

Studies of the Equilibria Liquid-Vapour in the
Systems Water-Ethylene Glycol-Diethylene Glycol-
Triethylene Glycol, by T. K. Skripach, M. I.
Tunkin. UNGI.

RUSSIAN, per, Zhur Prikl Khim, Vol XIX, No 2,
1946, pp 180-186.

DSIR Lending Library Dalt N. 191

Sci - Chem

Apr 59

85,884

Method of the Preparation of 2, 3-Di-
chlorobutadiene-1, 3, by A. L. Klebanskiy, A. P.
Belen'kaya, K. K. Chevychalova, 10 pp.

RUSSIAN, per, Zhur Prik Khim, Vol XIX, 1946,
pp 200-206.

SIA 60-17198

Sci

Apr 61

OTS, Vol III, No 12

163,252

Balandin, A. A. and Marukyan, G. M.
CATALYTIC PREPARATION OF o-METHYL-
STYRENE. [1951] 10p. 12 refs.
Order from OTS or SLA \$1.10

61-20159

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1946,
v. 19, p. 207-216.

DESCRIPTORS: *Styrenes, Methyl radicals,
Synthesis, *Cumenes, Dehydrogenation, Copper,
Chromium, Catalysts, Catalysis.

A study of catalytic dehydrogenation of isopropylben-
zene to o-methylstyrene showed that this method may
be recommended for testing on a commercial scale.
o-Methylstyrene is distinguished by a number of ad-
vantages over styrene. Its preparation is simpler and
the quality of synthetic rubber obtainable by its copoly-
merization with 1,3-butadiene is apparently higher
than that of copolymers of the latter with styrene. De-
(Chemistry--Organic, IT, v. 6, no. 11) (over)

61-20159

I. Balandin, A. A.
II. Marukyan, G. M.

Office of Technical Services

The Kinetics of the Chamber Process for Sulfuric
Acid, by I. N. Kuzminykh.

RUSSIAN, per, Zhurnal Prikladnoi Khimii, Vol 19,
1946, pp 217-230.

ATS 94Z120R - \$35.25.

NTC 72-00762-07D

Jan 73

Krasyukov, A. F., Boikova, E. P., and Kalita, L. A.
PREPARATION OF A TANNING MATERIAL FROM
OIL REFINING WASTE PRODUCTS. [1961] 6p. 2 refs.
Order from OTS or SLA \$1.10 61-20119

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1946,
v. 19, p. 322-328.

DESCRIPTORS: *Oils, Refineries, *Chemical waste,
*Tannic acids, *Leather.

A synthetic tanning material (sulfoxyntan) was prepared on a laboratory scale from acid sludge from refining paraffinic oil. The simplicity of its preparation and of the equipment required make this material inexpensive; its quality is not lower than that of sulfo-anthracene, which is used in the USSR for tanning. Subsequent strengthening of the adhesion of sulfo-paraffin to the hide fibers with the aid of green vitriol (Materials--Leather, TT, v. 7, no. 8) (over)

61-20119

1. Title: Tanning
2. Title: Sulfoxyntan
- I. Krasyukov, A. F.
- II. Boikova, E. P.
- III. Kalita, L. A.

201422

Office of Technical Services

Kremnev, L. Ya., Mischchenko, K. P., and
Feklinov, A. I.
EMULSIONS OF METALLIC MAGNESIUM IN THE
MELTS OF VARIOUS SALTS. [1963] 16p.
Order from K-H \$16.00 K-H 6065 a

Trans. of [Zhurnal Prikladnoi Khimii] (USSR) 1946,
v. 19, no. 4, p. 363-370.

DESCRIPTORS: *Magnesium, Liquid metals, *Salts,
Melting, *Colloids.

~~645-7~~

(Chemistry--Inorganic, TT, v. 10, no. 2)

63-17276

- I. Kremnev, L. Ya.
- II. Mischchenko, K. P.
- III. Feklinov, A. I.
- IV. K-H-6065-a
- V. Kresge-Hooker Science
Library Associates,
Detroit, Mich.

SLA TT-64-20201

Office of Technical Services

Explosive mixtures of water and methyl alcohol
with magnesium and aluminum, by A. A. Shiflovskiy,
12 pp

Zhurnal Prikladnoy Khimii, 1946, vol 19, no 4

RUSSIAN per, Vol 19 No 4 pp 371 - 378

Sci Museum Lib no 52/0054

Chernikavskii, M. F. and Papok, K. K.
ANTIOXIDANT PROPERTIES OF VINYL ETHERS. [1961]
Sp. Lang. Ref.
Order from OTR or SLA \$1.10 61-20113

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1966, v. 19,
p. 416-419.

DESCRIPTORS: *Ethers, *Vinyl radicals, Antioxidant,
*Gaseous.

Antioxidant properties of vinyl ethers increase with
passing from higher alkyl to lower and are also
higher for vinyl ethers containing a branched alkyl
group. Vinyl propyl ether was found to possess higher
antioxidant properties than any of the other vinyl ethers
investigated. It raised the actual number of radicals
capable to be more effectively than isobutane,
isopropyl ether or benzene. (Author)
(Chemistry--organic, IT, v. 6, no. 11)

61-20113

I. Chernikavskii, M. F.
II. Papok, K. K.

1 8058

Office of Technical Services

Tsyakovskii, V.
SYNTHESIS OF FATTY ACIDS FROM FRACTIONS
OF PETROLATUM. [1961] 7p. 5 refs.
Order from OTS or SLA \$1.10 61-20114

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1946,
v. 19, p. 428-434.

DESCRIPTORS: Hydrocarbons, Oxidation, *Fatty
acids, Acids, Synthesis.

Previous attempts to use petrolatum as a raw material for oxidation to acids to be used for the manufacture of greases were unsatisfactory, because of the unsuitability of the molecular weights of a substantial portion of the charging stock and its contents of isoparaffins. Conditions of distillation were found during which isoparaffins contained in petrolatum are for the most part broken down into straight chain paraffins. Fractions of the material amounting to up (Chemistry--Organic, TT, v. 7, no. 10) (over)

61-20114

1. Title: Petrolatum
1. Tsyakovskii, V.

Office of Technical Services

Bocharov, A. A. and Obolentsev, R. D.
ANALYSIS OF HYDROCARBON MIXTURES BY THE
USE OF COMPOUNDS WITH HIGH INTERNAL
PRESSURE. [1961] 9p. 10 refs.
Order from OTS or SLA \$1.10

61-20116

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1946, v. 19,
p. 492-503.

DESCRIPTORS: *Hydrocarbons, Mixtures, *Iodides,
Solubility, Raman spectroscopy, Infrared spectroscopy,
Pressure, Temperature.

A new method for analyzing binary mixtures of isomeric paraffins was developed based on the solubility of stannic iodide in them. This method, in conjunction with qualitative analysis by Raman spectroscopy and the determination of the methyl number by infrared spectroscopy, offers a means of quantitative

(Continued on page 11, v. 6, no. 11) (over)

61-20116

I. Bocharov, A. A.
II. Obolentsev, R. D.

8803J

Office of Technical Services

Reaction of Niobium and Tantalum With Polyphenols,
by Yu. V. Karyakin and P. N. Teleshnikova.

Full translation.

RUSSIAN, per, Zhur Prikl Khim, Vol XIX, No 4, USSR,
1946, pp 435-439.

ABC Tr 1279

Scientific - Chemistry

Jun 52 CFS

DEX

Reaction of Tertiary Amines With Phosgene Under
Conditions of Formation of Tetrasubstituted Ureas,
by E. P. Lestovskiy, 10 pp.

RUSSIAN, pt., Zhur Prikl Khim, Vol. XIX, No 4, 1946,
pp 440-444.

Sci Tr Center
RT-1650

Scientific Chemistry

1
CTS/DEK

18,758

The Use of Substances of High Internal Pressure for the
Analysis of Hydrocarbon Mixtures, by A. A. Dotscharyov,
R. D. Chelensky.

RUSSIAN, per, Zhur Prikl Khim, Vol XXIX, No 5, 6,
1946, pp 492-503.

Thornton Research Centre
Misc 4
P 22061 T

Scientific - Chemistry

16,382

apply for Tr. to § Shell Petroleum Co Ltd ~~XXXXXX~~
Norman House, 105-109 Strand, London, W. C. 2

Gutner, R., Morozova, G., Papkina, Z.,
Tishchenko, M., and Shchigelskaya, M.
VAPOR PHASE HYDROLYSIS OF CHLOROBENZENE,
II. [8 Oct 47] [10p] 4refs
Order from OTS or SLA \$1.10

63-18534

Trans. of [Zhurnal Prikladnoi Khimii] (USSR) [1946]
v. 19, p. 504-510.
A trans. is available in Dutch from OTS or ETC \$1.55
as 61-17763, MTWL-98, 10p.

DESCRIPTORS: *Benzenes, *Chlorides, Hydrolysis,
Vapors, *Phenols, Catalysts, Chemical reactions,
Graphic analysis, Sorption.

(Chemistry--Organic, TT, v. 10, no. 10)

63-18534

1. Title: Phenyl chloride
- I. Gutner, R.
- II. Morozova, G.
- III. Papkina, Z.
- IV. Tishchenko, M.
- V. Shchigelskaya, M.

Office of Technical Services

Adsorption of Methane on Charcoal, by I. P.
Kirillov, E. S. Rakhlin, 8 pp.

RUSSIAN, REF. Zhur Prikl Khim, Vol XIX, No 5-6,
1946, pp 511-515.

Sci Trans Center RT-859

Scientific - Chemistry
CTS/DEK

4089

Deformation Properties of Thickeners, by M. G.
Shikher

RUSSIAN, per, Izvestiya Akad. Nauk SSSR, Vol XIX, No 5/6,
1966, pp 542-552.

Assoc Tech Sv RJ-473
\$13.60

Sci - Chemistry
Jan 57 CTS

42,177

S-178/60

(NY-4819)

High-Speed Oxidizing Gasification of Benzine, by
M. I. Demnet'yeva, M. A. Rivin, D. M. Rudkovskiy,
38 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XIX, No 7,
1946, pp 632-650.

JPRS 5506

Sci - Chem

128,300

Oct 60

Mechanism of Corrosion of Iron by Sulfur,
by P. V. Gel'd, O. A. Esin

RUSSIAN, no per, Zhur Prik Khim, Vol 19,
No 7, 1946, pp 678-83

Brutcher No 3186
\$4.40

Scientific - Min/Metals, Chemistry
Feb 56 CTS/dex

31,235

Zhur Prikl Khim No 8, 1946 P826-32

"Electrolytic separation of
Zirconium" Plotnikov, Sitman

Proj 6372

A-1544.1

SR 17 Aug 1950

Zhur Prik Khim, XIX, 684-92; 841-47 (1946)

The Suspending Ability of Clayey Washing Liquids Used
in Drilling I and II

P. M. Khemikovskiy and D. I. Shilov

(Wilson Dam 2579) SLA R-601

Synthesis of Polyvinyl Foam in the Homogenous
Medium, by S. N. Ushakov, O. B. Eve.
RUSSIAN, per, Zh. Prikl. Khim, Vol 19, No 9,
1946, pp 853-860.
NLL 5828.4F (11812)

Sci - Chem
Sept. 67

340,357

Absorption of Carbon Dioxide by Ethanolamines
I. The Rate of Absorption of Carbon Dioxide by
Solutions of Mono-, Di-, and Triethanolamines, by
A. L. Shneerson, A. G. Leibush, 12 pp.

RUSSIAN, per, Zhur Prii Khim, Vol XIX, No 9,
1946, pp 869-879.

SIA R-1873

NLL/KTS 2275

Sci

Aug 58

70844

Contact Method of Production of Acetaldehyde from
Acetylene in the Vapor Phase, by A. Ya. Yakubovich
et al.

RUSSIAN, no per, Zhur Prii Khim, Vol XVII, 1946,
USSR, pp 973-988.

Assoc Tech Sv RJ-64

Sci - Chemistry

\$28.20 (\$3.90)

SLA R-1869

Aug 54

RJ-64

17,132

Derjev, N. K.
NEW METHOD OF MAKING GLASS ON BASIS OF
SODIUM CHLORIDE IN PLACE OF SODA. [1962]
[29]p. 7 refs.
Order from OTS or SLA \$2.60 62-16465

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1946,
v. 19, no. 9, p. 1007-1017.

DESCRIPTORS: Manufacturing methods, *Glass,
*Sodium compounds, *Chlorides, Carbonates.

(Materials--Ceramics, TT, v. 8, no. 11)

62-16465

I. Derjev, N. K.

Office of Technical Services

Complex Fluoride Compounds of Tantalum and Niobium,
by G. S. Davchenko, I. V. Tananaev, 19 pp
UNCLASSIFIED

RUSSIAN, per, Zhur Prikl Khimi, Vol XIX, No 10-11,
1946, 1093-1106,

Sci Tr Center
RT-1118

Scientific - Chemistry

AEC-TR-6669
(9215593)

15,359

Dehydrogenation of Ethylbenzene in Mixture with
Xylene, by A.A. Balandin and G.M. Marukyan.
RUSSIAN, per, Zhurnal Prikladnoi Khimii, 1946,
Vol. 19, no. 12, pp.1277-1280.
SLA-TT-64-20366

Chem
Aug 66

7
308,620

Zhur Prikl Khim XI X, 1950-7, 1946

Physico-Chemical Analysis in the Field of the Hydrochloric Acid Treatment of Phosphates I. The System $\text{CaO-P}_2\text{O}_5\text{-HCl-H}_2\text{O}$

A. A. Taperova and M. N. Shul'gina (Lab for Physico-chemical Analysis of the Sci Inst of Fertilizers and Insectofungicides, VNIIF)

(Wilson Jan 2612)

078 63-16429

Oscillographic Study of Discharge in Pulsed X-Ray
Tubes, by E. M. Reikhrudel, A. A. Samin, T. A.
Titova, 6 pp.

RUSSIAN, per, Zhurnal Prikladnoi Fiziki, Vol XXI,
No 7, 1951.

Amer Meteorol Soc
AF Cambridge Res Center

Sci - Physics

May 60

115,850

Effective Coefficient of Heat Transfer in Catalyst
Masses, by V. O. Bakharev, G. K. Borekov.

RUSSIAN, per, Zhur Prii Khim, Vol XX, 1947.

CIA/IDD/X-146

Scientific - Chemistry

15,037

Physico-Chemical Properties of Ethanolamines, by
A. G. Leybush, E. D. Shorina.

RUSSIAN, no per, Zhur Prik Khim, Vol XX, 1947,
USSR, pp 69-76.

Expt. 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000
Assoc Tech Sv RJ-112

Sci - Chemistry

\$8.40 (\$1.15)

M. 182

Aug 54

17,117

Reduction of Nickel Silicate Minerals by
Carbon Monoxide, by D. P. Bogatskiy, 15 pp.

RUSSIAN, no per, Zhur Prik Khim, Vol XX,
No 1/2, 1947, pp 81, 88.

Sci Tr Center RT-2854

Scientific -- Chemistry; Min/Metals
Jan 56 CTS/dex

30, 213

Hydrometallurgical Treatment of Alluvial
Nickel Ores by the Ammoniacal Method, by
D. P. Bogatskiy, A. S. Semenova, 19 pp.

RUSSIAN, no per, Zhur Prikl Khim, Vol XX,
No 1/2, 1947, pp 89-96.

Sci Tr Center RT-2855

Scientific -- Min/Metals
Jan 56 GTS/dex

30,212

The Condensation of Melamine and Formaldehyde and the Preparation of Melamine Formaldehyde Resins and Plastics From These Resins, by A. A. Vansheidt, Z. K. Baumova, N. E. Sirokina, 14 pp.

RUSSIAN, per, Zhurnal Prikladnoi Khimii, Vol XI, No 3, 1947, pp 163-169.

Sci Trans Center RT-3403

32,694

Apr 56

Scientific - Chemistry

Investigation of Properties of Red
Lead Oxide Batteries, by V.P.
Mashoucto.

RUSSIAN, Zhurnal Prikladnaya Khimiya, Vol. XX,
No 3, 1947, pp 225-238

NRL Tr 191 & Sci Trans Center RT-96

GORBUNOV, N. S.
AND OTHERS

Zhurnal Prikladnoi Khimii, vol. 20, No. 4, 8 figures,
2 tables, 1800 words; 1947.

Hardness of Chromium-impregnated Surfaces on Iron
and Steel.

Butcher Trans, Order No. 2022, \$3.15.

Bogatzkii, D. P.
REDUCTIE VAN NIKKELSILICAAT MINERALEN MET
KOOLMONOXYDE (Reduction of Nickel Silicate Mine-
rals with Carbon Monoxide). 13p. 9 refs. MTWL: 60.
(text in Dutch).
Order from OTS or ETC \$1.85

61-17658

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1947,
v. 20, p. 81-88.

DESCRIPTORS: *Carbon compounds, *Oxides, Nickel
compounds, Silicates, Minerals, *Reduction.

61-17658

- I. Bogatzkii, D. P.
- II. MTWL-60
- III. Stichting Moeilijk
Toegankelijke Wetenschap-
pelijke Literatuur

Office of Technical Services

Physicochemical Investigations in the Field of the
Ammonia-Soda Process. IV. Kinetics of Crystallization
of Sodium Bicarbonate Out of Supersaturated
Solutions, by A. P. Belopol'skiy, F. G. Margolin,
26 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XX, No 4, 1947,
pp 331-344.

Sci Tr Center
RT-1594

Scientific- Chemistry

CTS/DEK

18,781

Theory of Chemical Absorption. V.
Absorption of Carbon Dioxide by Sodium Carbonate
Solutions by M. E. Pozin.
RUSSIAN, per, Zhurnal Prikladnoi Khim, Vol XX,
No 4, 1947, pp 353-359.
SLA TT 64-18955

Apr 67

323,080

On the Problem of Reactions in the System
SiO₂-C during Heating, by A. N. Novikov.
RUSSIAN, per, Zh. Prikl. Khim., Vol 20, No 5,
1947, pp 451-453. PD11140866
AEC SC-T-66-0762

Sci/Chemistry
Jan 67

316,187

Investigation of the Conditions of Preparing
Used Phosphates, by K. I. Zagvozdkin, N. A.
Basilko, 14 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XX, 1947,
pp 502-514.

SLA R-2615

Sci + Chem

Jun 59

89,596

TT-63-20162

Pozin, M. E. and Opykhtin, M. A.
THE THEORY OF CHEMICAL ABSORPTION. V. THE
ABSORPTION OF CHLORINE AND SULPHUR DIOXIDE
BY SOLUTIONS OF CAUSTIC SODA: THE ABSORP-
TION OF CHLORINE BY BENZENE (Teoriya
Khemosorbtsii. V. Absorbtsiya Khlova i Sernistogo
Gaza Rustvorami Edkogo Natra: Absorbtsiya Khlova
Benzolom). [1963] [23p] (foreign text included) 4refs
Order from OTS, SLA, or ETC \$2.60 TT-63-20162

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1947,
v. 20, no. 6, p. 523-631. (Abstract available)

DESCRIPTORS: *Absorption, *Chlorine, *Dioxides,
*Sulfur compounds, *Sodium compounds, *Hydroxides,
*Benzenes,

The correctness of the theoretically derived equations of
kinetics of chemisorption was confirmed on a series
of examples (absorption of chlorine and sulphurous gas
(Chemistry--Physical, TT, v. 11, no. 4) (over)

I. Pozin, M. E.
II. Opykhtin, M. A.
III. Title: Absorption...
IV. Title: Absorption...

Office of Technical Services

Faraday's Law and Current Yield in the Electrolysis
of Fused Salts. Part I. Influence of Temperature,
by A. F. Alabyshv, 9 pp.

RUSSIAN, per, Zhur Prikl Khim, ⁹ N Vol XX, 1947, pp
558-562, ~~summary in English~~, p 563.

CIA/PDD/X-1247

Scientific - Chemistry
CTB/DEK

10,063

Physicochemical Investigations in the Field of
Ammonia-Soda Process. V. Concerning Relative Roles
of Resistance of Gaseous and Liquid Films in Carboni-
zation of Ammonia-Soda Solutions, by A. P.
Belopol'skiy, 12 pp.

RUSSIAN, per, Zhur Prik Khim, Vol. XX, No 7, 1947,
pp 577-583.

Sci Tr Center
RT-1591

Scientific - Chemistry

CT8/DEX

18,785

Faraday's Law and Current Yield in the Electrolysis
of Fused Salts. Part II. Influence of Current
Density at the Electrodes, by A. F. Alabyshev,
11 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XX, 1947, pp 591-
604, summary in English, p 604.

CIA/FDD/X-1248

OTS TT-63-20431 (16pp)

Scientific - Chemistry
OTS/DIX

10, 116

On Several Derivatives of Phenanthrene, by
Yu. S. Zalkind, Kh. V. Balyan.

RUSSIAN, per, Zhur Prik Khim, Vol XX, No 7,
Jul 1950, p 1209.

Consultants Bureau

Scientific - Chemistry

14,455

Reaction of Ethylene Oxide With Ammonia Over
Aluminum Oxide, by M. S. Malinovskiy,
B. N. Moryganov, 8 pp.

RUSSIAN, no par, Zhur Prikl Khim, Vol XX, No 7,
1967, pp 630-634.

Sci Tr Center RT-2446

Scientific - Chemistry
Dec 55 CTS/DEX

28,987

Resistance of an Electrolyte in a Bath as a
Function of the Form, Dimensions, and
Arrangement of the Electrodes. III. A
Combination of a Flat Electrode and a
Cylindrical one, by V. P. Mashovets,
V. V. Cherdynisev, M. V. Neustrueva, 19 pp,
UNCLASSIFIED *iyeva*

KH-28766
RUSSIAN, per, Zhur Prikl Khim, Vol XX, No 7,
1947, pp 660-668.

OTS TT-63-20751

Sci Tr Center
RT-1801

20,533

Scientific - Chemistry

Jan 55
Stamp CTS

P'yankov, V. and Druzhinin, F.
OVER DE SNELHEID DER REACTIES VAN ZWAVEL-
WATERSTOF MET ENIGE METAALOXIDEN (Velocity
of the Reaction Between Hydrogen Sulfide and
Some Metal Oxides) tr. by G. J. M. Fritschy. 7p.
4 refs. MTWL: 49. (text in Dutch).
Order from OTS or ETC \$1.55

61-17667

Trans. of Zhurnal Prikladno Khimii (USSR) 1947,
v. 20, p. 693-696.

DESCRIPTORS: *Hydrogen compounds, *Sulfides,
Metals, *Oxides, Chemical reactions.

61-17667

- I. P'yankov, V.
- II. Druzhinin, F.
- III. MTWL-49
- IV. Stichting Moeilijk Toegankelijke Wetenschappelijke Literatuur

Office of Technical Services

VOZDVIZHNSKII, G. S.

Zhurnal prikladnoi khimii, vol. 2, No. 9, 2800 words;
1947.

Mechanism of the Electrodeposition of Nickel.

Brutcher Trans. Order No 2149, \$4.90.

Reduction of Alkali Metal Chlorides, by P. V. Gol'd.
A. S. Mikhlin, M. S. Polysheva, A. P. Solov'yev,
18 pp. K

RUSSIAN, per, Zhur Prikl Khim, Vol XX, 1947, pp
800-808.

ATS

Sci

Aug 59

93, 538

Shneerson, A. L. and Leibush, A. G.
ABSORPTION OF CARBON DIOXIDE BY ETHANOLAMI-
NES. I. RATE OF ABSORPTION OF CARBON DIOXIDE
IN SOLUTIONS OF MONO- DI- AND TRIETHANOL-
AMINES. 23p. 17 refs. MTWL: 171.
Order from OTS or ETC \$1.⁰¹

61-17837

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1946,
v. 19, no. 9, p. 869-880.

DESCRIPTORS: *Carbondioxide, Ethanol, *Amines,
Solutions, Absorption.

61-17837

- I. Shneerson, A. L.
- II. Leibush, A. G.
- III. MTWL-171
- IV. Stichting Moeilijk
Toegankelijke Wetenschap-
pelijke Literatuur

Office of Technical Services

Effect of Viscosity of Medium Upon Vinyl
Compound Polymerization, by Z. A. Rogovin,
L. A. Tsaplina, 12 p.

RUSSIAN, per, Zhur Prih Khim, 1947, Vol XII,
No 9, pp 875-882.

SLA 59-17259

SLA TT 64-20156

Sci

Dec 59

Vol 2, No 6

104,002

Polymerization of Vinyls in Presence of Nitric
Acid Esters, by Z. A. Rogovin, L. A. Tsaplina,
6 p.

RUSSIAN, per, Zhur Prikl Khim, 1947, Vol XX, No 9,
pp 883-886.

SLA 59-17260
OTS TT-63-20611

Sci
Dec 59
Vol 8, No 6
2,

104,003

ZHELEZKOV, P.S.

R-3022. Diffusion through a double osmotic membrane.

Zhur. Priklad. Khim., 20, p.911-13, 1947. (3p.)

TT-63-18566

Pozin, M. E.
THE THEORY OF CHEMICAL ABSORPTION. VIII. ON
THE COEFFICIENT OF THE RATE OF ABSORPTION.
[1963] 17p (figs formulae omitted) 12refs
Order from OTS, SLA, or ETC \$1.60 TT-63-18566

I. Pozin, M. E.
II. Title: Or...

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1947, v. 20,
no. 10, p. 963-975. (Abstract available)
A trans. is available in Dutch from OTS or ETC \$2.71
in TT-61-17957, MTWL-303, 43p.

DESCRIPTORS: *Absorption, *Kinetic theory, Dif-
fusion, Absorbents, *Towers (Chemistry), Fluid flow.

There is established the regularity for the rate of mass-
transmission through a diffusion layer of liquid in the
form of a function of dimensionless criteria character-
izing the physical, hydrodynamic and geometric condi-
tions of work of a scrubber. The experiments which
(Chemistry--Physical, TT, v. 11, no. 4) (over)

Office of Technical Services

Influence of Temperature and Moisture on the
Corrosion of Metals in an Atmosphere of Sulfur
Dioxide, by O. V. Zarubina, M. L. Turich, 10 pp.

RUSSIAN, per, Zhur Prikl. Khim, Vol XXI, 1948,
pp 362-371.

SIA R-4422

Sci
Aug 59

94, 557

The Nature of Heat Liberation in the Synthesis of
Calcium Silicates, by F. I. Vaseenin.

RUSSIAN, per, Zhur Prikl Khim, Vol XII, 1948,
pp 300-303. 7.7403

United Kingdom Scientific Mission
SLA

Sci - Chemistry
Oct 57

54, 436

ZHUR PRIKLAD KHIMII

Vol XXI, No 4, 1948, 16 pp

Effect of Impurities in a Lead-Antimony Alloy on the Work
of the Grid of a Lead Storage Battery. I. Anode Corrosion
of the Alloys" II. "The Kinetics of Errosion"

V. P. Mashovets

A. Z. Lyandres

Translation (32 pp) M. A. London R 1586949
listed in abstracts of T. I. Documents
ONI FS 4320-49, 15 Aug 1949

CHD thru D:RD 14/1

75T23

Thermal Oxidation of Chromium Oxide and Dissociation
of Calcium Chromates, by F. I. Vasev, 16 pp.

RUSSIAN, per, Zhur Prii Khim, Vol XXI, 1948, pp
429-436.

AEC SCL T-171

Sci - Chem

Sep 58

73, 801

CHALOV, N. V.

R-3011. Preparation of trihydroxyglutaric acid by
oxidation of xylose with nitric acid. Zhur. Priklad.
Khim., 21, p. 486-95, 1948. (12p.)

Zarubina, O. V. and Turich, M. L.
TEMPERATURE AND HUMIDITY "FACTORS" IN THE
CORROSION OF METALS IN ATMOSPHERES OF
SULPHUR DIOXIDE. Nov 49 [14]p. 8 refs. BISI-387;
DSIR L.L.U. M. 2778.
Order from OTS of SLA \$1.60 61-23303

Trans. of ~~Zhurnal Tekhnicheskoy Khimii~~ (USSR) 1948,
v. 21, no. 4, p. 562-571. ~~Fig. X-122.~~

DESCRIPTORS: *Metals, *Corrosion, Temperature,
Humidity, Sulfur compounds, Dioxides.

The factor which determines the corrosion of metals
in an atmosphere containing sulphur dioxide in the
temperature range of 15° to 40°C and at any value of
the relative humidity is the temperature. The max-
imum formation of corrosion films is observed at a
temperature of from 20° to 25° and a relative humid-
(Metallurgy--Corrosion, TT, v. 6, no. 7) (over)

61-23303

- I. Zarubina, O. V.
- II. Turich, M. L.
- III. BISI-387
- IV. DSIR L.L.U. M. 2778
- V. British Iron and Steel
Industry Translation
Service

131854

Office of Technical Services

The Primary Source of Acetic Acid in the Thermal
Decomposition of Densewood Wood, by S. S. Ermolayeva,
6 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XXI, 1948, pp
543-547.

SLA R-3012

Sci

Jul 59

92,708

On the Action of Water Upon Amino Plastics, by
A. A. Vansheidt, Z. K. Naumova.
RUSSIAN, per, Zh. Prik Khim, Vol 21, No 6, 1948,
pp 644-654.
NLL 5828,4F (11688)

Sci - Phys
Sept. 67

340,372

61-13374

Berezhtoy, A. S.
CONTRIBUTION TO THE STUDY OF THE PHYSICAL
CHEMISTRY OF PERICLASE IN THE SYSTEM
 $\text{CaO-MgO-Al}_2\text{O}_3\text{-SiO}_2$ [K Fiziko-khimi Periklaza v
Sisteme $\text{CaO-MgO-Al}_2\text{O}_3\text{-SiO}_2$] tr. by G. N. Gibson.
July 50 [27]p. 10 refs. DSR Library Communication
no. 416; M 2013.
Order from LC or SLA m\$2.70, ph\$4.80 61-13374

Trans. of Zhurnal Prikladnoy Khimii (USSR) 1948,
v. 21, no. 7, p. 717-731.
Another translation is available from Science Museum
Library, London as 50/3262.

SLA R-2169

(Materials--Refractories, TT, v. 5, no. 12)

1. Magnesium oxides--Phase studies
2. Refractory materials--Phase studies
1. Berezhtoy, A. S.
- II. LC-416
- III. DSR LLU M.2013
- IV. Department of Scientific and Industrial Research (Gr. Brit.)

101594

Office of Technical Services

Current Yield of Electrolyzing Fused Salts, by A. L.
Rotinyan, 15 pp.

RUSSIAN, per, Zhur Prii Khim, Vol. XXI, 1948, pp
755-764.

~~TOP SECRET~~
CIA/HDD/X-1259

Scientific - Chemistry
CRS/DEX

10,047

Rotinyan, A.L.
KINETICA VAN DE ZWELLING VAN STEENKOOL IN
PYRIDINE (Kinetics of the swelling of hard coal in
pyridine), tr. by G.J.M. Fritschy, 7 p. 1 ref.
MTWL:474. (Text in Dutch)
Order from OTS or ETC \$0.80

61-17022

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1948, v. 21,
p. 751-754.

61-17022

- I. Coal-Swelling
- I. Rotinyan, A.L.
- II. MTWL-474
- III. Stichting Moeilijk Toegankelijke Wetenschappelijke Literatuur

Office of Technical Services

To the Question of Studying High-Percentage
Ferrosilicon, by A. A. Trots, M. G. Maksimenko,
10 pp.

RUSSIAN, Zhur Prikl Khim, Vol XXI, No 7, pp 775-
780, 1948.

Morris D. Friedman T-124

Sci - Chem
Aug 58

70,629

POZIN, M. E.

R-3009. The rate of absorption accompanied by
reversible chemical reaction. Zhur. Priklad Khim., 21,
p.802-6, 1948. (7p.)

Mit'kevich, G. P.
THE RELATIONSHIP BETWEEN FROTHING PROPERTIES AND THE SIZES OF BUBBLES. [1960] [5]p.
9 refs. Warren Spring Lab. Trans. NT739; ML347.
Order from I.C. or SLA ml\$1.80, pt\$1.80 60-17182

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1948,
v. 21, no. 8, p. 816-819.

An optical method is suggested for studying the dynamics of the formation and disintegration of the mass of froth as a whole. For a given frother and selected operating conditions a definite range exists, which contains the bubble size with the highest stability. A study is made of the kinetics of changes in the excess pressure inside the bubbles during formation and disintegration of the froth. (Author)

(Engineering--Chemical, IT, v. 5, no. 4)

60-17182

1. Floation--Physical factors
2. Bubbles--Growth
- I. Mit'kevich, G. P.
- II. DSIR NT-739
- III. DSIR LLU M. 1347
- IV. Department of Scientific and Industrial Research (Gt. Brit.)

143,242

Office of Technical Services

Specific Heats of Aqueous Solutions of MgCl_2 ,
 CaCl_2 , NaCl , KCl , KNO_3 , and NH_4NO_3 at 25°, 50°
and 75°C, by A. P. Rutshov, 5 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XXII, 1948,
pp 820-823.

SIA R-2164

Sci

Aug 58

72,200

Kinetics of Reactions in the Formation of Aluminates
and the Contribution of Mineralizers to the Process.,
by V. F. Zharavlev, I. G. Lesokhin, R. G. Tempelman,
(pp. 15)

RUSSIAN, ISSL, Zhur Prikl Khim, Vol XXI, No 9, 1948,
pp. 887-902

Sci Mu Lib 53/2795
5

10,431

Sci - Chemistry
CIS 1051

Solubility in the System Ammonium Sulfate-Ammonium Sulfite-Ammonium Bisulfite-Water. I. The Ternary System Ammonium Bisulfite-Water, by N. A. Vasilenko, 31 pp.

RUSSIAN, per, Zhur Frik Khim, Vol XXI, 1948, pp 917-926.

SLA/R-2557

Sci
Apr 59

84,908

The Rate of Absorption of Carbon Dioxide by
Hydroxide Solutions, by M. K. E. Y. Turkhan,
13 pp.

RUSSIAN, per, Zhur Prik Khim, Vol. XXI, 1948,
pp 927-936.

SIA R-2193

Sci.

Aug 58

72,216

Dynamics of Ion Exchange, by E. N. Gapon
and T. B. Gapon, 14 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XXI
1948, pp 937-947.

SLA R-2194

Sci

Aug 58

72,164

On the Theory of Dyeing. XIII. The Dependence
of the Absorption of Acid and of Substantive Dyes
by Wool Keratin on the pH of the dye Bath, by
N. V. Sokolova

RUSSIAN, per, Zhur Prikl Khim, Vol XXI, 1948, pp
956-975.

Nat'l Res Council Canada TR 381

Scientific - Chemistry

ENG CTS/DHX

16,849

Alkylation of Benzene With Propane, by Ya. M. Paushkin,
A. V. Topchiev.

Full translation.

RUSSIAN, no per, Zhur Prikl Khim, Vol XXI, No 10, 1948,
pp 1065-1072.

AEC Tr 1184

Sci - Chem

Apr 52 CTS

Mechanism of Hydrolysis of Cellulose. II.
Content of Readily Hydrolyzable Fraction in
Various Cellulose Products, by V. I. Sherkov,
G. D. Puzanov, H. H. Kukashova, 13 pp.

RUSSIAN, per, Zhur Prikl Khim, Vol XXI, 1948,
pp 1073-1082.

SIA R-2467

Sci - Chem

Jun 59

89,581

Drop Flow of a Liquid into Another Liquid or Gaseous
Medium, by Smirnov, N. I., and Polyuta, S. N.

RUSSIAN, per, Journal Prikladnoy Khimii, Vol 21, 1948,
pp 1137-1146

Sci Museum Lib No 50/2716

AT-1983

Smirnov, N. I. and Polyuta, S. E.
DRUPPELVORMIGE UITSTROMING VAN EEN VLOEI-
STOF IN EEN ANDERE VLOEISTOF OF IN EEN GAS
(Dropping a Liquid into Another Liquid or into a Gas).
14p. 2 refs. MTWL: 353. (Text in Dutch).
Order from OTS or ETC \$1.85

61-17580

Trans. of Zhurnal Prikladno' Khimii (USSR) 1948,
v. 21, no. 11, p. 1137-1146.

DESCRIPTORS: *Liquids, Gases, *Fluid flow,
Processing.

61-17580

- I. Smirnov, N. I.
- II. Polyuta, S. E.
- III. MTWL-353
- IV. Stichting Moeilijk
Toegankelijke Wetenschap-
pelijke Literatuur

Office of Technical Services

Rate of Absorption of Carbon Dioxide by Hydroxide,
by M. E. Pozin.

RUSSIAN, per, Zhur Prik Khim, Vol XXI, No 11, 1948,
pp 1184-1185.

Dept of Interior
National Coal Bd Tr A 1181/W
US Bur of Mines
Central Experiment Station
Pittsburgh, Pa

136, 757

Physico-Chemical Nature and Catalytic Activity of
Boron Trifluoride Compounds, 17 pp, by PAUSHKIN, Ya.M.

RUSSIAN, no per, Zhur Prih Khim, Vol XXI, No 12,
pp 1199-1209, 1948. *DIAPYCNAL*

British Sci Museum No 52/1631

MLL M. 4076

52-1631

The Equilibrium System of Silicon Oxide, by
P. V. Gel'd, M. I. Kochnev.

Full translation.

RUSSIAN, per, Zhur Prikl Khim No 21, 1948,
pp 1249-1250.

SLA 66-10322
AEC Tr 1209

Scientific - Chemistry

Rate of Reduction of Silica by Carbon, Carborundum,
Ferrosilicon and Crystalline Silicon - P. V.
Gel'd, A. G. Kolodreova, N. N. Serebrennikov.

Full translation.

RUSSIAN, per, Zhur Prikl Khim, No 21, 1948,
pp 1261-1271.

AEC Tr 1208

SLA 50-5-1-0

Scientific - Chemistry

KUZNETSOV, I. I., KOZHUKHOVSKII, A. A., and
BOROVAYA, F. E.

R-2917. Solubility and vapor pressures of saturated
solutions in the systems KH_2PO_4 - $\text{NH}_4\text{H}_2\text{PO}_4$ - H_2O at
25° and NH_4NO_3 - $(\text{NH}_4)_2\text{HPO}_4$ - H_2O at 50° C. Zhur.
Priklad. Khim., 21, p.1278-81, 1948. (6p.)

Zhur Prikl Khim XII, 1303-16 (1948)

Surface Electric Conductivity of Solid Dielectrics

N. Chirkov (Inst of Chem Physics, Moscow)

(Wilson Dam 2683)

Phys. Rev. Chem., Vol. XXII, 129-131 (1948)

"Concerning Valence States of the Carbon Atom,"

by M. A. Kanner

*Done by AEC
Trans # 217*

Pyrophoric Metals, by D. A. Pospelkov.

RUSSIAN, per, Zhur Prik Khim, Vol XXII, No 1,
1949, pp 5-12.

Army Materiel Command
Tr Log No 103

Sci - M/M
Apr 63

229,318

Chemical Methods for the Removal of
Noxious Gases from Air, by V. G. Gurevich,
K. K. Sigalovskaya, 14 pp.

RUSSIAN, per, Zhur Prik Khim, Vol XXII, 1949,
pp 13-23.

21.11.1949
SLA R-2156

Sci

72,423

Aug 58

Rate of Solution of Rock Salt and of Sylvite in
Mixed Solutions, by L. L. Esrokhi, 11 pp.

RUSSIAN, per, Zhur Prik Khim, Vol XXII, 1949, pp
pr 24-32.

SLA R-2856

Sci

Jul 59

92,399

Synthesis of Dihydroxysulfidine, by I. S. Bolanov.

RUSSIAN, no per, Zhur Prikl Khim, Vol XXIX, 1969.

AEC Tr 220

14,984

Scientific - Chemistry

July CTS

Monitor-Signaler of Dangerous Concentrations of
Noxious Substances in Air: III, Signaler for
Nitrogen Peroxide, by I. B. Kogan, 4 pp.

RUSSIAN, per, Zhur Prik Khim, Vol XXII, No 1,
1949.

Wilson Dam 2622
(PA 49/49T26)

Scientific - Chemistry
CTS/DEX

6363

Signalling Apparatus for Dangerous Concentrations
of Harmful Substances in Air. III. Signalling
Apparatus for Nitrogen Dioxide (1,2)., by I. B.
Kogan (PA 49/49T26)

RUSSIAN, per, Zhur Prik Khim, Vol XXII, N 1949,
pp 41-44.

CIA/PDD/X-33
CIA/PDD/Z-62
Also ONI

Scientific - Chemistry
CPS/DEX

6362

Certain Problems of the Mechanism of Color
Development, by A. V. Bronberg, Yu. B.
Vilenskiy, 16 pp.

RUSSIAN, per, Zhur Prii Khim, Vol. XXII, No 2, 1949,
pp 128-134.

CIA/FDD/X-1188

Scientific - Chemistry
CTS/DEK

9168

Butt, V. M.
INVESTIGATION OF THE VELOCITY OF HYDRATION OF PORTLAND CEMENTS AND OF THE COMPOUNDS OF WHICH THEY CONSIST, tr. by G. N. Gibson. Mar 50 [16]p. 5 refs. DSIR Library Communication no. 471; T/L 759; M 2006.
Order from LC or SLA m182. 40, ph\$3.30 61-13368

Trans. of Zhurnal Prikladnoy Khimii (USSR) 1949, v. 22, no. 3, p. 223-234.

Sci Mus Lib no 51/0377 - London

(Materials, TT, v. 5, no. 12)

61-13368

- I. Cement--Hardening
- I. Butt, V. M.
- II. LC-471
- III. Trans-T/L-759
- IV. DSIR LLU M. 2006
- V. Department of Scientific and Industrial Research (Gt. Brit.)

1005415

Office of Technical Services