

SHARDANOV, A.N.

Geological history of the Kerch-Taman' troughs. Trudy
KF VNII no.10:40-52 '62. (MIRA 15:11)
~~(Kerch Peninsula Geology)~~
~~(Taman' Peninsula Geology)~~

SHARDANOV, A.N.; MALYSHEK, V.T.; PEKLO, V.P.

Roots of the mud volcanoes in the Taman' Peninsula.
Trudy KF VNII no.10:53-66 '62. (MIRA 15:11)
(Taman' Peninsula--Mud volcanoes)

BORD, I.O.; BURLIN, Yu.K.; KOROTKOV, S.T.; PUSTIL'NIKOV, M.R.; FEDOROV, S.F.;
KHAKIMOV, M.Yu.; SHARDANOV, A.N.

Azov-Kuban oil- and gas-bearing basin. Zakonom. razm. polezn. iskop.
5:536-548 '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy universitet, Krasnodarskiy sovet
narodnogo khozyzystva (tresty "Krasnodarneft'" i "Krasnodarneftegeofi-
zika"), Institut geologii i razrabotki goryuchikh iskopayemykh AN SSSR
i Kompleksnaya neftegazovaya geologicheskaya ekspeditsiya AN SSSR.
(Azov-Kuban region—Petroleum geology)
(Azov-Kuban region—Gas, Natural—Geology)

SHARDANOV, A.N.; PEKLO, V.P.

History of the structural formation of the western subsidence of
the Greater Caucasus. Dokl.AN SSSR 144 no.4:900-902 Je '62.
(MIRA 15:5)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-
issledovatel'skiy instituta. Predstavleno akademikom A.L.Yanshinym.
(Caucasus--Geology, Structural)

SHARDANOV, A.N.; SHIMANSKIY, A.A.

Age of igneous rocks in western Ciscaucasia. Dokl. AN SSSR. 152
no.6:1441-1444 0 '63. (MIRA 16:11)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-
issledovatel'skogo instituta. Predstavleno akademikom D.V.
Nalivkinym.

БОТНОВА, Т. А.; ЯВРЕМЕНКО, Н. А.; КОРОТКОВ, С. Т.; ДЖАНДАНОВ, А. Н.

"Regularities in distribution of oil and gas deposits in West Fore-Caucasus."

report submitted for 22nd Sess, Intl Geological Cong, New Delhi, 14-22 Dec 1964.

СНАБЖЕНИЕ ВОДНОЙ МАШИНАРИИ, С.А.

Водоснабжение водопользователей на Крымском полуострове.
С.А. № 10/1986 от 10.01.86. (ИИИ 12:8)

И. П. Курский филиал Всесоюзного нефтегазового научно-
исследовательского института «Иркутский Краснодарнефтегаз».

SHARDIN, A., inzh.-podpolkovnik, kand.tekhn.nauk

What needs to be known about the 1942 system of coordinates. Voen.
vest. 38 no.12:68-73 D '58. (MIRA 12:1)
(Maps, Military) (Military topography) (Coordinates)

SHARDULEVICH, R.

Planning dockyard operations at wholesale prices. Mor.flot 21 no.5:
24-26 My '61. (MIRA 14:5)

1. Starshiy inzh. Izmail'skogo sudoremontnogo zavoda.
(Ships---Maintenance and repair)

SHARENO, L.G.; SMIRNOV, L.S.

Recombination level in n-germanium under electron irradiation.
Fiz. tver. tela 4 no.8:2137-2140 Ag '62. (MIRA 15:11)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR,
Moskva.

(Germanium--Electric properties)
(Electrons)

SHARENKOY, Stefan Stoyanov, kand.ekonom.nauk; TRIFONOV, V., red.;
DANILINA, A., tekhn.red.

[The building of the socialist economy in the People's
Republic of Bulgaria] Stroitel'stvo sotsialisticheskoi
ekonomiki v Narodnoi Respublike Bolgarii. Moskva, Gos.
izd-vo polit.lit-ry, 1960. 156 p. (MIRA 14:4)
(Bulgaria--Economic conditions)

SHARENKOV, St.; PASKALEV, St.

For highest standard of living of the Bulgarian people. Trud i tseni
3 no.9:8-18 '61.

(Cost and standard of living)

SHARENKOV, St.; SHALAMANOV, St.

International socialist division of labor. Trud tseni 4 no.7:17-
27 '62.

KHLYSTOV, P.I.; SHARENKOV, V.V.

Latest in the technology of paperboard finish. Bum.prom.
35 no.6:25-26 Je '60. (MIRA 13:7)

1. Kartonnaya fabrika "Severnny kommunar."
(Paperboard)

KOLEV, N.; SHARENKOVA, Khr.

Some vegetative and generative phenomena of determinant tomatoes.
Fiziol. rast. 9 no.1:75-79 '62. (MIRA 15:3)

1. Agricultural Institute "Georgi Dimitrov", Sofia.
(Tomatoes--Varieties)

SHAREPO-LAPITSKIY, Yu.V., kand.tekhn.nauk

Methods for rectification of the O.I.Somov's and P.L.
Chebyshev's curves. Izv.vys.ucheb.zav.; mashinestr. no.6:
10-13 '59. (MIRA 13:5)
(Curves--Rectification and quadrature)

VLASOVA, T.V., dots.; MONAKHOVA, V.I., dots.; MONIN, S.A., dots.;
SHARETS, D.S., dots; KREYS, I.G., tekhn.red.

[Programs of pedagogical institutes; physical geography of areas
of the world] Programmy pedagogicheskikh institutov; fizicheskaya
geografiya chastei sveta. [Moskva] Uchpedgiz, 1957. 23 p.

(MIRA 11:3)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye vysshikh i
srednikh pedagogicheskikh uchebnykh zavedenii.

(Physical geography--Study and teaching)

~~SHARETS, D.S.~~

Aleksandr Sergeevich Barkov (1873-1953). Zemlevedenie 4:291-294
'57. (MLRA 10:9)

(Barkov, Aleksandr Sergeevich, 1873-1953)

GRUZINSKAYA, V.; MALYATSKIY, L.; RAYEVA, Yu.; SHARETS, D.; YAKOVLEV, G.

A new geography draft program for the eight-year school. Geog.
v shkole 22 no.4:1-7 J1-Ag '59. (MIRA 12:11)

(Geography--Study and teaching)

SHARETS, D.S.; GRUZINSKAYA, V.A.

Work of the fifth grade teacher on the first themes in the new
geography program. Geog.v shkole 22 no.4:27-30 J1-A; '59.
(MIRA 12:11)

(Geography--Study and teaching)

SHARETS, D.S.; KHOLOPOV, V.D.; POBEDINA, M.P.; TSVETKOV, P.V.;
OL'SHANSKAYA, Yu.S.

Brief news: In memory of Arkadii Gustavovich Berens. Geog.v
shkole 22 no.4:86 J1-Ag '59. (MIRA 12:11)
(Berens, Arkadii Gustavovich, 1896-1959)

SHARETS, D.S.

Let's put school geography in the service of the conservation
of nature. Geog. v shkole 26 no.4:43-46 J1-Ag '63.
(MIRA 17:1)

5(3), 15(9)

SOV/80-32-4-28/47

AUTHORS: Berlin, A.A., Zil'berman, Ye.N., Rybakova, N.A., Sharetskiy, A.M.
and Yancovskiy, D.M.

TITLE: Investigation of Some Epoxide Stabilizers for Polyvinylchloride
(Issledovaniye nekotorykh epoksidnykh stabilizatorov polivinil-
khlorida)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4, pp 863-868 (USSR)

ABSTRACT: The low molecular weight epoxide stabilizers for polymers is their
low resistance to the effects of heat and light. Various
stabilizers have been proposed for increasing their thermal
resistance. The present article furnishes comparative data on the
stabilizing effect of some commercial and newly synthesized (by the
authors) compounds. The following stabilizers for polyvinylchloride
have been synthesized and tested: low-molecular epoxide resins on
the base of epichlorohydrin and 2,2-bis(4-oxy-3-methylphenyl)-
propane, 1,1-bis-(4-oxyphenyl)-cyclohexane, 1,1-bis-(4-oxy-3-
methylphenyl)-cyclohexane and 2,2-bis-(4-oxy-3-nitrophenyl)-
propane, bis-9,10-epoxybutyl stearate, epoxidized castor oil and
sperm oil. It has been shown that these compounds, with exception

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SOV/80-32-4-28/47

Investigation of Some Epoxide Stabilizers for Polyvinylchloride

of 2,2-bis-(4-oxy-3-nitrophenyl)-propane are effective thermo-stabilizers for polyvinylchloride, which improve also physico-mechanical properties of the masticated rubber. The application of mixtures of low-molecular epoxide resins or epoxidized triglycerides with lead silicate makes it possible to attain a greater thermal resistance of polyvinylchloride and a better quality of the masticated rubber, than the separate application of those stabilizers.

There are 2 graphs, 2 tables and 10 references, 1 of which is Soviet, 5 English, 2 American and 2 German.

SUBMITTED: September 20, 1957

Card 2/2

L 27791-65 EWT(m)/EPF(c)/T/EWP(j) Pc-4/Pr-4 RM
ACCESSION NR: AP5004306 S/0191/65/000/002/0007/0009

20

AUTHOR: Kotlyar, I. B.; Sharetskiy, A. M.

B

TITLE: The effect of the degree of conversion in bulk polymerization of vinyl chloride on the physicochemical properties of the polymer

SOURCE: Plasticheskiye massy, no. 2, 1965, 7-9

TOPIC TAGS: vinyl chloride polymerization, bulk polymerization, polyvinyl chloride, plasticizer, polymer physical property, polymer solubility, azoisobutyrodinitrile, dibutyl phthalate

ABSTRACT: The bulk polymerization of vinyl chloride was studied to define the effect of the degree of conversion (14.9-81.6%) on molecular weight, bulk density, porosity and take-up of plasticizer. The monomer was polymerized with azoisobutyrodinitrile in a 1650-liter cylindrical reactor at 50C, mixed with revolving steel balls, and cooled after 7-20 hrs. to 25-30C. The content of low molecular polymer was determined by the solubility in acetone and benzene, and the bulk density, density, and take-up of dibutyl-phthalate were also measured. The amount of soluble polymer was shown to increase moderately with the degree

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L 27791-65

ACCESSION NR: AP5004306

of conversion and much more rapidly when 65-70% conversion was reached, as shown in Fig. 1 of the Enclosure. Bulk density increased and porosity (calculated from bulk density and specific weight) decreased with increasing conversion and reached a plateau value at approximately 35-50% conversion. The rate of plasticizer take-up was not affected by up to 40% conversion, and it decreased with a higher degree of conversion, but it was always markedly higher than the take-up rate of polyvinyl chloride prepared by suspension-polymerization. The rapid decrease in the content of high polymer produced at high conversion rates is ascribed to the formation of a polymeric powder and the termination of heat transfer. Porosity decreases with increasing adhesion and filling of pores until an equilibrium between the aggregation of particles and their dispersion by the revolving balls is established. Orig. art. has: 2 figures, 1 formula and 1 table.

ASSOCIATION: None

SUBMITTED: 00

NO REF SOV: 003

ENCL: 01

OTHER: 005

SUB CODE: OC, GC

Card 2/3

L 27791-65

ACCESSION NR: AP5004306

ENCLOSURE: 01

0

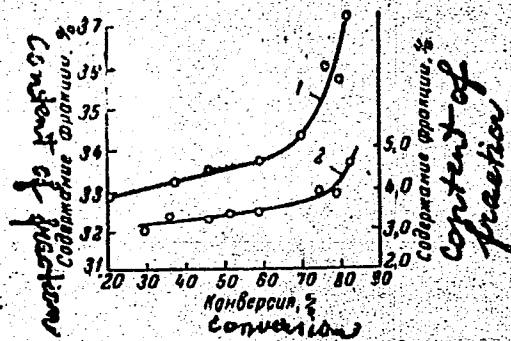


Figure 1. Dependence of the amount of PVC fraction soluble in acetone (1, left scale) and in benzene (2, right scale) on the degree of conversion of the monomer.

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L 62172-65 EPF(c)/EPR/ENP(j)/EAT(m)/T Pc-l/Pr-l/Ps-l JAJ/RM/WW

ACCESSION NR: AP5014684

UR/0191/65/000/006/0006/0008
678.743.22.02:66.095.2

334
33

AUTHOR: Tomashchuk, V.I.; Kotlyar, I.B.; Sharetskiy, A.M.; Zil'berman, Ye. N. B

TITLE: Bulk polymerization of vinyl chloride in the presence of hydrogen chloride acceptors

SOURCE: Plasticheskiye massy, no. 6, 1965, 6-8

TOPIC TAGS: hydrogen chloride, bulk polymerization, polyvinyl chloride, polymer stabilizer, lead stearate, epoxy resin, dehydrochlorination

ABSTRACT: To improve the quality of polyvinyl chloride (PVC) formed by bulk polymerization, the authors studied the effect of additives which tie up the hydrogen chloride and are used as stabilizers of PVC (lead stearate and epoxy resin). The polymerization rate of vinyl chloride (VC) increases to varying degrees in the presence of the HCl acceptors, except in the presence of the epoxy resin ED-5 which inhibits polymerization. The suppression of dehydrochlorination during the polymerization of VC increases the thermal stability of the polymer. The higher decomposition temperature of PVC mixed with the stabilizer lead stearate and then reprecipitated is attributed to a partial removal, by washing of the low-molecular fractions of the polymer during the

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L 62172-65

ACCESSION NR: AP5014684

reprecipitation. The intrinsic viscosity of PVC obtained with and without lead stearate and the Huggins constants were determined. It was found that PVC obtained without the HCl acceptors has a considerably more branched macromolecular structure; a relatively high degree of linearity of the structure is obtained even at 83-85% conversion, when, because of poor heat transfer, considerable local overheating takes place. It is concluded that the introduction of stabilizing additives increases the stability and decreases the branching of the polymer. "The condensation product of epichlorohydrin and ethylene glycol was kindly provided by N.N. Trofimov." Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: OC

NO REF SOV: 004

OTHER: 004

KC
Card 2/2

КОЛТУКОВИЧ, С. С., ПТИЦОВОДСТВО, 7. 1952.

Poultry Breeding

Poultry-Breeding farm of the Lenin Collective Farm. Sov. Univ., 14, No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1952, 2, Uncl.

SHAPTSKIY, V. YE.

~~5757~~

5757. Gimniye soderzheniye skota v kol'khozakh. Krasnodar, sov. kuban', 1954
12s 20 sm (upr. s. kh. propagady Upr. sel'skogo khozyaystva krasnoderskogo
krais polkova. Krasnodarskoye otd-niye Vsesoyuz. s.-kh o-va). 2.000 ekz.
Bospl. -- Avt. ukazan v kentse teksta. (55-896) p. 636.083 (47.893)

SC.: Knizhnaya, Letopis, Vol. 1, 1955

SHARETSKIY, Yu. I., inzh.

Technological calculation of filtering centrifuges. Khim. i
neft. mashinostr. no. 2:32-36 Ag '64 (MIRA 18:1)

SHAROV, V.V., aspirant

High speed strength test by means of a stepwise increasing load.
izv. vys. ucheb. zav.; mashinostr. no.3:47-55 '64.

(MIRA 17:7)

1. Vsesoyuznyy zaochnyy politekhnicheskiiy institut.

SHAREVSKAYA, B. I.

"Obshcheye i osobennoye v avtkhtonnykh religiyakh Afriki yuzhneye Sakhary."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences,
Moscow, 3-10 Aug 64.

STRELKOV, P.G.; SHAREVSKAYA, D.I.

Using platinum resistance thermometers for measuring temperatures in
the range of 0 to -200° C. Izv. tekhn. no. 6:53-58 N-D '57. (MIRA 10:12)
(Thermometry)

SOV/115- 59-2-21/28

AUTHOR: Strelkov, P.G., Sharevskaya, L.I.

TITLE: Results of Temperature Comparisons Calculated by the MSHT and the Reduction Method (Rezultaty sravneniya temperatur, rasschitannykh po MSHT i po metode privedeniya)

PERIODICAL: Izmeritel'naya tekhnika, 1959. Nr 2, p 38 (USSR)

ABSTRACT: The paper tabulates the results of the proposed method of computing the temperature of a platinum thermometer according to Mathieson's rule. The errors arising from the reduction method are very close to those resulting from the MSHT method. Tests were made with 19 Soviet and foreign types of thermometers. The Brikwedde and Hoge type thermometers were excluded from further tests after they proved unable to satisfy MSHT conditions (1948). There is 1 table and 3 references, 2 of which are Soviet and 1 English.

Card 1/1

24(5), 28(2)
AUTHOR:

Astrov, D. N., Orlova, M. P., Strelkov, F. G., and
Sharevskaya, D. I. SOV/115-59-8-14/33

TITLE:

Comparing Low-Temperature Scales of Platinum Resistance Thermometers

PERIODICAL:
ABSTRACT:

Izmeritel'naya tekhnika, 1959, Nr 8, p 29 (USSR)
At the 1958 session of the Konsul'tativnyy komitet po termometrii (Advisory Committee of Thermometry), a comparison of platinum resistance thermometers at temperatures below 90°K was recommended. Complying with this recommendation, the Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific Research Institute of Physical Engineering and Radio Engineering Measurements) and the National Physics Laboratory compared their platinum thermometers. The British platinum thermometer was sent to the USSR, where the authors performed this comparison at 35 temperature points ranging from 10 to 90°K. The comparison was performed in an adiabatic cryostat with a temperature change of 1.10^{-4} degree/minute. The experimental characteristics of the

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SOV/115-59-8-14/33
Comparing Low-Temperature Scales of Platinum Resistance Thermometers

British thermometer with the calibration of the scale of the National Physics Laboratory was compared to the IKh-6 scale. The scale of the British thermometer was obtained by calculations using the "Z-function" tables of the US National Bureau of Standards [Ref 1] and their corrections [Ref 2]. This method is fully satisfactory for the given types of platinum. Although it decreases the range of platinum brands which are applicable in this temperature range. For example, the Soviet industrial platinum "Pobeda" is about equal in purity to the British platinum ($R_{100^{\circ}\text{C}}/R_{0^{\circ}\text{C}} = 1.39243$ for the "Pobeda" and 1.39250 for the British platinum), and does not satisfy the additional criterion. For this reason, individual calibrations of such platinum thermometers cannot be calculated by the method suggested by the National Physics Laboratory. In addition, the aforementioned method was developed for temperatures of 90-20°K, while presently a scale is

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SOV/115-59-8-14/33
Comparing Low-Temperature Scales of Platinum Resistance Thermometers

required reaching below 20°K . The deviation between the practical scale IKh-6 and the calibration of the thermometer of the National Physics Laboratory in the range of 90 and 20°K is about 0.01° according to the authors' data. For completing the comparison of temperature scales below 90°K , direct comparisons of the scales of the National Bureau of Standards and the Soviet scale are required, since these two scales are based on primary measurements with gas thermometers. There are 1 table and 2 references, 1 of which is American and 1 Soviet.

Card 3/3

SHAREVSKAYA, D.I.; STREIKOV, P.G.; BOROVIK-ROMANOV, A.S.; ASTROV, D.N.;
MOROZOVA, G.Kh.

Difference in the temperature coefficients of the resistance
of some kinds of platinum in the range of 10.8 and 273.16°K .
Izm.tekh. no.7:34-37 J1 '60. (MIRA 13:7)
(Thermometry) (Platinum--Thermal properties)

87953
S/115/60/000/012/006/018
B021/B058

24-2140 (1158, 1160, 1072)

AUTHORS: Sharevskaya, D. I. and Strelkov, P. G.

TITLE: Resistance of Thermometric Platinum in the Temperature Range of Liquid Helium

PERIODICAL: Izmeritel'naya tekhnika, 1960, No. 12, pp. 18-19

TEXT: The authors describe the measurement results of the residual resistances of 11 platinum types of various origin. The types WX-3 (IKh-3), WX-4 (IKh-4), WX-5 (IKh-5), and WX-6 (IKh-6) were refined, molten, and drawn at the laboratory of the Institut obshchey i neorganicheskoy khimii AN SSSR (Institute of General and Inorganic Chemistry AS USSR). The specimens Pt-50, Pt-51, and П-12 (P-12) represent Soviet platinum and Am-I, Am-II, and Am-III American technical platinum. A platinum thermometer sent from Britain by the National Physical Laboratory for comparing the thermometric scales below 90°K is denoted by B. The wire of 10 specimens was drawn in the laboratory to a diameter of 0.05 mm, and resistance thermometers of the design by P. G. Strelkov were then made from it. At 0°C the resistance of the thermometers amounted to nearly 100 ohm and

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C

000154861001

SHAREVSKAYA, D.I.; STRELKOV, P.G.

Transmitting practical temperature scales in the range of 10 to 90°K.
Izm.tekh. no.2:16-20 F '61. (MIRA 14:2)
(Thermometers)

SHARLEVSKAYA, D. I., Cand. Tech. Sci. (diss) "Experimental Basis and Development of Methods for Conversion of Practical Scale of Temperatures in Area $10+273.16^{\circ}$ K," Moscow, 1961, 13 pp. (All-Union Sc. Res. Inst. Metrology) 200 copies (KL Supp 12-61, 277).

(5)

SHAREVSKAYA, D. I.; STRELKOV, P. G.; YROVIK-ROMANOV, A. S.;
ASTROV, D. N.; MOROZOVA, G. KH.

"Methode de reduction des resultats obtenus au cours de l'etalonnage
individuel des thermometres a resistance a l'echelle internationale
pratique de temperature dans le domaine 10- 90°K"
Report presented at the 6th Session of the Advisory Committee
on Thermometry to the International Committee on Weights and
Measures, Sevres, France, 25-27 Sep 62

Institut des Mesures Physicotechniques (U. R. S. S.)

L 34868-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

AEC NR: AI'6014518

SOURCE CODE: UR/0115/65/000/011/0008/0010

AUTHOR: Orlova, M. P.; Konoplev, V. A.; Sharevskaya, D. I.; Astrov, D. N.;
Al'shin, B. I.; Medvedeva, L. A.

ORG: none

52
B

TITLE: New commercial resistance thermometer

SOURCE: Izmeritel'naya tekhnika, no. 11, 1965, 8-10

TOPIC TAGS: resistance thermometer, temperature measurement, low
temperature research / PTS-100 resistance thermometer

ABSTRACT: As the PTS-100^{ft} standard platinum resistance thermometer⁰ (10-300K,
± 0.01K) is suitable only for operating under laboratory conditions, two new high-
accuracy designs have been developed by the authors for industrial uses. In the
first design (see Figure 1), coil 1 is fastened by the glass coating of straight
platinum wire 2. Four such vitrified coils constitute the sensor of the thermo-
meter. Platinum supporting wires are used as lead-ins 4 in envelope 3 filled by

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UDC: 536.531

L 34868-66

ACC NR: AP6014518

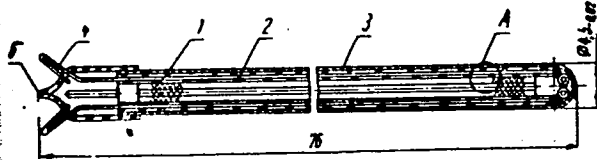


Fig 1

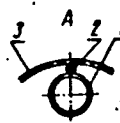
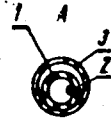


Fig 2



helium through throat 5. In the second design (see Figure 2), a straight 0.1-mm glass thread 2 is placed inside platinum coil 1. The latter is mounted in glass capillary 3; envelope 4 and platinum lead-ins 5 are conventional. The above designs were tested for vibration (50-3000 cps) and temperature stability (250, 100, 0C; H boiling and

triple points). Their thermal inertia was 5-8 sec. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20, /4 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 002

Card 2/2 vmb

YERSHOV, A.B.; SHAREVSKAYA, Ye.Ye.; KOTREKHOVA, A.I.; YUR'YEV, A.I.; SAVINYKH,
Ye.A.; GRINSHTEYN, I.M.

Horizontal percolation permits an increase in alcohol production.
Gidroliz. i lesokhim.prom.8 no.5:3-4 '55. (MLRA 9:1)

1.Arkhangel'skiy gidroliznyy zavod (for Yershev, Sharevskaya, Kotrekho-
va, Yur'yev, Savinykh). 2.Vsesoyuznyy nauchno-issledovatel'-
skiy institut gidroliznoy issul'fitno-spirtovoy promyshlennosti
(for Grinshteyn).

(Distillation) (Alcohol)

VODOLAZOVA, L.Kh.; SHAREVSKAYA, Ye.Ye.; KOTREKHOVA, A.I.

Experience in the operation of a fermenting section. *Gidroliz. i
lesokhim. prom.* 11 no.5:22-24 '58. (MIRA 11:9)

1. Arkhangel'skiy gidroliznyy zavod.
(Hydrolysis)

S/185/61/006/005/013/019
D274/D303

AUTHORS: Nikolayev, H.T., and Sharevs'ky, B.A.

TITLE: Effect of operating conditions of MM-1000 diffusion
oil pump on composition of waste products of the oil
D-IA (D-IA)

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 6, no. 5, 1961,
697 - 701

TEXT: The waste products are analyzed by a method which involves
low-temperature and low-pressure fractionation. The experimental
set-up (Fig. 1) consisted of the diffusion pump MM-1000 (1), deflec-
tor 2, nozzle 3, chamber 4 with condensation element 5 which is
cooled by liquid nitrogen, and glass tubes which are connected by
valve 11. The waste products were analyzed by the following method:
Pump 1 together with the rest of the set-up, were run-in for 30-50
hours, so as to ensure the stability of the vacuum (thereby nozzle
3 remained open). Then liquid nitrogen was poured into sphere 5.
The waste products were condensed at the surface of the sphere. On
Card 1/4

✓

Effect of operating conditions of ...

S/185/61/006/005/013/019
D274/D303

completion of the condensation, nozzle 3 was closed, the nitrogen was let out from 5, which was, thereupon, slowly heated. The first fraction evaporated and re-condensed on tube 6; then the second fraction followed, etc. The amount of the waste products was determined by means of manometer 9 (as the volume of the respective fraction was known). The waste products were analyzed for three different types of operating conditions of the oil pump. Type 1 are normal operating conditions with power of 3 kwat; type 2 involves better conditions for oil-purification and has a power of 2 kwatt; type 3 is similar to type 2, except for the power=3 kwatt. In the case of conditions 1, the waste products contain 3 fractions, denoted by I, II, III (in proportion to increasing molecular weight of the fraction). By comparing the fractionation curves for conditions 2 and 3, the conclusion is reached that a change in operating conditions is accompanied by a change in the composition of the waste products. A table lists the quantitative results of waste-product analysis. These results show that a change in operating conditions brings about changes in the ratio between the fractions, in addition to the changes in the absolute amount of waste products. Thus

Card 2/4



Effect of operating conditions of ...

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a transition from conditions 1 to 2 involves a sharp change in the ratio of the light (I and II) and the heavy fractions (III): The relative amount of the heavy fraction decreases to 35 % (from 70 %). On passing from normal operating conditions (complete cooling of pump body) to partial cooling, the relative amount of the heavy fraction is reduced by half; thereby the composition of the light fractions changes - the mean molecular weight of the light fractions increases. There are 4 figures, 1 table and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to English-language publications reads as follows: H.D. Nöller, I. Reich, W. Bächler, Nat. Symposium on vacuum Techn., 1957.

ASSOCIATION: Fizyko-tekhnichenny instytut AN URSSR m. Kharkiv
(Physicotechnical Institute AS UkrSSR, Kharkiv)

SUBMITTED: January 30, 1961

Card 3/4

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SHAREVSKIY, B. A.

ACCESSION NR: AP4012032

S/0185/64/009/001/0066/0074

AUTHOR: Sharevs'ky'y, B. A.; Nikolayev, G. T.

TITLE: Investigation of the characteristics of an ionization vacuum gauge with a cold cathode

SOURCE: Ukrayins'ky'y fizy'chny'y zhurnal, v. 9, no. 1, 1964, 66-74

TOPIC TAGS: vacuum, cathode, thermionics, tube, cold cathode, ionization vacuum gauge

ABSTRACT: The characteristics of an ionization vacuum gauge with a cold cathode were investigated. It was established that at the selected geometry of the electrodes there were several ranges of potential and magnetic field strength at which a linear dependence of the ionic current on the pressure in the 10^{-9} - 10^{-4} mm range was realized. According to preliminary results, the linearity of the ionic current -- pressure characteristic was retained down to the lowest pressures studied, i. e., $\sim 10^{-10}$ mm. The sensitivity of the cold-cathode gauge exceeded that of ordinary, hot-cathode ionization gauges by a factor amounting to a multiple of ten. The following shortcomings of a hot-cathode

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ACCESSION NR: AP4012032

gauge were eliminated: existence of a limiting pressure below which measurements cannot be carried out because of the vapor tension due to evaporation of W from the hot cathode; errors arising because of dissociation of H_2 and O_2 , decomposition of oil vapors, and formation of CO at hot cathodes; interference of the photo-current with measurements at low pressures. The design of the cold-cathode gauge is shown in the figure. The anode 1 was formed by a cylinder perforated to increase the flow of gas through the discharge space. The cathode 3 consisted of a short cylinder to the ends of which two disc-shaped end planes were welded. The ring electrodes 2, which were inserted between the cylindrical anode and the two disc-shaped end planes, were maintained at the cathode potential to screen the discs from strong electric fields. On being emitted from the cathode, an electron was subjected simultaneously to the action of the electric field and a magnetic field perpendicular to it. It could not move in the axial direction, because the discs were at the cathode potential, or in a radial direction because of the action of the magnetic field: its path was hypocycloidal. If no collision with a gas atom took place within the flight through the first hypocycloidal trajectory, the electron was returned to the cathode; otherwise a second hypocycloid nearer to the anode was described until a second collision, and so on, until the electron reached the anode. At a magnetic field up to

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ACCESSION NR: AP4012032

2×10^3 gauss, at which measurements were carried out, and with the dimensions of the gauge used, the path of positive ions was not curved significantly by the magnetic field. Up to a pressure of 10^{-3} mm, the time required for positive ions to reach the cathode was insignificantly small vs. that required for electrons to reach the anode -- i. o., an electron space charge formed in this pressure range. Orig. art. has 5 figures, 1 table, and 4 formulas.

ASSOCIATION: Fizy*ko-Tekhnichny*y Insty*tut AN URSR, Kharkov (Physico-Technical Institute AN URSR)

SUBMITTED: 30May63

DATE ACQ: 14Feb64

ENCL: 01

SUB CODE: PH, SD

NO REF SOV: 000

OTHER: 002

Card 3/43

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ACC NR: AT6008848

EWT(d)/EWT(1)/EWT(m)/EWP(f)/EPF(n)-2/T/ETC(m)-6 WW/DJ/GG/GS/GN
SOURCE CODE: UR/0000/65/000/000/0105/0113

AUTHOR: Borovik, Ye. S.; Nikolayev, G. T.; Sharevskiy, B. A.

ORG: none

TITLE: Heated condensation pumps 23

SOURCE: AN UkrSSR. Magnitnyye lovushki (Magnetic traps). Kiev, Naukova dumka, 1965, 105-113

51
BT1

TOPIC TAGS: high vacuum pump, ultrahigh vacuum, low temperature effect, liquid helium

ABSTRACT: Heated condensation pumps which operate at hydrogen or helium temperatures are designed for producing a superhigh vacuum ($\sim 10^{-10}$ - 10^{-11} mm Hg) in large metal vessels for a relatively short time. The authors discuss the development of the heated hydrogen condensation pump and data from preliminary experiments on the use of liquid helium in a heated condensation pump. It is pointed out that a nitrogen screen has an extremely low coefficient of absorption for thermal radiation under ultrahigh vacuum conditions unless it is specially darkened and therefore the hydrogen condensation pump is practically unprotected by this type of screen from thermal radiation. It is also noted that an oil diffusion pump which has not been subjected to the action of atmospheric air may operate without a nitrogen trap with no reduction in the ultrahigh vacuum characteristics of the installation. These facts were used to simplify the con-

Card 1/2

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ACC NR: AT6008848

struction of a heated hydrogen condensation pump by eliminating the nitrogen screen as well as to simplify and perfect the system for breaking in the installation by using oil diffusion pumps. The system of hot conditioning was also simplified by reducing the temperature and duration of heating. It was found that normal heating of the installation reduces the pressure to a minimum, after which it slowly increases at a rate equivalent to leakage of noncondensed gases into the system: $\sim 10^{-8}$ $\mu\text{l}/\text{sec}$ when the valve connecting the installation to the diffusion pump is closed. If the hydrogen vapor is evacuated from the hydrogen pump, the increase in pressure begins 1.5-2 hours later. The mechanism responsible for this phenomenon has not yet been studied in detail. However it has been established that the sources of uncondensed gas are the glass lead-ins of the monometric tube, and also the flange connections which are cooled later than the walls of the installation. Additional cooling of the glass leads or flanges reduces the effect. Preliminary experiments on the use of liquid helium in heated condensation pumps showed that these pumps produce a higher and more stable vacuum, other conditions being equal. These experiments are still in progress. Orig. art. has: 4 figures.

SUB CODE: 3,20/

SUBM DATE: 20Oct65/

ORIG REF: 005/

OTH REF: 001

Card 2/2 *add*

S/0057/64/034/007/1237/1241

ACCESSION NR: AP4041999

AUTHOR: Borovik, Ye.S.; Nikolayev, G.T.; Sharevskiy, B.A.

TITLE: Production of ultrahigh vacuum with a pre-heated hydrogen condensation pump.

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no7., 1964, 1237-1241

TOPIC TAGS: ultrahigh vacuum, vacuum pump

ABSTRACT: An experimental vacuum system of stainless steel is described with which it was possible to bring a volume of 60 liters from atmospheric pressure to 4×10^{-10} mm Hg in 14 hours. Some of the construction details are given by which a leak rate of less than 10^{-5} cm³/hour was achieved. Pre-evacuation was accomplished with a specially rebuilt oil diffusion pump which could be isolated from the rest of the system with a special vacuum valve and was provided with a liquid nitrogen trap. The condensation pump consisted of a spherical container with a surface area of 220 cm² located in the tube joining the main volume to the diffusion pump. The tube containing the condensation pump was provided with a liquid nitrogen jacket, and its ends were partially closed by louvered screens cooled by liquid nitrogen. Provision was made for heating the system with external electric heating elements.

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ACCESSION NR: AP4041999

The pressure was measured with two types of ionization gage. The procedure for achieving ultrahigh vacuum in the system was as follows. After pumping down with a mechanical forepump, the diffusion pump was started, it was isolated from the system, and its liquid nitrogen trap was filled. When the diffusion pump reached a pressure of approximately 10^{-7} mm Hg it was opened to the system and the whole system was brought to this pressure. The system was then slowly heated to 400°C during the course of 1.5 to 2 hours. The heated system was pumped for a time that varied from experiment to experiment, at the end of which the pressure was again approximately 10^{-7} mm Hg. The system was then cooled and the liquid nitrogen jacket of the tube containing the condensation pump was filled. This resulted in a decrease of pressure by about a factor 10 during the course of 2 to 4 hours. The diffusion pump was finally isolated from the system, and the condensation pump was filled with liquid hydrogen. The pressure dropped very rapidly and reached its equilibrium value in an hour or two. The pumping speed of the hydrogen condensation pump was measured by the controlled leak method at pressures from 2×10^{-9} to 10^{-7} mm Hg. The pumping speed was found to be 600 liters/sec. Orig.art.has: 5 figures.

Card
2/3

ACCESSION NR: AP4041999

ASSOCIATION: none

SUBMITTED: 25Jun63

SUB CODE: ME

NR REF SOV: 005

ENCL: 00

OTHER: 002

^E
SHARVSKII, P. V.

"Concerning the Temperature Declivity of the Resistance of Selenium Rectifiers," Journal Phys., 3, Nos. 4-5, 1940. Mbr., Leningrad Physico-Technical Inst., Dept. Physico-Math. Sci., Acad. Sci., -1940-.

SHAREVSKIY, P. V., YAKHNICH, G. R., and OBORIN, L. A.

"Application of a Quick Method to the Determination of
Thermal Constants of Building Materials."

Report submitted for the Conference on Heat and Mass Transfer,
Minsk, BSSR, June 1961.

S/137/62/000/011/019/045
A052/A101

AUTHORS: Goryunova, N. A., Grigor'yeva, V. S., Sharavskiy, P. V.
Osnach, L. A.

TITLE: Solid solutions in the InAs-HgTe system

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 17 - 18,
abstract 111132 (In collection: "Fizika". Leningrad, 1962, 7 - 10)

TEXT: The possibility of the solid solution formation according to the type of heterovalence substitution on the base of semiconducting compounds InAs and HgTe was studied. The boundaries of the phase homogeneity were determined. 9 alloys of the quasibinary cross section of InAs-HgTe were investigated in intervals of 15% by composition. The alloys were prepared from 99.99% pure initial material fused in evacuated quartz ampoules, diffusion-annealed at 570 - 600°C during 550 - 600 hours and investigated microscopically and partly by means of thermal and X-ray analyses and by measuring microhardness. In the InAs-HgTe system, formation of a continuous series of solid solutions was established in a wide concentration range with a Zn-blende structure and a lattice parameter varying by linear law in transition from InAs ($a=6.04 \text{ \AA}$) to HgTe ($a=6.46 \text{ \AA}$).

Card .

Card 1/2

SHARDANOV, A.N.; MALYSHEK, V.T.; PEKLO, V.P.

Volcanic ash in the Pliocene of the Taman' Peninsula. Izv. AN
SSSR. Ser.geol. 27 no.7:105 J1 '62. (MIRA 15:6)
(Taman' Peninsula—Volcanic ash, tuff, etc.)

1949, 7. .

3) All. Sotretinitsa, Uley. Pechelovstvo, 1949, No. 11, S. 31-33

4) Leto is' Shurnal'gov: Statey Vol. 34, Moskva, 1949

L 19602-65 EWT(1)/EWA(h) Feb APGC(b)/AFWL/SSD/ESD(gs)/ESD(dp)

ACCESSION NR: AP4044684

S/0120/64/000/004/0134/0138

AUTHOR: Shareyko, P. N.

TITLE: Stabilizing the operation threshold in high-speed integral discriminators ¹¹ B 25

SOURCE: Pribory* i tekhnika eksperimenta, ⁹⁻no. 4, 1964, 134-138

TOPIC TAGS: pulse height analyzer, discriminator, high speed discriminator, integral discriminator

ABSTRACT: High-speed integral discriminators used for pulse-height analyses have been temperature- and time-unstable due to their semiconductor-diode and secondary-emission-tube components. The present article reports the development of two discriminators with stabilized characteristics. In the follow-up threshold discriminator, the threshold of discrimination is stabilized by three negative-feedback circuits which tend to compensate variations in tube trans-conductance (within 17-34 ma/v) caused by various factors. The discriminator

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L 19602-65

ACCESSION NR: AP4044684

functions correctly with a $\pm 10\%$ heater-voltage variation and with a 30% drop in tube transconductance due to aging; input pulses are discriminated within 1-10 v; starting-pulse max repetition rate, 1 Mc; output-pulse duration, 2×10^{-7} sec. In the high-speed low-threshold temperature-compensated discriminator (by N. F. Moody, et al., CREL, 463, 1950), a Ge diode of the same type as the discriminator diode (D2A - D2D) is added and connected into a balanced-bridge circuit for temperature compensation. This discriminator is characterized by: sensitivity, 60--100 mv; starting-pulse max repetition rate, 1 Mc. "The author wishes to thank A. S. Belousov, S. V. Rusakov, Ye. I. Tamm, L. S. Tatarinskaya, and A. P. Khrebtov for their great help and interest in the work, and V. A. Zapevalov for his discussions and valuable comments." Orig. art. has: 4 figures and 1 formula.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics, AN SSSR)

SUBMITTED: 25Jul63

ENCL: 00

SUB CODE: NP

NO REF SOV: 002

OTHER: 006

Card 2/2

SHAREYKO, P.N.

Measurement of the pulse parameters of semiconductor diodes under various operating conditions. Prib. i tekhn. eksp. 10 no.5: 149-156 S-0 '65. (MIRA 19:1)

1. Fizicheskiiy institut AN SSSR, Moskva. Submitted July 8, 1964.

SHARF, G., inzh.; AVERIN, V.V., kand.tekhn.nauk; POLYAKOV, A.Yu., prof.,
doktor tekhn.nauk; SAMARIN, A.M., prof.

Effect of silicon on the solubility and activity of oxygen in liquid
nickel. Izv.vys.ucheb.zav.; chern.met. no.11:29-36 N '58.
(MIRA 12:1)

1. Institut metallurgii imeni Baykova. 2. Chlen-korrespondent AN SSSR
(for Samarin).

(Nickel alloys--Metallurgy)
(Silicon)

BARIHAD, B.; SHARF, I.; PETRESKU

Mine dust formation in stone quarrying and coal mining as an
etiological factor in the development of penumoconiosis. *Gig. i*
san. 23 no.2:88-89 F '58. (MIRA 11:4)
(MINE DUSTS) (LUNGS--DUST DISEASES)

SHARF, V.Z.

Reaction of hydrolytic cleavage of 1-cyclohexylidene-2-cyclohexanone to cyclohexanone. L. Kh. Pregel and V. Z. Sharf (N. D. Zelinski Inst. Org. Chem. Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1957, 512-14.—Passage of 1-cyclohexylidene-2-cyclohexanone in vapor phase with H₂O over tricalcium phosphate gave 32% cyclohexanone at 400° with 10 sec. contact; at 460° the yield dropped to 8.4%. On Al₂O₃-Na₂CO₃ catalyst the best yield was 48% at 300° with 10 sec. contact; at 350° the yield dropped to 36%. Hydrolytic cleavage in liquid phase was run in alk. solns. at up to 300° and up to 48 atm. A 91% yield of cyclohexanone was obtained with 2% NaOH at 250° and 40 atm. in 0.5 hr. Somewhat lower yields resulted from lower pressures at longer periods; yields of 85-6% were obtained with 0.5% NaOH or KOH at the above conditions. Na₂CO₃ also gave a similar yield but Cu(OH)₂ or H₃BO₃ gave low yields. A flow sheet for a continuous laboratory installation for the latter process was shown.

G. M. Kosolapoff

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AUTHORS: Freydlin, L. Kh; Sharf, V. Z. SOV/62-58-10-17/25

TITLE: Hydrolytic Cleavage of Mesityl Oxide and Dealdolization of Diacetone Alcohol on Trisubstituted Calcium Phosphate (Gidroliticheskoye rasshchepeniye okisi mezitila i deal'dolizatsiya diatsetonovogo spirita na trekhzameshchennom fosfate kal'tsiya)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 10, pp 1264 - 1270 (USSR)

ABSTRACT: In the course of the last years the idea of the possibility of the formation of unstable intermediate surface compounds in the heterogeneous catalysis has become more and more popular. For this reason a great similarity between the mechanism of the homogeneous and heterogeneous catalytic reactions may be assumed. From this point of view the authors investigated the reactions of the hydrolytic cleavage of mesityl oxide and the dealdolization of diacetone alcohol on trisubstituted calcium phosphate. It was found that calcium phosphate (as in the H^+ and OH^- ions) selectively catalyzes the reaction in the vapor phase of the hydrolytic

Card 1/2

Hydrolytic Cleavage of Mesityl Oxide and Dealdolization of Diacetone Alcohol on Trisubstituted Calcium Phosphate SOV/62-58-10-17/25

cleavage of mesityl oxide to acetone. It was also found that the dealdolization of diacetone alcohol on this catalyst takes place more complete and under milder conditions than the hydrolytic cleavage of mesityl oxide. The results of the investigation show that the hydrolytic cleavage of mesityl oxide on a solid catalyst takes place by way of the hydration stage, thus limiting the general velocity of the course of the process. There are 5 figures, 4 tables, and 11 references, 9 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im.N.D.Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N.D. Zelinskiy AS USSR)

SUBMITTED: March 5, 1957
Card 2/2

FREYDLIN, L.Kh.; SHARP, V.Z.

Producing cyclohexanone of caprolactam-production waste. Biul.
tekh.-ekon.inform. no.1:16-17 '59. (MIRA 12:2)
(Cyclohexanone) (Hexamethylenimine)

5(3)

SOV/80-32-4-35/47

AUTHORS: Freydlin, L.Kh., Sharf, V.Z. and Smolyan, Z.S.

TITLE: On the Composition of the Products of Dehydrogenation of Cyclohexanol on a Zinc Catalyst and on the Transformation of the Obtained Vat Residue Into Cyclohexanone (O sostave produktov degidrirovaniya tsiklogeksanola na tsinkovom katalizatore i o prevrashchenii poluchayushchegosya kubovogo ostatka v tsiklogeksanon)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4, pp 901-905 (USSR)

ABSTRACT: The authors studied the composition of the products obtained in the industrial process of dehydrogenation of cyclohexanol on a zinc catalyst and found out that the yield of the latter amounted to 80 or 85%. The amount of cyclohexanol which did not react was 10 to 15%. In addition to these, in the products of the reaction were discovered the following substances: cyclohexene in an amount of 0.3 to 0.5%, water - 0.1 to 0.2%, phenol - 0.1 to 0.15%, cyclohexyl ether - 0.02 to 0.03%, and cyclohexylidencyclohexanone-2 in an amount of 0.5 to 1%. The latter constitutes about 50% of the vat waste which can be transformed into

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SOV/80-32-4-35/47

On the Composition of the Products of Dehydrogenation of Cyclohexanol on a Zinc Catalyst and on the Transformation of the Obtained Vat Residue Into Cyclohexanone

cyclohexanone up to a degree of 40% by means of hydrolytic decomposition. An analogous result was also obtained in an installation of continuous operation, which is illustrated and described in the article.

There are: 1 table, 1 diagram and 13 references, 5 of which are Soviet, 3 American, 3 German and 2 Japanese.

SUBMITTED: July 26, 1957

Card 2/2

5(2, 3)

AUTHORS:

Freydlin, L. Kh., Sharf, V. Z.

SOV/20-124-4-33/67

TITLE:

On the Relationship Between the Acid Nature of Trisubstituted Calcium Phosphate and Its Catalytic Activity in Hydrolysis Reactions (O svyazi mezhdú kislóy prírodoy trekhzameshcheynogo fosfata kal'tsiya i yego kataliticheskey aktivnost'yu v reaktsiyakh gidroliza)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 4, pp 849-851 (USSR)

ABSTRACT:

A high activity of the above-mentioned phosphate was determined in the reaction of dehydration (Ref 1), hydration (Ref 2) and hydrolysis of benzene halides in the vaporous phase (Ref 3) in papers previously published by the authors. It is assumed that this is due to its acid nature. In order to clarify the question whether its catalytic activity really decreases in the presence of bases, the authors studied the hydrolysis of vinyl ethers with this phosphate and its deactivation by bases: amines and alkali hydroxides. After each experiment which lasted about one hour, the catalyst was regenerated by treatment with air for two hours at 400°. Table 1 shows the constants of the compounds to be hydrolyzed, experimental conditions and

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On the Relationship Between the Acid Nature of
Trisubstituted Calcium Phosphate and Its Catalytic
Activity in Hydrolysis Reactions

SOV/20-124-4-33/67

results. It may be seen from it that hydrolysis on a phosphate catalyst takes place more rapidly at relatively low temperatures. Vinyl-n-butyl, α -methyl-vinyl phenyl, α -methyl-vinyl-m-cresyl ether and 4,5-dihydrosilvan were hydrolyzed almost quantitatively at 160°; vinyl-phenyl and vinyl-2,4-dichloro-phenyl ether to 65 and 77% respectively. Without catalyst, vinyl-n-butyl ether, for instance, is hydrolyzed to 3% also at 220°. The experiments 1-12 show the influence exercised by the bases upon the catalyst activity. In the presence of large amounts of triethylamine the hydrolysis of the ethers ceases almost completely. In its presence the degree of hydrolysis of vinyl-aryl ethers rapidly decreases. Apparently, the triethylamine adsorbed on the catalyst is incessantly desorbed and removed by steam. Figure 1 shows the logarithm dependence of the hydrolysis degree (lg m) of vinyl-aryl ethers (calculated according to the yield of phenols) on the amount of triethylamine let through. It results from the curves that there is an exponential interdependence between the catalyst activity and the triethylamine introduced into the range of reaction. However, it follows from figure 1

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On the Relationship Between the Acid Nature of Trisubstituted Calcium Phosphate and Its Catalytic Activity in Hydrolysis Reactions SOV/20-124-4-33/67

that an additional increase of the amount of triethylamine exercises a less intense deactivating influence. The effect of pyridine which is a very strong base is less intense than that of triethylamine. Also mineral bases have a deactivating effect (potassium hydroxide). The above-mentioned facts confirm the assumption that the phosphate catalyst has an acid nature. There are 1 figure, 1 table, and 6 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imena N. D. Zelinskoy of the Academy of Sciences, USSR)

PRESENTED: September 2, 1958, by A. A. Balandin, Academician

SUBMITTED: September 1, 1958

Card 3/3

S/062/60/000/006/025/025/XX
B020/B060

AUTHORS: Freydlin, L. Kh., Sharf, V. Z.

TITLE: Study of the Acidity of a Phosphate Catalyst and Its Changes
During Calcination by the Indicator Method

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1960, No. 6, pp. 1128-1130

TEXT: It has been suggested already earlier that the catalytic activity of normal calcium phosphate in dehydration- (Ref. 1), hydrolysis- (Ref. 2), and hydration reactions (Ref. 3) in the vapor phase may be determined by its acidity. This assumption is substantiated by the fact that the phosphate catalyzes reactions which in the liquid phase are sped up by acids, and that it can be inactivated by potassium carbonate (Ref. 1), alkali hydroxides, or organic bases. The acidity of normal calcium phosphate is visibly dependent upon the presence of chemically bound water. Thus, there must be an interaction between acidity, the catalytic activity, and temperature, wherein the catalyst loses its crystal water.

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Study of the Acidity of a Phosphate
Catalyst and Its Changes During
Calcination by the Indicator Method

S/062/60/000/006/025/025/XX
B020/B060

The catalyst was obtained by reaction of an aqueous CaCl_2 solution with a diluted diammonium phosphate solution in the presence of ammonia at 40° . The acidity of the catalyst was determined by the Johnson method with an accuracy of $\pm 5\%$ (Ref. 5). The indicator was a solution of p-dimethyl amino azobenzene in anhydrous isooctane. The solution of the catalyst was then titrated with an n-butyl amine solution in anhydrous isooctane until the red coloring vanished definitely. This took 12 to 18 hours. The solution with the precipitate was left standing, poured off, and the excess amine was titrated with trichloroacetic acid. Mere traces of moistness will already lead to distorted results. A thoroughly washed out catalyst, dried at $100 - 110^\circ\text{C}$, does not effect any change in the color of the indicator. After calcination of the catalyst at 200°C , however, it turns a pale-rose color, and red at 400°C . These experiments proved that the catalyst surface actually has acid properties. The effect of the calcining temperature upon the phosphate acidity is shown in Fig. 1. On a calcination at temperatures above 400°C the amine consumption is again reduced, and at 800°C there is no more change in the indicator color. Data concerning the dependence of

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Study of the Acidity of a Phosphate
Catalyst and Its Changes During
Calcination by the Indicator Method

S/062/60/000/006/025/025/XX
B020/B060

acidity and catalytic activity of the phosphate on its calcining temperature were intercompared. A. V. Kazakov (Ref. 6) showed that apart from the adsorbed water, normal phosphate also contains 0.5 mole of chemically bound water which can be removed only by calcining at 400 - 800°C. A correlative course of the dependence of acidity and activity on the calcining temperature of the phosphate catalyst and on its structurally bound water content is thus observed. A calcination of the phosphate at temperatures below 400°C leads to the liberation of its acid zones from the adsorbed water, which blocks the active catalyst surface. If an acid zone is assumed to be neutralized by a butyl amine molecule, the number of active centers is then $A = 6.06 \cdot 10^{23} \cdot 1.3 \cdot 10^{-4} = 7.8 \cdot 10^{19}$. $1.3 \cdot 10^{-4}$ is the number of gram-mole butyl amine used up for the neutralization of 1 g of phosphate calcined at 400°C. There are 1 figure and 7 references: 6 Soviet and 1 US.

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Study of the Acidity of a Phosphate
Catalyst and Its Changes During
Calcination by the Indicator Method

S/062/60/000/006/025/025/XX
B020/B060

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N. D.
Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: October 7, 1959

Card 4/4

FREDLIN, L.Kh., doktor khim.nauk; SHARF, V.Z., inzh.; KHOL'MER, O.M., inzh.;
MALKINA, L.L.; LEBEDEV, I.M., inzh.

Preparation of guaiacol by the catalytic dehydration of a mixture
of pyrocatechol and methanol. Masl.-zhir.prom. 26 no.10:24-27 0
'60. (MIRA 13:10)

1. Institut organicheskoy khimii AN SSSR imeni N.D.Zelinskogo (for
Freydlin, Sharf). 2. Moskovskiy zavod "Slozhnyye efiry" (for
Khol'mer, Malkina, Lebedev).
(Guaiacol) (Pyrocatechol) (Methanol)

FREYDLIN, L.Kh.; SHARF, V.Z.

Composition, methods of preparation, and nature of the activity of
the tricalcium phosphate catalyst. *Kin. i kat.* 1 no.2:247-256
J1-Ag '60. (MIRA 13:8)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Calcium phosphate)

FREYDLIN, L.Kh.; SHARF, V.Z.

Kinetics of dehydration of alcohols on tri-substituted calcium phosphate and deactivation of the latter with organic bases.
Izv. AN SSSR Otd. khim. nauk no.10:1861-1867 O '60. (MIRA 13:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR.

(Calcium phosphate) (Dehydration (Chemistry))
(Alcohols)

FREYDLIN, L.Kh.; SHARF, V.Z.

Consecutive splitting off of the alcohol groups of 3,7-dimethyl-1,7-octanediol on a tricalcium phosphate catalyst. Izv. AN SSSR. Otd. khim. nauk no.11:2055-2056 N '60. (MIRA 13:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Octanediol) (Dehydration(Chemistry)) (Calcium phosphate)

Shakh, V. Z.

Card Chem Sci - (diss) "Investigation of catalytic properties and nature of activity of calcium phosphate and boron phosphate catalysts in reactions of hydrolysis, hydration, and dehydration." Moscow, 1961. 12 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Inst of Fine Chemical Technology imeni N. V. Lomonosov); 225 copies; price not given; list of author's works at end of text (20 entries); (KL, 5-61 sup, 178)

FREYDLIN, L.Kh.; SHARF, V.Z.; ANDREYEV, N.S.

Stepwise dehydration of 1,6-hexanediol on a tricalcium phosphate catalyst. Izv. AN SSSR. Otd. khim. nauk. nauk no.2:373-375 F '61.
(MIRA 14:2)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Hexanediol) (Calcium phosphate)

FREYDLIN, L.Kh.; SHARF, V.Z.; LITVIN, Ye.F.; TUKHTAMURADOV, Z.T.

Dehydration of primary n-amy1 alcohol and the accompanying
isomeric conversions of pentenes on a calcium phosphate
catalyst. Neftekhimia 1 no.4:548-554 J1-Ag '61.
(MIRA 16:11)

1. Institut organicheskoj khimii AN SSSR imeni N.D.
Zelinskogo.

1. 11, 11, 11; 11, 11, 11; 11, 11, 11.

Investigating the dehydration of vapor-phase isopentene alcohols
on gold catalysts. *Neftekhimia* 4 no.4:609-617 01-Ag '64.

(MIRA 17:10)

I. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

FREYDLIN, L. Kh.; SHARF, V.Z.; KHOL'MER, O.M.; MALKINA, L.L.

Properties of a boron phosphate catalyst in the dehydration
of a pyrocatechol-methanol mixture. Kin. i kat. 2 no.2:228-234
Mr-Apr '61. (MIRA 14:6)

1. Institut organicheskoy khimii imeni N. D. Zelinskogo AN SSR
i Issledovatel'skaya laboratoriya zavoda "Slozhnyye efiry".
(Boron phosphate)
(Dehydration (Chemistry))

ПАМБЕР, А.И., доктор хим. наук; С. С. С. С., Инж.: 1905 года, С.С.С.С.,
Инж.; 1905 года, С.С.С.С., Инж..

Preparation of pyrocatechol (o-catechol) by the dehydration of a
mixture of pyrocatechol and ethyl alcohol on a barium sulfate
catalyst. Хим.-техн. прогр. 1961, no. 2:29-30 '61. (ИЛ: 14:2)

1. Институт органической химии имени М.П. Селенского АН СССР
(for Kholm, Khark). 2. Косковский завод "Сложные эфиры"
(for Kholm, Khark, Kharkov).
(pyrocatechol) (ethyl alcohol) (phenol)

S/020/61/136/005/018/032
B103/B208

AUTHORS: Freydlin, L. Kh. and Sharf, V. Z.

TITLE: Studies of stepwise dehydration of glycols on the tricalcium phosphate catalyst

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1108-1111

TEXT: The authors dehydrated several diols on the tricalcium phosphate catalyst (for its production see Ref. 11) in a wide temperature range. 1) 5, 20, and 49% of trimethylene glycol was converted at 250, 300, and 350°C, respectively, and gave allyl alcohol and propionaldehyde as the main products. No trimethylene oxide was found, but the authors assume that while this oxide does form, it is quickly isomerized to the two afore-mentioned end products. 2) Butene-2-diol-1,4 60% of which were converted at 280°C. The main products were: 2,5-dihydrofuran and crotonaldehyde. Butene-2-diol-1,4 is dehydrated mainly under oxide formation. 3) Butanediol-1,4 yields only 98% tetrahydrofuran between 260 and 320°C. At temperatures above 320°C the yield of tetrahydrofuran drops, giving at the same time buten-2-ol-4, divinyl, and butyraldehyde.

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B103/B208

Studies of stepwise dehydration ...

Dehydration of tetrahydrofuran to divinyl sets in above 380°C.

4) Pentanediol-1,5 is selectively dehydrated to tetrahydropyran (72% yield) between 280 and 345°C. At higher temperatures also pentenoles and pentadienes are formed (the latter result from tetrahydropyran at 389-418°C). 5) Hexanediol-1,6 with the reaction products: hexamethylene oxide, hexenols, and hexadiene-1,5. On hydrogenation, the latter absorbs 2 moles H₂. At the same time, the following isomerization

products are formed: α-methyl tetrahydropyran, α-ethyl tetrahydrofuran, hexadiene-1,4, and others. 6) 3,7-dimethyl octanediol-1,7 is selectively dehydrated to citronellol (84% yield) in vacuo at 200°C. Only 5% diolefin is formed. At higher temperatures the quantitative ratio of these end products becomes reverse (90% diolefin at 290°C). Under these latter conditions citronellol is dehydrated to diolefins with about the same yield as the diol. The above results enabled the authors to judge the influence of the glycol structure upon the reaction direction, the conditions under which glycols are only partly dehydrated to oxides, and the ways of a complete dehydration to a diene hydrocarbon. C₄ and C₅ glycols are selectively dehydrated to oxides

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B103/B208

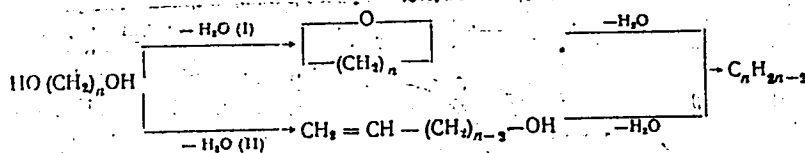
Studies of stepwise dehydration ...

between 280 and 320°C. The oxacyclanes resulting as intermediates are formed more and more difficultly in the order $C_4 > C_5 > C_6$. Tetrahydrofuran is formed in higher yield and at lower temperatures than tetrahydropyran, the latter being obtained more easily than hexamethylene oxide. Above 320°C, also unsaturated alcohols and diolefin hydrocarbons result. The authors further conclude from the results obtained that oxacyclanes are more difficultly dehydrated to diolefins than the corresponding glycols. The intense formation of diolefin above 350°C with simultaneously increasing yield of hexamethylene oxide, and decreasing yield of hexenol is regarded by the authors as proof for the fact, that diolefin mainly results from hexenol which is less stable than the oxide. Hence, the α -glycols $C_4 - C_6$ are gradually dehydrated. The following compounds are obtained: in the 1st stage - oxacyclane, in the 2nd stage - an unsaturated monovalent alcohol isomeric to oxacyclane (lower formula); in the 3rd stage - the end product, a diolefin, which mainly results via stage II, and not from the oxide I (upper formula).

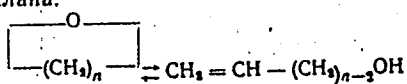
Card 3/4

Studies of stepwise dehydration ...

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B103/B208



Что касается непредельного спирта, то он может образоваться путем изо-
меризации оксациклана:



There are 2 figures and 12 references; 4 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
Akademii nauk SSSR (Institute of Organic Chemistry imeni
N. D. Zelinskiy, Academy of Sciences, USSR)

PRESENTED: September 19, 1960, by A. A. Balandin, Academician

SUBMITTED: September 10, 1960

Card 4/4

FREYDLIN, L.Kh.; SHARF, V.Z.

Two directions in the vapor phase catalytic dehydration of
pinacol. Izv.AN SSSR Otd.khim.nauk no.4:698-701 Ap '62.
(MIRA 15:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Pinacol) (Dehydration (Chemistry))

FEYDLIN, L.Kh.; SHARF, V.Z.; TUKHTAMURADOV, Z.T.; LITVIN, Ye.F.

Dehydration of primary n.amyl alcohol and isomerization of 1-pentene
on aluminosilicate catalysts. *Kin.i kat.* 3 no.1:114-117 '62.

(MIRA 15:3)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Amyl alcohol) (Pentene) (Aluminosilicates)

SHAFF, V.Z., kand.khimicheskikh nauk; FREYDLIN, L.Kh., doktor khimicheskikh nauk; KHOL'MER, O.M., inzh.; LEBEDEV, I.M., inzh.; Prinizimala uchastiye: GORSKAYA, L.A.

Obtaining ethyl ethers of pyrocatechin and resorcin from their phenolates and ethyl chloride. Masl.-zhir.prom. 28 no.4: 35-37 Ap '62. (MIRA 15:5)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo (for ~~Sharf~~, Freydlin). 2. Moskovskiy zavod "Slozhnyye efiry" (for Khol'mer, Lebedev).

(Ethers)