Nitriles With Diisobutyaluminium Hydride (Polucheniye al'degidov vosstanovleniyem nitrilov diizobutilalyuminiygidridom).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 422-424 (USSR).

ABSTRACT: Other authors have proved earlier that $(C_2H_5)_2AlH$ and $(i\text{-}C_4H_9)_2AlH$ can be used for the reduction of the carbonyl group in the aldehydes and ketons up to the corresponding alcohols. The second substance is also cheaper and more accessible for the organic synthesis than Zi AlH_4. The authors have proved the production referred to in the title. The reaction takes the following course:

$$RNC + (i\text{-}C_4H_9)_2AlH \rightarrow RCH = NAl(C_4H_9\text{-}i)_2 \xrightarrow{H_2O} RCHO.$$

The reduction of butyro-, capro- and benzo-nitriles, and of the nitriles of the acids of phenylacetic acid-, anise-, tetraphtal and others, as well as of 1,1 dichlor 5 cyanic-penten-1, was studied. The results are summarized in table 1. The yield of aldehydes, especially in the case of aromatic nitriles, are good and

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attain 80 to 90% of the theoretically possible. The reaction concerned can be performed in various solvents (ether, benzol, heptane, a. o.), or without such solvents, what involves many advantages. According to the nature of the nitrile, temperatures from 0 to 40° were chosen. In the case of almost equimolar ratios of both participants in the reaction, nitriles were never reduced up to the amines. The decomposition of the transition product of the diisobutylaluminium hydride to the nitrile should be carried out with great precaution, especially in the case of such readily changeable aldehydes as phenylacetic acid aldehyde. The transition product of the $(i\text{-}C_4H_9)_2$ AlH to capronityl cannot be distillated in 1 mm vacuum without decomposition. Reduced yields of phenylacetic aldehyds and of 1,1 dichlorhexen-1-Al-6 can be explained by the partial compaction ("uplotneniye") of these aldehydes. This can be remedied by the addition of 2,4 - dinitrophenylhadrazine, so that the yield of corresponding 2.4 dinitrophenyldrazon comes to 80 and 72%. The above report is followed by an experimental part with the conventional data.

Card 2/3 There are 1 table, and 8 references, none of which are Slavic.

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5(3)

AUTHORS: Zakharkin, L. I., Khorlina, I. M. SOV/62-59-3-27/37

TITLE: Thermal Decomposition of Adducts of Diisobutyl Aluminum Hydride on Nitriles (Termicheskoye razlozheniye produktov prisoyedineniya diizobutilalyuminiygidrida k nitrilam)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 550-552 (USSR)

ABSTRACT: In the preceding paper (Ref 1) the authors obtained the adducts of diisobutyl aluminum hydride and the nitriles $RCH{=}N - Al\ (i\text{-}C_4H_9)_2$. In the present paper the behavior of these products was investigated when they are heated. It was found that a gas consisting mainly of isobutylene is separated if the compounds $RCH{=}N - Al(i\text{-}C_4H_9)_2$ are heated to temperatures of from 220-240°. In the hydrolysis of the residue, however, the corresponding amine RCH_2NH_2 forms with a yield of up to 80 % of the theoretically computed value. Thus, in heating a reduction takes place due to the displacement of isobutylen. and the formation of new Al—N bonds. In this reduction products of the following linkage systems form:

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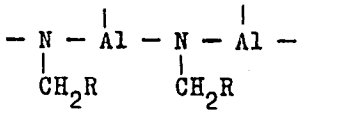
Thermal Decomposition of Adducts of Diisobutyl Aluminum Hydride on Nitriles

SOV/62-59-3-27/37



In adducts of diisobutyl aluminum hydride and disubstituted amides a reduction at the expense of the displacement of isobutylene is possible in principal. It is, however, only unimportant and furthermore, is accompanied by strong resinification. There are 8 references, 1 of which is Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: July 16, 1958

Card 2/2

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77071
SOV/62-59-12-15/43

AUTHORS: Zakharkin, L. I., Khorlina, I. M.

TITLE: Reduction of Substituted Amides to Aldehydes and Amines With Diisobutylaluminum Hydride

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdelenie khimicheskikh nauk, 1959, Nr 12, pp 2145-2150 (USSR)

ABSTRACT: Dialkylamides of aliphatic acids and amides of aromatic acids are reduced with diisobutylaluminum hydride. The yields of aldehydes are given in Table 1. The yields of amines obtained by reduction of mono- and disubstituted amides with $(iso\text{-}C_4H_9)_2AlH$ are given in Table 2.

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Reduction of Substituted Amides to Aldehydes and Amines With Diisobutylaluminum Hydride

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SOV/62-59-12-15/43

REDUCTION TO ALDEHYDES

(TEMP 0°; RATIO AMIDE TO HYDRIDE 1:1.5)

TABLE 1

	AMIDES		YIELD OF ALDEHYDES (%)	mp of 2,4-dinitrophenylhydrazones in °C	
				FOUND	ACC. TO LITERATURE
1	ETHYLANILIDE OF BUTYRIC ACID	1	56	122	122
2	DIMETHYLAMIDE OF ISOVALERIC ACID	2	25	117	116—117
3	ETHYLANILIDE OF ISOVALERIC ACID	3	52	117	116—117
4	DIMETHYLAMIDE OF ENANTHIC ACID	4	30	106,5—107	107
5	ETHYLANILIDE OF ENANTHIC ACID	5	50	106,5—107	107
6	DIMETHYLAMIDE OF CAPRYLIC ACID	6	26	106	106
7	METHYLANILIDE OF CAPRYLIC ACID	7	56	106	106
8	ETHYLANILIDE OF CAPRYLIC ACID	8	52	106	106
9	DIMETHYLAMIDE OF BENZOIC ACID	9	44	236—237	238
10	DIETHYLAMIDE OF BENZOIC ACID	10	48	236—237	238
11	METHYLANILIDE OF BENZOIC ACID	11	67	236—237	238
12	ETHYLANILIDE OF BENZOIC ACID	12	70	236—237	238
13	DIETHYLAMIDE OF NICOTINIC ACID	13	44	259,5	259
14	METHYLANILIDE OF AZELAIC ACID	14	53	141—142	
15	METHYLANILIDE OF o-PHTHALIC ACID	15	60	280	280
16	ETHYLANILIDE OF OLEIC ACID	16	58	67	67—68
17	ETHYLANILIDE OF o-BROMOBENZOIC ACID	17	30	199—199,5	200
18	ETHYLANILIDE OF ANISIC ACID	18	60	254	254
19	METHYLANILIDE OF PHENYLACETIC ACID	19	50	110	110

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Reduction of Substituted Amides to Aldehydes and Amines With Diisobutylaluminum Hydride

77071
SOV/62-59-12-15/43

TABLE 2

REDUCTION OF AMIDES TO AMINES

	AMIDE		RATIO OF AMIDE TO (iso-$C_4H_9)_2AlH$	YIELD OF AMINE (%)	mp of DERIVATIVES in °C FOUND	mp of DERIVATIVES in °C ACC. TO LITERATURE
1	DIETHYL BENZAMIDE	1	1 : 2,2	75	120 a)	120
2	"	2	1 : 2,5	70	120	120
3	"	3	1 : 3	91	120	120
4	DIMETHYLBENZAMIDE	4	1 : 3	93	175	175
5	DIETHYLAMIDE OF NICOTINIC ACID	5	1 : 3	90	184,5 b	185
6	DIETHYAMIDE OF ISOVALERIC ACID	6	1 : 2,5	80	132 a)	132
7	"	7	1 : 3	95	132	132
8	DIMETHYLAMIDE OF ENANTHIC ACID	8	1 : 3	91	83 a)	83
9	DIMETHYLAMIDE OF CAPRYLIC ACID	9	1 : 3	93	65 a)	62—65
10	CAPROLACTAM	10	1 : 4	95	145 a)	146
11	ISOBORNYLBENZAMIDE	11	1 : 4	95	c)	*

a -- picrate; b -- dihydrochloride; c -- hydrochloride

* Found for isobornylbenzylamine: Cl 12.47

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Reduction of Substituted Amides to Aldehydes and Amines With Diisobutylaluminum Hydride

77071
SOV/62-59-12-15/43

The reduction of disubstituted amides to aldehydes occurs as follows:

$$RCONR_1R_2 + (i\text{-}C_4H_9)_2AlH \rightarrow R-CH(OAl(i\text{-}C_4H_9)_2)-NR_1R_2 \xrightarrow{H_2O} RCHO,$$

(I)

The reduction of amides to amines occurs according to scheme:

$$(I) + (i\text{-}C_4H_9)_2AlH \rightarrow RCH_2NR_1R_2 + (i\text{-}C_4H_9)_2AlOAl(i\text{-}C_4H_9)_2$$

(II)

There are 5 tables; and 21 references, 1 Soviet, 5 German, 3 French, 5 U.S., 7 U.K. The 5 most recent U.S. and U.K. references are: V. M. Micovic, M. L. Mihailovic, J. Org. Chem., 18, 1190 (1953); O. D. Johnson, J. Am. Chem. Soc., 48, 7543 (1954); E. A. Braude, R. U. Jones, J. Chem. Soc., 498 (1943); J. D. Roberts, Ch. Green, J. Am. Chem. Soc., 68, 214 (1946); R. E. Benson, F. L. Cairus, J. Am. Chem. Soc. 70, 2115 (1948).

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

Reduction of Substituted Amides to Aldehydes and Amines With Diisobutylaluminum Hydride

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SOV/62-59-12-15/43

ASSOCIATION: Institute of Elementoorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soedineniy, Akademii nauk SSSR)

SUBMITTED: April 18, 1958

Card 5/5

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

5 (3)

AUTHORS: Samokhvalov, G. I., Zakharkin, L. I., Davydova, L. P., Khorlina, I. M. SOV/20-126-5-28/69

TITLE: A New Synthesis of β-Ionolidenacetic Aldehyde (Novyy sintez β-ionolidenuksusnogo al'degida)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 5, pp 1013 - 1016 (USSR)

ABSTRACT: "9,13 dimethyl-7-(1,1,5 trimethyl-cyclohexene-5-yl)-octatriene 8,10,12 al 14; aldehyde C_{19} (I)" is an intermediate product of the β-carotene synthesis (Ref 1). The extension of the carbon chain of this compound by one atom and the creation of a conjugate system of double bonds renders the transition to stereo-isomeric retinal aldehydes possible, which corresponds to the vitamin A. The above mentioned chain-extension is based on the formation of cyanohydrins (Refs 2,3). For the reduction of the nitriles, arising after the dehydration, di-isobutyl--aluminum hydride (Ref 4) could be used. The authors describe a realisation of this method with reference to a simple example: The synthesis mentioned in the title (Ref 5) of 7-(1,1,5 trimethyl-cyclohexene-5-yl)-9-methyl butene-8-al-10 of β-C_{14} al-

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dehyde (II) (see scheme). The interaction between aldehyde C_{14} (II) with acetone-cyanohydrine takes place under the influence of a methanol solution of potash at 20-23°. The oxy-nitrile yield (III) amounts to 83-84%. By the reduction of the nitrile-β-ionolide-acetic-acid (Fig 1) (IV) the substance mentioned in the title (V) was produced as a stereo-isomeric mixture, and was isolated. In the crystallization of the semi-carbazones of the stereo-isomeric-aldehydes from alcohol trans-β-ionolide acetic aldehyde semi-carbazone was obtained (melting point 195.5°-196° Refs 7,8), and a far smaller quantity of the cis--isomers (melting point 173-174°). A far-reaching agreement of the maxima of the ultra-violet absorption spectra of the carbazones of the isomeric aldehydes (Fig 2) allows the conclusion that the isomery is caused by a deviation of the position of the substituents with regard to the newly formed, sterically not impeded, double-bond of the carbon atoms 9-10. Out of the carbazone of the trans-β-ionolide-acetic aldehyde free aldehyde was obtained. The infrared spectrum (Fig 3) is characteristic of substances with a trans-position of the substituents at the double bond. Bands in the range of 6.25μ belong to the

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oscillations of the system of conjugate double bonds, whilst those at 6μ correspond to the γ-oscillation C+-O in the system with conjugate unsaturated bonds. Prof. N. A. Preobrazhenskiy showed interest in this investigation. There are 3 figures and 8 references, 2 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut (All-Union Scientific Vitamin Research Institute). Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences, USSR)

PRESENTED: March 11, 1959, by M. I. Kabachnik, Academician

SUBMITTED: March 9, 1959

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2.5700

(USSR)
AUTHOR/2-60-1-32/37

AUTHORS: Zacharkin, L. I., Khorlina, I. M.

TITLE: Brief Communications. Improved Method of Diethylaluminum Hydride Preparation

PERIODICAL: Izvestiya akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, Nr 1, pg 142 (USSR)

ABSTRACT: A simple method of diethylaluminium hydride preparation from diethylaluminum bromide and lithium hydride is described:

$$(C_2H_5)_2AlBr + LiH \rightarrow (C_2H_5)_2AlH + LiBr.$$

Procedure: Add dropwise 15.5 ml (0.14M) absolute ether to the 24 g (0.14M) diethylaluminum bromide; to the obtained product add 1.45 g of ground lithium hydride and mix for 1 hour at 50-60°, then add 20 ml of dry benzene. Separate the precipitate formed. Remove the

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solvent by distilling under vacuum. Heat (50-60°) the obtained product in vacuum (1 mm) for 40-60 min to remove ether, and finally distill to obtain the pure diethylaluminum hydride (92%), bp 77° (1 mm). A simple method for preparing diethylaluminum bromide by symmetrization of ethylaluminum sesquibromide with bromide is also described:

$$(C_2H_5)_3Al_2Br_3 + nNaBr \rightarrow {}^3/_2(C_2H_5)_2AlBr + AlBr_3 \cdot nNaBr.$$

The reaction takes place on heating (200-220°) the mixture for 2 hours. The obtained diethylaluminum bromide (92%) is separated from the reacted mixture by distillation, bp 84.2-85° (3 mm). There are 5 references, 2 German, 3 Soviet.

ASSOCIATION: Institute of Element-Organic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

SUBMITTED: June 23, 1959

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

SAMOKHVALOV, G.I.; DAVYDOVA, L.P.; ZAKHARKIN, L.I.; KHORLINA, I.M.; VAKULOVA, L.A.; ZHIKHAREVA, L.T.; PREOBRAZHENSKIY, N.A.

Synthesis studies in the field of polyene compounds. Part 17: New synthesis of retinal or 9,13-dimethyl-7-(1,1,5-trimethylcyclohexen-5-yl)-7,9,11,13-nonatetraen-15-al. Zhur.ob.khim. 30 no.6:1823-1828 Je '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut. (Nonatetraenal) (Olefins)

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S/079/60/030/06/03/009
B002/B016

5.3700 B

AUTHORS: Zakharkin, L. I., Khorlina, I. M.

TITLE: Symmetrization of Alkyl Aluminum Sesquihalides to Dialkyl Aluminum Halides in the Presence of Sodium Halides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1926-1929

TEXT: In the present paper the authors outlined the conditions for the above method of synthesis devised by them. The symmetrization of the alkyl aluminum sesquihalides with the corresponding sodium halides proceeds according to the formula: $2R_3Al_2X_3 + nNaX \longrightarrow 3R_2AlX + AlX_3 \cdot nNaX$ (X = Cl, Br, I). The investigation was performed on methyl and ethyl aluminum sesquichloride, ethyl aluminum sesquibromide and ethyl and propyl aluminum sesquiiodide. The mixture of the above-mentioned initial substances with the corresponding sodium salt was heated for 2 hours up to 200-220° under vigorous stirring. Two immiscible liquid layers were formed. The upper one consisted of pure dialkyl aluminum halide, the lower one of a complex compound with the sodium salt which crystallized on

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Symmetrization of Alkyl Aluminum Sesquihalides to Dialkyl Aluminum Halides in the Presence of Sodium Halides

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B002/B016

cooling. This phenomenon was observable in all compounds investigated. The separation of the dialkyl aluminum halide from the sodium halide complex salt was not possible any longer. The influence of the amount of NaBr used in the reaction upon the degree of symmetrization was investigated on the example of the reaction of ethyl aluminum sesquibromide with NaBr. Complete symmetrization occurred at a molar ratio of ethyl aluminum sesquibromide to NaBr = 1:1-1.2. At a lower ratio a mixture of diethyl and ethyl aluminum bromide was formed, in which connection the former prevailed in proportion to the amount of the initial substances used. A more intense symmetrization did not occur any longer even at a higher excess of NaBr. If the synthesis is made without stirring, a higher quantity of NaX is necessary for the corresponding degree of symmetrization. On evaporation in vacuo a mixture of dimethyl aluminum iodide and trimethyl aluminum is formed from methyl aluminum sesquiiodide and NaI. On evaporation under atmospheric pressure the total amount symmetrized to trimethyl aluminum. In the experimental part the syntheses are described in detail. The following compounds were obtained: diethyl aluminum bromide, yield 92%, without stirring 85%; dimethyl aluminum

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Symmetrization of Alkyl Aluminum Sesquihalides to Dialkyl Aluminum Halides in the Presence of Sodium Halides

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B002/B016

chloride, yield 84%; diethyl aluminum chloride, 85%, without stirring 79%; diethyl aluminum iodide, 98%, without stirring 91%; di-n-propyl aluminum iodide (twofold distillation), 75%; trimethyl aluminum (twofold distillation), 80%. There are 1 table and 6 references: 1 Soviet, 3 German, and 1 English.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences of the USSR)

SUBMITTED: July 6, 1959

Card 3/3

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

28277 S/062/61/000/010/014/018
B106/B101

5.3700

AUTHORS: Zakharkin, L. I., and Khorlina, I. M.

TITLE: Preparation of dialkyl-aluminum hydrides from dialkyl-aluminum halides and sodium hydride

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1961, 1894 - 1895

TEXT: The conversion of dialkyl-aluminum halides into dialkyl-aluminum hydrides is of great interest, since the latter are good reducing agents. So far, only the conversion of diethyl-aluminum chloride (Ref. 2: K. Ziegler, Liebigs Ann. Chem. 589, 91 (1954)) and diethyl-aluminum bromide (Ref. 3: L. I. Zakharkin, I. M. Khorlina, Izv. AN SSSR. Otd. khim. n. 1960, 142) has been known. The present paper describes the reduction of dimethyl-aluminum chloride and dimethyl-aluminum iodide to dimethyl-aluminum hydride, of diethyl-aluminum chloride, diethyl-aluminum bromide, and diethyl-aluminum iodide to diethyl-aluminum hydride, of dipropyl-aluminum chloride and dipropyl-aluminum bromide to dipropyl-aluminum hydride, and of diisobutyl-aluminum chloride and diisobutyl-

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aluminum bromide to diisobutyl aluminum hydride. The reductions were carried out with sodium hydride. The reduction of diethyl-aluminum chloride and sodium hydride to hexane described by Ziegler et al. (Ref.2: see above) is slow and incomplete. All the dialkyl-aluminum halides mentioned above are quickly and completely reduced by sodium hydride to the corresponding dialkyl-aluminum hydrides at 40-60°C if aromatics (benzene, toluene) are used as solvents, and if the reduction takes place by seeding with the corresponding dialkyl-aluminum hydride. The corresponding trialkyl aluminum can also be used as a seeding substance. Dialkyl-aluminum hydride is added to dissolve sodium hydride as the complex NaR_2AlH_2, which then acts as a reducing agent for dialkyl-aluminum halide. The reduction thus follows the pattern $NaH + R_2AlH \rightarrow NaR_2AlH_2$, $NaR_2AlH_2 + R_2AlX \rightarrow 2R_2AlH + NaX$. The resulting dialkyl-aluminum hydride and sodium hydride again form a complex which reduces another portion of dialkyl-aluminum halide, etc. Yield of hydrides: 75-85% of the theoretical value. The experimental results are given in a table. The authors also reduced ethyl-aluminum sesquichloride and ethyl-aluminum sesquibromide with sodium hydride in a benzene solution at 50°C by seeding

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

Preparation of dialkyl-aluminum...

with diethyl-aluminum hydride. The reaction takes place smoothly, without decomposition of its products. It is, however, impossible to obtain an equimolecular mixture of diethyl-aluminum hydride and ethyl-aluminum hydride. Usually, a mixture of ~70% of diethyl-aluminum hydride and 30% of ethyl-aluminum hydride forms apparently due to disproportionation of ethyl-aluminum hydride. For the above reductions, 1.5 - 2 g of the corresponding dialkyl-aluminum hydride or trialkyl aluminum is added to a suspension of sodium hydride (excess: 3-5%) in absolute benzene. After mixing and heating to 70-80°C, the corresponding dialkyl-aluminum halide is added dropwise within 15 - 20 min; so, the temperature of the reaction mixture does not exceed 50 - 60°C. After addition of the halide, the mixture is maintained at 50°C for one hour. The sodium-halide deposit is filtered off in a nitrogen atmosphere, or is centrifuged and washed with twice or three times the amount of benzene. The latter is distilled off in a water-jet vacuum at a bath temperature of 40 - 50°C. The hydride obtained is distilled in vacuo. [Abstracter's note: Essentially complete translation.] There are 1 table and 3 references: 2 Soviet and 1 non-Soviet.

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ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences USSR)

SUBMITTED: April 6, 1961

R_2AlX	Вход соответствующего гидрида, % (1)	Т. кип. гидрида, °С (р, мм рт. ст.) (2)	R_2AlX	Выход соответствующего гидрида, % (1)	Т. кип. гидрида, °С (р, мм рт. ст.) (2)
$(CH_3)_2AlCl$	84	43 (3)	$(n\text{-}C_3H_7)_2AlCl$	79	91—96 (1)
$(CH_3)_2AlJ$	72	То же (3)	$(n\text{-}C_3H_7)_2AlBr$	85	—
$(C_2H_5)_2AlCl$	86	65—67 (1)	$(i\text{-}C_4H_9)_2AlCl$	70	114 (1)
$(C_2H_5)_2AlBr$	82	—	$(i\text{-}C_4H_9)_2AlBr$	80	То же (3)
$(C_2H_5)_2AlJ$	87	—			

Legend to the Table: (1) yield of the corresponding hydride, %; (2) boiling point of the hydride, °C (p, mm Hg); (3) dto.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Reduction of methylcyclohexanes with diisobutylaluminum hydride.
Izv.AN SSSR.Otd.khim.nauk no.6:1144-1145 Je '61. (MIRA 14:6)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Cyclohexane) (Aluminum hydrides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Preparation of dialkyl aluminum hydrides from dialkyl aluminum halides and sodium hydride. Izv.AN SSSR.Otd.khim.nauk no.10: 1894-1895 O '61. (MIRA 14:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Aluminum compounds)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; SOROKINA, L.P.; KHORLINA, I.M.

Action of triisobutylaluminum on cyclohexanone. Zhur.ob.khim. 31 no.10:3311-3316 O '61. (MIRA 14:10)
(Alumimum) (Cyclohexanone)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

S/079/62/032/009/002/011
I040/I242

AUTHORS: Zakharkin, L.I. and Khorlina, I.M.

TITLE: Interaction between diethylaluminum hydride and the diethyl compounds of Zn, Hg, Cd, and Mg

PERIODICAL: Zhurnal obshchey khimii, v.32, no.9, 1962, 2783-2785

TEXT: The reaction of diethylaluminum hydride with the diethyl compounds of Hg, Zn, Cd, and Mg without a solvent was studied in an attempt to prepare triethylaluminum. The reaction of $(C_2H_5)_2AlH$ with $(C_2H_5)_2Hg$ at temperatures between -20°C and +100°C yielded $(C_2H_5)_3Al$, C_2H_6, Hg and H_2; the relative amounts of the different products varied with the experimental conditions (temperature, order of mixing, etc.). The formation of ethane indicates that an intermediate unstable compound - ethylmercury hydride - is formed which, either decomposes yielding ethane and free Hg, or reacts with the diethylaluminum hydride to yield mercury hydride which decomposes into free Hg and H_2. The interaction between the diethylaluminum hydride and the diethyl compounds of Zn, Cd, and Mg at 25-40°C

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

S/079/62/032/009/002/011
I048/I242

Interaction between diethylaluminum...

followed the equation

$$2(C_2H_5)_2AlH + (C_2H_5)_2Me = 2(C_2H_5)_3Al + MeH.$$

Only in the case of Mg was the metal hydride separated, as the hydrides of Cd and Zn are unstable and decompose into the metal and H_2. In all cases, the yield of triethylaluminum exceeded 80%, and the reactions can be used for the synthesis of this compound.

SUBMITTED: August 7, 1961

Card 2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; GAVRILENKO, V.V.; KHORLINA, I.M.

Effect of sodium hydride on ethyl aluminum dichloride and dibromide. Izv.AN SSSR.Otd.khim.nauk no.3:438-441 Mr '62. (MIRA 15:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Aluminum compounds) (Sodium hydride)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Preparation of aldehydes by the reduction of carboxylic esters with diisobutyl-aluminum hydride. Izv.AN SSSR.Otd.-khim.nauk no.3:538 Mr '62. (MIRA 15:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Aldehydes) (Esters) (Aluminum compounds)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Interaction of diethyl aluminum hydride with diethyl compounds of Zn, Hg, Cd, and Mg. Zhur.ob.khim. 32 no.9:2783-2785 S '62. (MIRA 15:9)

(Aluminum compounds) (Organometallic compounds)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; GAVRILENKO, V.V.; KHORLINA, I.M.; ZHIGAREVA, G.G.

Reduction of silicon and germanium chlorides and alkoxides by means of sodium and potassium aluminum hydrides. Izv. AN SSSR.Otd. khim.nauk no.10:1872-1874 O '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Silicon chloride) (Germanium chloride)
(Alkali metal aluminum hydrides)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Reduction of carboxylic esters to aldehydes by diisobutylaluminum hydride. Izv.AN SSSR.Otd.khim.nauk no.2:316-319 F '63. (MIRA 16:4)

1. Institut elementoorganicheskikh soydedineniy AN SSSR.
(Esters) (Aldehydes) (Aluminum compounds)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Reduction of some derivatives of acids to aldehydes with sodium diisobutylaluminum dihydride. Izv. AN SSSR. Ser.khim. no.3: 465-469 Mr '64. (MIRA 17:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Reduction of carboxylic acids to aldehydes with diisobutylaluminum hydride. Zhur. ob. khim. 34 no. 3:1029 Mr '64. (MIRA 17:6)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

ZAKHARKIN, L.I.; KHORLINA, I.M.

Reduction of α-oxides by diisobutylaluminum hydride and the mechanism of action on α-oxides of simple aluminum hydrides. Izv. AN SSSR. Ser. khim. no.5:862-870 '65. (MIRA 18:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

5(3)

AUTHORS: Nesmeyanov, A. N., Reutov, O. A., Loseva, A. S., Khorlina, M. Ya.

SOV/62-58-11-7/26

TITLE: Synthesis of Organo-Meroury Compounds From Hydrazones (Sintez rtutnoorganicheskikh soyedineniy iz gidrazonov) Communication I. Interaction of Hydrazones of Aliphatic Aldehydes and Ketones With Mercury Acetat (Soobshcheniye 1. Vzaimodeystviye gidrazonov al'degidov i ketonov alifaticheskogo ryada s uksusnokisloy rtut'yu)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 11, pp 1315-1326 (USSR)

ABSTRACT: Earlier, hydrazones - a group of easily accessible compounds - have not been used for the synthesis of organometallic compounds. It is demonstrated in the present paper that the reaction of hydrazones of acetaldehyde, acetone, methyl-ethyl ketone, and butyrone with mercury acetate in aqueous methanol and absolute benzene medium may serve for the production of some new types of organo-mercury compounds. The reaction investigated takes place according to that of a "conjugated compound" under participation of the medium. α,α'-dimercury or $\alpha,\alpha',\beta,\beta'$-tetramercury ether form in

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water, α-mercury or α,β-dimercury alkyl methyl esters in methanol, and α-mercury or α,β-dimercury alkyl acetates in absolute benzene. The chemical properties of the obtained organo-mercury compounds were investigated. It is demonstrated that a) dimercury compounds of the type (IV) - (VI) are decomposed by concentrated hydrochloric acid when heated. In this connection they separate calomel and form the corresponding carbonyl compounds b) bromination of dimercury compounds of the type (IV) - (VI) with a bromine solution saturated with potassium bromide leads in the cold to the formation of a corresponding α-bromoketone at the same time with a ketone c) monomercury compounds of the type (I) - (III) are decomposed in the cold by concentrated alkali. On this occasion they separate metallic mercury and form the corresponding carbonyl compounds. There are 1 table and 10 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

5(3) SOV/62-59-1-8/38

AUTHORS: Nesmeyanov, A. N., Reutov, O. A., Loseva, A. S., Khorlina, M. Ya.

TITLE: Synthesis of Organo-Mercury Compounds From Hydrazones (Sintez rtutnoorganicheskikh soyedineniy iz gidrazonov) Communication 2. Interaction of Hydrazones of the Aldehydes and Ketones of the Alicyclic and Aromatic Series With Mercury (II) Acetate (Soobshcheniye 2. Vzaimodeystviye gidrazonov al'degidov i ketonov alitsiklicheskogo i aromaticheskogo ryadov s uksusnokislov rtut'yu)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 1, pp 50 - 61 (USSR)

ABSTRACT: In the present paper the authors have shown that the hydrazones of aldehydes and ketones of the alicyclic and aromatic series (hydrazones of cyclohexanone, 4-methyl cyclohexanone, cyclopentanone, camphor, benzophenone and o-nitro-benzaldehyde) react with mercury (II) acetate in water, methanol and absolute benzene and separate nitrogen, mercury (I) acetate and metallic mercury, and form organo-mercury compounds. In most cases the reaction under the action of

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the solvent takes place in the way mentioned in Ref 1. The reaction of hydrazones of cyclohexanone and 4-methyl cyclohexanone with mercury (II) acetate in water and in the presence of catalytic quantities of copper acetate is very peculiar. As a result of this interaction organo-mercury compounds with a double bond are formed. Organo-mercury compounds are listed in the table which were synthesized by way of hydrazones of the alicyclic and aromatic series. The structure of the organo-mercury compounds obtained was confirmed by decomposition with concentrated alkali or concentrated hydrochloric acid (Ref 1). The hydrazones used in this paper were synthesized according to methods already described: hydrazone of cyclohexanone (Ref 2), of 4-methyl cyclohexanone (Ref 3), of camphor (Ref 4), of benzophenone (Ref 5) and o-nitro-benzaldehyde (Ref 6). There are 1 table and 14 references, 2 of which are Soviet.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

Synthesis of Organo-Mercury Compounds From Hydrazones. SOV/62-59-1-8/38
Communication 2. Interaction of Hydrazones of the Aldehydes and Ketones of the Alicyclic and Aromatic Series With Mercury (II) Acetate

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: April 8, 1957

Card 3/3

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

5 (2, 3)

AUTHORS: Freydlina, R. Kh., Corresponding Member AS USSR, Kost, V. N., Khorlina, M. Ya., Nesmeyanov, A. N., Academician

SOV/20-128-2-26/59

TITLE: Addition of Hydrogen Bromide to 1,1,1,2-Tetrachloropropene-2 and 1,1,2-Trichloropropane-2 in the Presence of Benzoyl Peroxide

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 316-319 (USSR)

ABSTRACT: The authors investigated the above topic in continuation of their own previous papers (Refs 1, 2) as well as in cooperation with L. I. Zakharkin (Ref 3) and A. B. Belyavskiy (Ref 4) on rearrangements of free radicals. The interaction between HBr and the substance mentioned first in the title led to a mixture of products. 1,1,2,2-Tetrachloro-3-bromopropane (I) with a yield of approximately 30% was isolated from the latter in addition to other compounds (II) - (IV) (see Scheme). The existence of (I) and (II) shows that the addition proceeds here with a rearrangement of the type mentioned in references 1-4. The intermediate radicals are apparently comparatively little stable and decompose under separation of a chlorine atom. The yield of (I) is therefore low, and (II) - (IV) occur in the reaction products. With respect to its composition,

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

constants, and infrared spectrum, substance I is identical with the 1,1,2,2-tetrachloro-3-bromopropane produced by the authors according to another scheme (see there), it differs, however, from the 1,1,1,2-tetrachloro-3-bromopropane produced by the chlorination of the $CCl_2{=}CH{-}CH_2Br$ with respect to constants and infrared spectrum. Ethyl cellosolve HCl is split off from substance I by treatment with alkalis, which results in the production of compound III. The latter was identified as hydrochloride of the diethyl-amine derivative $CCl_2{=}CCl{-}CH_2N(C_2H_5)_2{\cdot}HCl$ (V). As far as constants and infrared spectrum are concerned, compound II corresponds to 1,1,2,2,3-pentachloropropane. Trichlorobromopropene III together with diethyl-amine and thiourea yields derivatives which were identified as hydrochloride and picrate respectively. When reacting with Hg, substance III yielded the trichloroallyl-mercury bromide which was identical with that produced by the usual method (Ref 5). As to its properties, tetrachloropropene IV corresponds to the well-known 1,1,2,3-tetrachloropropene, and together with diethyl-amine it yields the corresponding

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

derivative V. The addition of HBr to 1,1,2-trichloropropene-2 proceeds without rearrangement under formation of 1,1,2-trichloro-3-bromopropane (see Scheme). This reaction course is apparently connected with a greater stability of the radical A produced as against the radical $CHClCCl_2CH_2Br$ which might be produced by a rearrangement. As to its constants, composition, and infrared spectrum, substance VI, i.e. $HCCl_2 - CHCl - CH_2Br$, which was produced in the last-mentioned reaction, is identical with the 1,1,2-trichloro-3-bromopropane. The isothiourea derivative furthermore obtained as picrate is identical with the corresponding derivative synthesized from the well-known 1,1,2-trichloro-3-bromopropane. There are 8 references, 7 of which are Soviet.

SUBMITTED: June 5, 1959

Card 3/3

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLINA, M. YA., CAND CHEM SCI, "~~REARRANGEMENT~~ Regrouping the OF ALKYL POLYHALIDE RADICALS IN THE PROCESS OF HOMOLYTIC ADDITION OF HYDROGEN BROMIDE TO POLYHALIDE OLEFINS IN SOLUTION." MOSCOW, 1961. (MOSCOW ORDER OF LENIN AND ORDER OF LABOR RED BANNER STATE UNIV IMENI M. V. LOMONOSOV). (KL-DV, 11-61, 211).

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

S/081/62/000/014/009/039
B166/B144

AUTHORS: Nesmeyanov, A. N., Freydlina, R. Kh., Kost, V. N., Khorlina, M. Ya., Sidorova, T. T., Petrova, R. G., Terent'yev, A. B.

TITLE: Connection between the structure of polyalkylhalide radicals and their ability to regroup in solution

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 14, 1962, 178, abstract 14Zh41 (Tr. po khimii i khim. tekhnol. [Gor'kiy], no. I, 1961, 106-115)

TEXT: A review of the authors' work on the homolytic addition of HBr, CCl_3, Br, Br_2, C_6H_5SH and $C_6H_5CH_2SH$ to olefins $XCCl_2CY = CH_2$ (I), where X = Cl, F, H, CH_3 and Y = H, Cl, Br, CH_3. The results of the work show that the aforesaid reactions proceed according to the general scheme: $I + HBr \longrightarrow HCClXCYClCH_2Br + CClX = CYCH_2Br + HCClXCYClCH_2Cl$. This indicates that the initially formed polyalkylhalide radicals (PR) are

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rearranged and then stabilized either by adding an H or by dehalogenation; moreover the latter leads to the chain of reaction being continued. The exception is compounds with X = F, which along with rearranged products also give products which are not rearranged. It was found that the rearrangement of PR tends towards the formation of more stable radicals. A table of the relative stability of the PR is drawn up:

$\dot{C}Cl_2CHClCH_2X > CCl_3\dot{C}HCH_2X$ (when X = Br, Cl, CCl_3, C_6H_5);
$\dot{C}Cl_2CCl(CH_3)CH_2Br > CCl_3\dot{C}(CH_3)CH_2Br$; $\dot{C}Cl_2CCl_2CH_2Br > CCl_3\dot{C}ClCH_2Br$;
$\dot{C}HClCHClCH_2Br > CHCl_2\dot{C}HCH_2Br$; $CHCl_2\dot{C}ClCH_2Br > \dot{C}HClCCl_2CH_2Br$;
$CH_3\dot{C}ClCHClCH_2Br > CH_3CCl_2\dot{C}HCH_2Br$; $CFCl_2\dot{C}HCH_2Br \approx CFClCHClCH_2Br$;
$\dot{C}FClCBrClCH_2Br \approx CFCl_2\dot{C}BrCH_2Br$. 15 references. [Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

FREYDLINA, R.Kh.; KOST, V.N.; KHONLINA, M.Ya.; NESMEYANOV, A.N., akademik

Rearrangements in the homolytic addition of hydrogen bromide to poly(halo alkenes). Dokl. AN SSSR 137 no.2:341-344 Mr '61. (MIRA 14:2)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Chlen-korrespondent AN SSSR (for Freydlina).

(Hydrogen bromide) (Unsaturated compounds)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLINA, M.Ya.; KOST, V.N.

Homolytic isomerization of 2-bromo-3, 3-dichloro-1-butene. Dokl.AN SSSR 137 no.5:1133-1136 Ap '61. (MIRA 14:4)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Predstavleno akademikom A.N.Nesmeyanovym.
(Butene)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

FREIDLINA, P.H. [Freydlina, P. Kh.]; KOST, V.N.; HORLINA, M.I. [Khorlina, M.Ya.]

Rearrangement of radicals in solutions. Analele chimie 17 no.3:131-174 Jl-S '62.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

FREYDLINA, P.Kh.; KOST, V.N.; KHORLINA, M.Ya.

Rearrangement of radicals in solution. Usp.khim. 31 no.1: 3-38 Ja '62. (MIRA 15:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Radicals (Chemistry))

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

FREYDLINA, R.Kh.; KHORLIN, M.Ya.; KOST, V.N. [deceased]

Homolytic reactions of a dichlorovinyl group. Izv. AN SSSR.Ser. khim. no.10:1788-1792 '65. (MIRA 18:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

KHORLINA, M.Ya.; FREYDLINA, R.Kh.

Effect of reaction conditions on the rearrangement of radicals in solution. Izv. AN SSSR. Ser. khim. no.8:1483-1485 '65.
(MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

L 8153-66 EWT(m)/EWP(j) RM

ACC NR: AP5027687 SOURCE CODE: UR/0062/65/000/010/1788/1792

AUTHOR: Freydlina, R. Kh.; Khorlina, M. Ya.; Kost, V. N. (Deceased)

ORG: Institute of Organometallic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Homolytic reactions of the dichlorovinyl group

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1965, 1788-1792

TOPIC TAGS: chemical reaction, halogenated organic compound, mixed halogenated organic compound, organic sulfur compound

ABSTRACT: The radical addition of various reagents to compounds containing an unsymmetrical dichlorovinyl group was investigated. The addition of HBr to 1,1,3-trichloropropene-1 (A), to 1,1-dichloro-3-bromopropene-1 (B) and 1,1,5-trichloropentene-1, and of n-butylmercaptan or thiophenol to A was accomplished at low temperatures (-35 to 37 C) under ultraviolet illumination. Hydrobromination of B gave 1,1-dichloro-2,3-dibromopropane. Reaction of A with the mercaptan or thiophenol yielded the sulfides $CHCl_2$-CH(SR)CH_2Cl, where R is butyl or phenyl. Homolytic addition of HBr and mercaptans to the dichlorovinyl group resulted in the formation of compounds containing a terminal

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UDC: 547.024+541.14

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

L 8153-66

ACC NR: AP5027687

dichloromethyl group. These radical addition reactions were hindered by introduction of substituents in the beta-position to the double bond. Orig. art. has: 3 tables and 5 equations.

SUB CODE: OC/ SUBM DATE: 17Jul63/ ORIG REF: 001/ OTH REF: 000

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722310002-4

AUTHORS: Timofeyeva, T. V., Khormushko, S. P. 48-1-3/20

TITLE: Screens for the Recording of Slow Neutrons (Ekrany dlya registratsii medlennykh neytronov).

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1958, Vol. 22, Nr 1, pp. 14 - 20 (USSR).

ABSTRACT: It was the purpose of the present work to develop a scintillator with an efficiency as high as possible in the counting of the thermal neutrons in the presence of a powerful γ-background. For this purpose the reaction (n, α) with boron was used. Of the three methods for the production of a scintillator for recording slow neutrons on the basis of zinc sulfide with an addition of boron: the method of common penetration-hardening, the method of the mechanical mixture and the method of sintering the first-mentioned method gave the best results. It is shown that the efficiency of neutron-counting increases with an increase in the thickness of layer and the grain size of the scintillator up to the optimum, which corresponds to a thickness of layer of 2-3 grains. It i shwon that the introduction of the scintillator into a varnish diminishes the efficiency of neutron-counting by 2-3 -fold. With screens in the shape of a hollow body (sphere, cylinder) which are internally covered with a scintillator-layer it is possible

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Screens for the Recording of Slow Neutrons. 48-1-3/20

to count 8-10 times as many neutrons as with a flat covering. The scintillator is hydroscopic and does therefore not require any humidity protection. Two types of screens are recommended: a flat one of a scintillator-powder and a cylindrical one which is covered by a scintillator-layer on varnish. The efficiency in the counting of the neutrons with a cylindrical screen is three times as high as with a flat one. The coefficient of neutron-counting in the case of a flat screen is evaluated with some p..cents ($\sim 5^0/o$) which is close to the theoretically possible value.
There are 7 figures, and 9 references, 1 of which is Slavic.

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1. Chemistry 2. Boron-Application

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24.2243

AUTHORS: Timofeyeva, T. V., Khormushko, S. P.

TITLE: New Data on a Slow Neutron Detector 19

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol. 23, No. 11, pp. 1283-1285

TEXT: In recent years, the authors developed a slow neutron detector consisting of a luminous material (svetosostav) based on zinc sulfide with boric acid impurities. The neutron count is done by the (n,α) reaction in B^{10}; the scintillations caused by the α-particles were recorded with a photomultiplier, on the photocathode of which the detector was placed. The latter was equipped with plane and cylindrical luminous bodies. The present paper is devoted to the investigation of the dependence of slow neutron counts on the boric acid content and on the increase of the count coefficient for neutrons due to the use of boric acid concentrated with B^{10}. An increase in the B^{10} content gives rise to an increase in the neutron absorption, which leads to an attenuation of the neutron flux in the lower layers of the luminous material, and to the occurrence of the self-shield-

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AUTHORS: Gorshkov, G. V., Khorauahko, S. P., Tsvetkov, O. S.

S/020/60/131/04/059/073
B011/B002

TITLE: Comparison Between Neutron Radiation in the Atmosphere and the Earth's Crust

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 4, pp 933-935 (USSR)

ABSTRACT: The authors give a survey of investigations of neutron radiation since 1937. Since they now dispose of better apparatus than they did then, the authors attempt to compare the intensity of cosmic neutrons at sea level with the neutrons in the rocks of the Leningrad underground. For measuring the neutron flux, they designed and constructed a scintillation counter consisting of a disk-shaped slow neutron detector (Ref 16), 153.5 mm in diameter, and a photoelectron multiplier of the type FEU-2B (150 mm in diameter). The pulses coming from the multiplier were fed into a circuit containing electron tubes which intensify and analyse simultaneously and were recorded by a conversion device (Fig 1). The elements of the block diagram illustrated were developed mainly on the basis of the system of a standard neutron counter of the type SCh-3. The measurements were carried out: (1) in the city of Zelenogorsk, (2) in the harbor of Zelenogorsk, (3) in a station of the Leningrad underground in a depth of 70 m. The counting rate

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Comparison Between Neutron Radiatio' in the Atmosphere and the Earth's Crust

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was measured with and without cadmium. Table 1 gives the results. Hence, the intensity of cosmic neutrons measured by the author on the surface of the sea is similar to the value determined by N. Kaplan and H. Yagoda (Ref 19) (230 neutrons/cm^2). The authors found the neutron intensity above the sea to be stronger than over the mainland. This divergence is probably due to a plexiglass light pipe which the authors attached to the detector. The intensity of neutron radiation of the rocks is probably lower than 5% of the intensity of cosmic neutron radiation on the sea surface. This is in agreement with K. Mather's measurements (Ref 12) and differs largely from those by J. Eugster (Ref 10) and others (Refs 14, 15). N. M. Lyatkovskaya, A. G. Grammakov, V. S. Zhadin are mentioned. There are 1 table and 19 references, 8 of which are Soviet.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR (Radium Institute imeni V. G. Khlopin of the Academy of Sciences, USSR)

PRESENTED: September 23, 1959, by A. A. Grinberg, Academician

SUBMITTED: September 18, 1959

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26.2244

AUTHORS: Grebenskiy, B. S., Timofeyeva, T. V., Khormushko, S. P., and Tsvetkov, O. S.

TITLE: Increase of the efficiency of a scintillation detector for slow neutrons

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 4, 1961, 500-503

TEXT: The present paper has been read at the 9th Conference on Luminescence (Crystal Phosphors), Kiyev, June 20-25, 1960. The authors examined a dispersion detector for slow neutrons on the basis of ZnS-Ag and H_3BO_3, using both natural B and such enriched with B^{10}. The detectors were prepared by joint sintering of ZnS-Ag with H_3BO_3, and also, for a comparison, by a method described in the literature (Ref. 2: Sun K., Malmberg P., Pesjak F., Phys. Rev., 95, 600 (1954); Nucleonics, 14, No. 7, 46 (1956); Ref. 3: Vorisek M., Czechosl. J. Phys., 7, No. 6, 757 (1957)). In the first method, a sinter of B_2O_3 was ground with ZnS-Ag and sorted in frac-

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26.2244

AUTHORS: Gorshkov, G. V., Grebenskiy, B. S., Khormushko, S. P., and Tsvetkov, O. S.

TITLE: Dispersion detector for fast neutrons

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 4, 1961, 504-505

TEXT: The present paper has been read at the 9th Conference on Luminescence (Crystal Phosphors), Kiyev, June 20-25, 1960. The detector considered here is made of grains of a ZnS-Ag scintillator, which are uniformly distributed in a medium containing hydrogen. The scattering of neutrons in the detector leads to the formation of recoil protons which, when hitting a scintillator, result in a scintillation which is recorded by a photomultiplier. The detectors considered here were prepared by polymerization of styrene and methyl methacrylate with ZnS-Ag. The resulting detectors were up to 300 mm in diameter and had the shape of hollow spheres, cylinders, hemispheres, etc. The grain size of the scintillator was 12-25 μ, the afterglow had a duration of about 10^{-4} seconds, the intensity

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