PIRYATINSKIJ, A. L.

Presence of Δ^3-carene in the turpentine of the common spruce (*Picea excelsa*). T. T. Bardyshev, A. L. Piryatinskii, K. V. Bardysheva, and O. I. Chernyaeva. *J. Applied Chem. U.S.S.R.* 23, 895–9(1950)(Engl. translation). (Russian Ed., 847–52); cf. C.A. 44, 10347*h*. The properties and compn. of two samples of spruce turpentine were detd. Turpentine distd. from spruce gum contains in the portion distg. up to 200°, 48% *l*-α-pinene (I) (nitrosochloride, m. 102–3°), 17% *l*-β-pinene (converted to nopinic acid, m. [illegible]), [illegible]% *d*-Δ^3-carene (nitrosite, m. 147°), 18% of a mixt. of dipentene (tetrabromide, m. 125.6°) and limonene, and higher-boiling constituents. Turpentine obtained from relatively fresh spruce galipot contains I 40, *l*-β-pinene 33, *d*-Δ^3-carene ([illegible] 170–170.7°, nitrosate m. 147°) 10% of a mixt. of dipentene and *l*-limonene, and higher-boiling constituents. The optical activity of I in the first sample was much lower than that of I in the second, which is a relatively fresh sample. Richard I. Akawie

26

Dependence of viscosity of linseed oil on its oxidation. II. V. G. Georgievskii and B. N. Shakhkel'dyan (Moscow [illegible]

PIRYATINSKIY, A.L.

BUGLAY, B.M., kandidat tekhnicheskikh nauk; PIRYATINSKIY, A.L., kandidat tekhnicheskikh nauk; KORSHUN, L.L., inzhener.

Terpene-collodion lacquers for finishing furniture. Der.i lesokhim. prom .3 no.1:3-5 Ja '54. (MLRA 7:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki drevesiny (for Buglay). 2. TsNILKhI (for Piryatinskiy and Korshun). (Lacquer and lacquering)

PIHYATSINKIY, A.L.; BUGLAY, B.M.; KORSHUN, L.L.

New polishing and softening agents for the refining of nitro lacquer coatings. Sbor.trud. TSNIILKHI no.13:115-118 '59. (MIRA 13:10)

(Lacquer and lacquering)

BUGLAY, B.M., doktor tekhn.nauk; PIRYATINSKIY, A.L., kand.khim.nauk; SHUBINA, I.I., inzh.; KORSHUN, L.L., inzh.

New materials used for finishing furniture. Der.prom. 7 no.9:1-5 S '58. (MIRA 11:11)

(Wood finishing)

KORSHUN, L.L.; TRIFONOVA, T.V.; PIRYATINSKIY, A.L.; BUGLAY, B.M.; SHUBINA, I.I.

Fungicidal nitro varnishes based on oxyterpene resins. Der.prom. 7 no.11:1-2 N '58. (MIRA 11:11)
(Varnish and varnishing) (Fungicides)

KALANTAROV, Pavel Lazarevich; TSEYTLIN, Lev Aleksandrovich; PIRYATINSKIY, A.Z., redaktor; ZABRODINA, A.A., tekhnicheskiy redaktor

[Inductance calculations; reference book] Raschet induktivnostei: spravochnaia kniga. Moskva, Gos. energ. izd-vo 1955. 367 p. (MLRA 8:3)
(Inductance)

1. PIRYATINSKIY, A. Z.

2. USSR (600)

4. Ionization

7. Electric puncture of technical dielectrics.
Zhur. tekh. fiz., 22 No. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

1. [illegible], [illegible]

2. USSR (60)

4. Dielectrics

7. Electric [illegible] nature of technical [illegible] [illegible]. Zhur. Tekh. Fiz. [illegible]

9. Monthly List of Russian Accessions, Library of Congress, February [illegible]. [illegible]

PA 236T17

PIRYATINSKIY, A. Z.

USSR/Electricity - Dielectrics, Breakdown Oct 52

"Problem of Electric Breakdown of Technical Dielectrics," A. Z. Piryatinskiy

"Zhur Tekh Fiz" Vol 22, No 10, pp 1556-1564

Discusses mechanism of breakdown of ceramics at high frequencies. Assumption of "thermotonization" character of breakdown of porous dielectric makes it possible to establish a connection between physicomechanical properties and electric strength. Indebted to N. P. Bogoroditskiy. Received 17 Jan 1942 [sic].

236T17

PIRYATINSKIY, B.G.

Two species of Upper Jurassic Trigoniidae from western Turkmenia. Vest.LGU no.24:146-149 '62. (MIRA 16:2)
(Turkmenistan—Lamellibranchiata, Fossil)

[illegible]V, R. [illegible]

[illegible] and [illegible]
[illegible]ents [illegible] 33 [illegible]

PROZOROVSKAYA, Ye.L.; PIRYATINSKIY, B.G.

Some characteristics of upper Callovian sediments in the Tuar-Kyr region. Trudy VSEGEI 46:101-105 '61. (MIRA 14:11)
(Tuar Kyr region--Geology, Stratigraphic)

AMANNIYAZOV, K.; PROZOROVSKAYA, Ye.L.; PIRYATINSKIY, B.G.

Upper Jurassic sediments in the Kyzylkyr boundary (Tuar-kyr region). Trudy VSEGEI 46:106-107 '61. (MIRA 14:11)
(Tuar-Kyr region--Geology, Stratigraphic)

the catalysates almost always three fractions developed: I phenol; II phenol mixed with ethyl phenol and p-vinyl phenol; III p-vinyl phenol with slight admixtures of ethyl phenol. Under the condition of selective cracking and of a high concentration of p-vinyl phenol, p-vinyl phenol crystallized from fraction III in the form of palish green lamina. The yield in fraction III and the conversion of dioxydiphenylethane into light products increased with a higher volume velocity of the dioxydiphenylethane solution. The authors describe some of the most successful experiments. After several processes of recrystallization of benzene, p-vinyl phenol crystals with a melting point of 71.5°-72° were obtained. Crude crystals dissolved easily in benzene, alcohol, and ether, and not so well in water. After left standing in the vacuum exsiccator, for a short time, the solubility was reduced due to polymerization. The crystals dissolved in lye turned the solution brown. An admixture of p-vinyl phenol to concentrated H_2SO_4 gave it a vividly red color. An admixture of a ferric chloride solution to the aqueous solution of p-vinyl phenol gave it a brownish green color. In the dark, p-vinyl phenol rapidly polymerizes into an insoluble white resin. In a protective gas however, it keeps up to 50 hours and more. By cracking dioxydimethylethane (ethylidene-di-o-cresol) in acetic acid benzene the following substances were obtained: o-cresol, 4-ethyl-o-cresol ... vinyl

The Production of Vinyl Phenols by the Catalytic Cracking of Some Dioxydiarylalkanes

S/020/60/…
B011/B0…

cresol. The latter is a white, crystalline substance with a melting point … 73 - 74°. It is soluble in ordinary solvents, and under the action of … forms into a sticky resin from which after treatment with benzene the … of 4-vinyl-o-cresol precipitates in the form of an indissoluble white powder. Dioxydiphenylpropane (diphenylolpropane) was obtained from a commercial product supplied by GIPI-4 (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut-4, State Design and Planning Scientific Research Institute …) by distillation and recrystallization. Cracking was the same as above, but was conducted in acetone-benzene. White, scale-like crystals of p-isopropenyl phenol with a melting point of 83 - 5° was obtained from the catalysate. Exposed to air they transformed into a red resin difficultly soluble in organic solvents. There are … figure and 7 references, 2 of which are Soviet.

ASSOCIATION: Institut neftekhimicheskoy i gazovoy promyshlennosti im. I. M. Gubkina (Institute of Petroleum-chemical and Gas Industry imeni I. M. Gubkin)

PRESENTED: November 5, 1959, by A. V. Topchiyev, Academician

SUBMITTED: November 5, 1959

Card 3/3

24016
S/080/61/034/006/010/
D247/D305

5 3400

AUTHORS: Vayser, V.L., Ryabov, V.D., and, Piryatinskiy, P.M.

TITLE: The condensation of acetylene and phenol in the presence of cation exchange resin KU-2

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 6, 1961, 1380 - 1381

TEXT: The aim was to discover more effective methods of synthesizing 4.4'dioxydiphenylethane (diphenol) using catalysts containing a mercury salt. Cationite KU-2 was chosen. Diphenol which is of great use in the synthesis of high molecular compounds is formed from the condensation of acetylene and phenol in aqueous and alcoholic solution in the presence of various acidic catalysts and mercuric oxide. The best catalyst was $H_3PO_4 \cdot BF_3$. Commercial cationite was treated with hydrochloric acid, washed with water, treated with an alcoholic solution of mercury salt, and dried. 1-2 % by weight of mercury salt was adsorbed on the surface of the

Card 1/3

catalyst. The experiments were carried out in a three-necked flask provided with a stirring rod, a reflux condenser, mercury seal and glass funnel for the addition of acetylene. Cationite ... g, phenol (30 g) were placed in the flask and, at a temperature of ..., acetylene was run in for 4 hours at the rate of 5 liters an hour. When the reaction was over the flask contents were vacuum-filtered to separate the catalyst, the latter washed with a small quantity of phenol and used again. The reaction products were distilled under pressure, the fraction of 4.4'dioxydiphenylethane collected at 210-220° and 8 mm Hg. A series of tests was done to study the variation in catalyst activity with time. Acetylene and phenol were condensed also in aqueous solution at 90°C, other conditions remaining constant. 4.4'dioxydiphenylethane was obtained and it was shown that in this case acetaldehyde was formed at an intermediate stage. The advantages of KU-2, activated by mercury salts, as catalyst in this reaction, are as follows: It avoids neutralization of the reaction product, it is active for a long time and easily separable, though the yield of diphenol is considerably lower than

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The condensation of ...

when using $H_3PO_4 \cdot BF_3$. Conclusions: Acetylene condenses with phenol in the presence of cationite KU-2, activated by mercury salts, at 90-100° forming 4,4'-dioxydiphenylethane (yield [illegible]); the catalyst is active [illegible] more than [illegible] hours, its activity rising to a constant level; in the presence of water, acetaldehyde is an intermediate product. There are 1 figure and 3 Soviet-bloc references.

SUBMITTED: April 16, 1960

Card [illegible]

PIRYATINSKIY, I. L.

27152. PIRYATINSKIY, I. L. SHVARTSMAN, I. SH. Proizvodstvo i sluzhba stalerazlivochnykh probok na zavodakh urala i vostoka. Ogneupory, 1949 No. 8, s. 340-45.

So: Letopis' Zhurnal'nykh Statey, Vol. 36, 1949

PIRYATINSKIJ, I. L.

Manufacture and service of steel-pouring plugs in the Urals and the east. I. L. Piryatinskii and I. [illegible] Shvartsman. *Ogneupory*, 14 (8) 349 [illegible] (1949). Details are given on the production of plugs in various refractory and metallurgical works in the Urals and in the eastern part of the Soviet Union and on their service in [illegible] [illegible] 130 [illegible]. Results show that the spherical portion of [illegible] greatest wear and deformation. B. Z. K.

[illegible]YATINSKIY, I. L. [illegible]

"The type of breaks in [illegible] articles"

Ogneupory, No. [illegible], [illegible]

PIRYATINSKIY, I. L. Engr.

"Production and service of steel pouring plugs in the plants of the Urals and the East"

Ohneupory, No. [illegible], 1949

[illegible], I. L. Engr.

"Production and service [illegible] pouring ladle [illegible]".

Ogne[illegible]ry, No. [illegible], [illegible]

Characteristics of spalling cracks in silica bricks. I. L. Piryaslie-vhi and I. S. Schwartsman (Ogneupory, 1948, 13, 211; Brit. Abstr., 1949, [illegible]).—Straight spalling cracks do not always appear on the surface and may penetrate into the body of the brick; cracks in the form of a network penetrate less deeply (8—15 mm.). The depth of a crack increases with its width, but depth and width are not directly related. An increase in width from 0·1 to 0·8 mm. corresponds with an increase of 50% in the sp. area of the spalled fragments; a proportionately greater increase in area of the latter results from an increase in length of crack. Comparison of cracks in various types of refractories showed that the greatest no. of straight spalling cracks occur in SiO_2 bricks for electric and open-hearth furnaces and the smallest no. in chrome-magnesite bricks. SiO_2 bricks for electric furnaces have the highest proportion of cracks in network form; such cracks are almost absent in magnesite bricks. Cracks in SiO_2 and fireclay ware are approx. of the same length but much longer than those in magnesite and chrome-magnesite ware. The no. and width of cracks of the straight and network types in SiO_2 brick increase as the d of the brick decreases. The method of determining the depth of flaws and spalling cracks by cutting a cross-section through a brick is applicable to SiO_2 bricks and in some cases to magnesite, but not to fireclay and chrome-magnesite products. BRIT. CERAM. RES. ASS. (C. J.)

5441. CHARACTERISTICS OF SPALLING CRACKS IN SILICA BRICKS. Piryatinski, I. L. and Schwartsman, I. S. (Ogneupory, 1948, vol. 13, 211).

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The Characteristics of Spalling Cracks in Silica Bricks. I. I. Piryatinski and I. S. Schwartzmann (Ogneupory, 1948, vol. 13, p. 211; British Ceramic Abstracts, 1949, Mar., p. 99A).

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

26

The composition of turpentine from the exudations of the Siberian cedar Pinus cembra. I. I. Bardyshev, A. Pirjatinskii, K. V. Bardysheva, and O. Chernaveva. J. Applied Chem. U.S.S.R. 23, 011-3(1950)(Engl. translation).—See C.A. 44, 10476. R. M. S.

1952

CA

Composition of native turpentines from the common pine. I. I. Bardyshev, A. L. Piryatinskii, K. V. Bardysheva, and O. I. Chernyaeva. *Zhur. Priklad. Khim.* (J. Applied Chem.) 23, 203-10(1950).—The terpene portion of com. samples of turpentines: retort, furnace, extn., and sulfate types, was qualitatively analogous to the oleoresin turpentine and contained: α-pinene, β-pinene, δ-terpene, Δ^3-carene, limonene, dipentene, and terpinolene. The results secured by extensive fractionations showed only minor variations of the amts. of components, principally as follows: limonene-dipentene mixt. 13-17% in retort turpentine, 10% in furnace variety, 7% in extn. variety, and 3% in sulfate variety. The alc. content, calcd. as $C_{10}H_{17}OH$, was: 5.7, 30, 5.5, and 3.7%, resp.

O. M. Kosolapoff

(A 26

The composition of native turpentines from the common pine. I. I. Bardyshev, A. L. Pertsovskii, K. V. Bardysheva and O. I. Chernyaeva. *J. Applied Chem. U.S.S.R.* 23, 209-16(1950) (Engl. translation). See C. A. 44, 10347a. B. L. M.

CA

26

Properties and composition of turpentine from the rosin of *Pinus silvestris* I. I. Bardyshev, A. L. Pryatuiskii, and K. V. Bardysheva. *Doklady Akad. Nauk S.S.S.R.* 73, 75-7(1950); cf. *C.A.* 45, 1780g.—Exams. of 100 specimens of the turpentine showed variations as follows: α_D −43.1 to +31.46°, d_4^{20} 0.8500-0.9040, n_D^{20} 1.4661-1.4722. All contained α-pinene (31-87%), while β-pinene varied from 0 to 6%, *d*-terpene from 1 to 1%, Δ³-carene from 0 to 51%. High α-pinene went along with β-pinene and lack of carene. M. K.

CA

Composition of a representative commercial sample of dry-distillation furnace turpentine I. I. Bardyshev, A. L. Pryatinskii, K. V. Bardysheva, and O. I. Chernyaeva. *Zhur. Priklad. Khim.* (J. Applied Chem.) 23, 552-6(1950).—Fractional distn. and Raman analysis of the fractions of a sample representatively taken from com. furnace turpentine gave the following compn.: 50% *d-α-pinene*, 7.6% *l-β-pinene*, 6.6% *d-terpene*, 16.4% *d-Δ³-carene*, 9.7% mixed *dipentene* and *l-limonene*, 1.0% *terpinolene* and 6.6% high-boiling substances, principally *terpene alcs.* The top fraction consists largely of products of dry distn. of wood; no α-pyronene was found in it. The turpentine is qualitatively identical with turpentines made by other procedures from the same starting material (common pine). G. M. Kosolapoff

A rapid analytical method for turpentine N. V. Tukhovitskii, A. I. Piryatinskii and G. D. Atamanchukov *Lesokhim. Prom.* 3, No. 2, 6-8 (1940).—Description of a combined extn.-distn. lab. app. A. A. P.

METALLURGICAL LITERATURE CLASSIFICATION

Presence of β-pinene in turpentine oils from common pine. I. I. Bardyshev, A. I. Puyatinskii, K. A. Bardysheva, and O. I. Chernyaeva. *Zhur. Priklad. Khim.* (J. Applied Chem.) 20, 1308-19(1947). – Extensive fractionation of 6 kg. samples of turpentine from the Barnaul turpentine plant showed that a typical material contain d-α-pinene 62.68, l-β-pinene 6.30, d-Δ^3-carene 21.82, [illegible] of l-limonene and dipentene 3.73, d-rotating component 2.71, and higher boiling components 2.7[illegible]. The carene isolated is not uniform in properties. Typical starting material had n_D^{20} 1.4691, d_4^{20} 0.8604, [α]$_D^{20}$ 14.1 [illegible] The distn. curves and tabulations of fractions are given. The properties of the pure substances obtained were: d-α-pinene, b_{760} 155.5-.5°, n_D^{20} 1.4657, d_4^{20} 0.8585, [illegible] 24.81 [illegible] 25.0 [illegible] 45.90 [illegible] nitro[illegible] [illegible] l-β-pinene, b_{760} 163.5-4 [illegible] 15.71 [illegible] 18.2 [illegible] d_4^{20} 0.8694 [illegible] pinonic acid from this, m. 120.5 [illegible] semicarbazone, m. 190.5-7.5 [illegible] The best carene sample b. 169.5-70.5°, n_D^{20} 1.4722, d_4^{20} 0.8605 [illegible] 12.5 [illegible] 10.1 [illegible] 20.0 [illegible] nitrosate, m. [illegible] The d-rotating component (see above), b. [illegible] n_D^{20} 1.4678, d_4^{20} 0.8535 [illegible] 2.45°, [illegible] 3.84°, [illegible] 0.02 [illegible] its nature is not known. The compn. of the sample after fractionation, was detd. by the dispersion method of Darmois. It is believed that the failure of the earlier Russian workers to isolate β-pinene was caused by the use of insufficiently effective fractionating apparatus.

G. M. Kosolapoff

METALLURGICAL LITERATURE CLASSIFICATION

Resinous substances from spruce waste. A. I. Piryatinskii and N. V. Tukhovitskii. Russ. 42,2[illegible], March 31, 1935. The resinous substances are extd. by wood-tar distn. products obtained from deciduous trees.

CH

Presence of Δ^3-carene in the turpentine of the common spruce Picea excelsa. [illegible] Applied Chem. [illegible] 23 [illegible] (Engl. translation) [illegible] 44 [illegible] The properties and compn. of two samples of spruce turpentine were detd. Turpentine distd. from spruce gum contains, in the portion distg. up to 200°, 48% *l*-α-pinene (I) (nitrosochloride m. 102-1°), 17% *l*-β-pinene (converted to nopinic acid m. 125-6°), 4% *d*-Δ^3-carene (nitrosate m. 147°), 18% of a mixt. of dipentene (tetrabromide m. 125-6°) and limonene, and higher-boiling constituents. Turpentine obtained from relatively fresh spruce galipot contains I 46, *l*-β-pinene 35, *d*-Δ^3-carene [illegible] 170-170.7° nitrosate m. 147°, 10% of a mixt. of dipentene and *l*-limonene, and higher boiling constituents. The optical activity of I in the first sample was much lower than that of I in the second, which is a relatively fresh sample. Richard L. Akawie

CM

2

Characteristics of spruce rosin. A. I. Dryatinskii. *Les. Prom.* 5, No. 2, 17 [illegible] Rosin has acid no. [illegible], unsaponifiable substances 11.4, substances insol. in [illegible] ether [illegible], softening temp. [illegible], ash [illegible] in alc. [illegible] $\rightarrow$ 1.805 [illegible] it is dark red. Sixteen references. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Varnish resins. A. I. [illegible] [illegible] USSR 60,881 [illegible] [illegible] esterification of colophony [illegible] The resins are obtained by esterification [illegible] colophony [illegible] in [illegible] steps. First colophony is [illegible] with pentaerythritol taken in a quantity [illegible] less than is required for complete esterification. In the next step the esterification is finished with [illegible] taken in a quantity equiv. to the withheld pentaerythritol. Resins thus obtained have a higher m.p. and are more moisture resistant than the resins obtained when only pentaerythritol is used. M. Hosch

METALLURGICAL LITERATURE CLASSIFICATION

Treating crude rosin. A. L. P[illegible], S. V. [illegible], R. G. Rybkovskii and M. B. Bedin. Russ. 57,123, May 31, 1940. Crude rosin is heated with [illegible] phosphate

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020006-4"

—Treating crude resin. A. L. Pugatsuchel, N. V. Tukhovitskii and F. G. Bykhovskii. Russ. 57,131, May 31, 1940. Addn. to Russ. 57,125 (preceding abstract). The method of Russ. 57,125 is modified in that an aq. ext. of sugar ... sulfate is used.

METALLURGICAL LITERATURE CLASSIFICATION

Application of the Darmois method to analysis of native turpentines. I. Constancy of Biot's law. [illegible] ... 21 ... 1948 ... [illegible]

METALLURGICAL LITERATURE CLASSIFICATION

Crude turpentine obtained from stumps A. I. Puryatinskii and B. A. Segedin. *Lesokhim. Prom.* 2, No. 2, 47-9(1933). The crude turpentine is characterized by the presence of heavy ends (pine oil), composed mainly of terpene alcs., which are used as flotation agents, solvents and disinfectants. It has the following characteristics: sp. gr. 0.8732, Br no. 172, n_D^{20} 1.4736, b. p. 153-180° (residue b. >180°, 19%), alcs. 9.61% (calcd. as $C_{10}H_{18}O$), esters 0.44% (calcd. as $C_{10}H_{17}OCOCH_3$). In a steam distn. in the lab., 16 fractions were sepd. The distillates can be classified into 2 groups. The first group is characterized by its lower sp. gr. (0.8617-0.8822), low alc. content and high content of terpene hydrocarbons. The 2nd group is a straw-yellow liquid of a higher sp. gr. (0.8832-0.9067) and has a high content of alcs. (up to 40%) and a considerably higher *n*. The first 6 fractions constitute a high grade turpentine with a high content of pinene fraction. The 7-11 fractions can be classified as a 2nd-grade turpentine which can be used as a solvent in the varnish industry. The intermediate (12th) fraction can be recycled together with a new charge, while the higher fractions (about 13.5%) can be used as the stock in the prepn. of high-grade pine oils. The residue (about 4.5%) is a viscous, heavy substance that may find application in the rubber industry. A. A. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Crude turpentine obtained from stumps A. I. [illegible] and I. A. Segelin [illegible] 4, [illegible] The crude turpentine is characterized by the presence of heavy ends (pine oil), composed mainly of terpene alcs., which are used as flotation agents, solvents and disinfectants. It has the following characteristics: sp. gr. [illegible] [illegible] 15 fractions were sepd. The distillates can be classified into 2 groups. The first group is characterized by its lower sp. gr. [illegible], low alc. content and high content of terpene hydrocarbons. The 2nd group is a straw yellow liquid of a higher sp. gr. [illegible] and has a high content of alcs. [illegible] 40%, and a considerably higher [illegible]. The first 6 fractions constitute a high grade turpentine with a high content of pinene fraction. The 7-11 fractions can be classified as a 2nd grade turpentine which can be used as a solvent in the varnish industry. The intermediate 12th fraction can be recycled together with a new charge, while the higher fractions (about 13.5%) can be used as the stock in the prepn. of high grade pine oils. The residue (about 4.5%) is a viscous, heavy substance that may find application in the rubber industry. A. A. B.

Ca

222

Creosote from tar obtained as residue in the rectification of "black" acetic acid in the Vilesov experimental extraction plant A. I. Pivvatinskii and I. F. Sanenkov. *Lesokhim. Prom.* 1, No. 3-4, 21-3(1932). A dil. AcOH soln. (cf. Nasakin, C. A. 23, 4077) was steam distd. and the distillate contg. AcOH as well as resins and higher boiling fractions was investigated. The fractions b. 110-200° obtained from the residue by distn. (54% of the residue) had a sp. gr. of 1.05 and acidity of 14.78% (calcd. as AcOH). They were used in the prepn. of creosote. This distillate was redistd. into 2 fractions, the first fraction having an acidity of 17.81%, and a b. p. of up 180° while the second fraction had a b. p. of 180-240°. The latter was treated with a 10% soln. of calcined soda for the removal of free acids and the oil obtained was treated with a 8-10% soln. of caustic soda (an excess is used). The phenolates sepd. from a small layer of oil were heated with open steam for the removal of substances which did not combine with the alkali. The cooled soln. of phenolates was acidified with a 30% H_2SO_4 to a clear acid reaction and the floating oil (phenols) was sepd. from the H_2O layer contg. water-sol. phenols (which were sepd. by salting out and were added to the basic portion). The phenols were neutralized with a 5% calcined soda soln. and washed with water. The pure phenols were distd. into 2 fractions and a residue boiling above 240°. The yield of the fraction b. 180-240° amounted to 9.80% of the resins and produced a clear soln. when 1 cc. was mixed with 2.5 cc. of a 15% NaOH soln. which could be diluted to 50 cc. before the appearance of turbidity. The heavy fraction b. 200-220°, conforming with the requirements of the U. S. S. R. Pharm. and obtained in the distn. of the purified phenols, was treated with a 10% soln. of NaOH (with slight excess) and blown with steam till transparent and treated in the same manner as the low boiling fraction. The liquid was then distd. into 4 fractions and the combined first 3 fractions b. 198-220° were treated with chromic acid mixt., left standing overnight and redistd. The second fraction b. 200-220°, which amounted to 3.90% of the resin, was an oily substance with a high n, a slightly yellow color and a sp. gr. of 1.080, yielding 96.5% with a b. p. of 200-220° on redistn. by Engler-Ubbelohde. It passed all tests prescribed by the U. S. S. R. Pharm. except that for the presence of coal tar phenols. A. A. B.

A.S.D-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

CA

22

Creosote from tar obtained as residue in the rectification of "bloch" acetic acid in the Vilesov experimental extraction plant A. I. Piryatinskii and I. F. Sanenkov. *Lesokhim. Prom.* 1, No. 3-4, 21 (1932). A dil. AcOH soln. (cf. Nasakin, C. A. 23, 4077) was steam distd. and the distillate contg. AcOH as well as resins and higher boiling fractions was investigated. The fractions b. 110-200° obtained from the residue by distn. (54% of the residue) had a sp. gr. of 1.07 and acidity of 14.70% (calcd. as AcOH). They were used in the sepn. of creosote. This distillate was redistd. into 2 fractions, the first fraction having an acidity of 17.81%, and a b. p. of 100-180° while the second fraction had a b. p. of 180-240°. The latter was treated with a 10% soln. of calcined soda for the removal of free acids and the oil obtained was treated with a 8-10% soln. of caustic soda (an excess is used). The phenolates sepd. from a small layer of oil were heated with open steam for the removal of substances which did not combine with the alkali. The cooled soln. of phenolates was acidified with a 30% H_2SO_4 to a clear acid reaction and the floating oil (phenols) was sepd. from the H_2O layer contg. water-sol. phenols which were sepd. by salting out and were added to the basic portion. The phenols were neutralized with a 5% calcined soda soln. and washed with water. The pure phenols were distd. into 2 fractions and a residue boiling above 240°. The yield of the fraction b. 180-240° amounted to 9.26% of the resins and produced a clear soln. when 1 cc. was mixed with 2.5 cc. of a 15% NaOH soln. which could be diluted to 50 cc. before the appearance of turbidity. The heavy fraction b. 200-220°, conforming with the requirements of the U. S. S. R. Pharm. and obtained in the distn. of the purified phenols, was treated with a 10% soln. of NaOH (with slight excess) and blown with steam till transparent and treated in the same manner as the low boiling fraction. The liquid was then distd. into 4 fractions and the combined first 3 fractions (b. 190-220°) were treated with chromic acid mixt., left stand overnight and redistd. The second fraction (b. 200-220°), which amounted to 3.86% of the resin, was a oily substance with a high n, a slightly yellow color, a sp. gr. of 1.090 yielding 90.5% with a b. p. of 200-220° on redistn. by Engler-Ubbelohde. It passed all tests prescribed by the U. S. S. R. Pharm. except that for the presence of coal tar phenols. A. A. B.

Some methods for improvement of rosin and for conversion to other products [illegible] — 1939 [illegible] *Khim. Referat.* [illegible] 1939 [illegible]

122. A review of new developments in the oxidation and hydrogenation of rosin, the origin of condensation and polymerization products and of rosin oils. Hydrogenation of rosin improves its properties, mainly the stability. Condensation products are formed with formaldehyde, maleic anhydride, etc. Rosin can be polymerized by means of H_2SO_4. Rosin oils are formed by thermal decompn. of rosin with or without catalysts.

W. R. Henn

~2

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Recovery of rosin from crude resins. A. I. Piryatinskii and N. A. Lukhovitskii. Russ. 58,580, Dec. 31, 1940. The crude resin is extd. with neutral tar oils, oxidized with air and the product of oxidation is extd. with petroleum fractions to sep. unoxidized rosin.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

Manufacture and service of steel-pouring plugs in the Urals and the east. I. L. Piryatinskii and I. Sh. Shvartsman. *Ogneupory*, 14 [8] 340–45 (1949).—Details are given on the production of plugs in various refractory and metallurgical works in the Urals and in the eastern part of the Soviet Union and on their service in 60-, 80-, 130-, and 180-ton ladles. Results show that the spherical portion of the plug is subject to greatest wear and deformation. B. Z. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

The character of the surface cracks on Dinas products
I. L. Piryatinskii and I. Sh. Shvartsman *Ogneupory* 13,
211-16(1948); *Chem. Zentr.* (*Russian Zone Ed.*) 1949, I,
1155.—Straight cracks may penetrate deeply. Network
cracks, however, are usually less deep. While depth in-
creases with width there is no direct relation. Electrodinas
and open-hearth Dinas showed the greatest no. of straight
cracks; chrome-magnesite brick showed less. Electrodinas
showed the greatest network crazing; magnesite products
showed almost none. The length of the cracks was almost
the same in Dinas and grog products; the cracks were
shorter in magnesite and chrome-magnesite products. With
decreasing d. of the Dinas products, the no. of both straight
and network cracks and their width increased.
M. G. Moore

Turpentine, rosin and high melting resin from pine or fir waste. A. I. Piryatinskii and N. V. Lukhovitskii. Russ. 52,468, Jan. 31, 1938. The waste is extd. first with light petroleum fractions and then with light and neutral tar oils.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020006-4"

PROCESSES AND PROPERTIES INDEX

Composition of turpentine from oleoresin of Siberian cedar (Pinus cembra, L.) [illegible], K. Iordyshova, and [illegible] (J. appl. Chem. U.S.S.R., [illegible]). The turpentine separated from the oleoresin obtained by tapping of Siberian cedar [illegible] had the following physical constants [illegible] 1·47[illegible], [α] + [illegible], and consisted of: α-pinene, β-pinene, the mixture of limonene and dipentene, Δ-carene, and the residue. The composition of this turpentine does not differ from that obtained from the common pine and it may be used for the same purposes. J. H. J. [illegible]

METALLURGICAL LITERATURE CLASSIFICATION

Be

2

7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

Composition of natural turpentine from the common pine. I. I. [illegible]ardyshev, A. L. Pryanishnikov, K. V. [illegible], and O. I. Chernyaeva (J. Appl. Chem. USSR, 1950, 23, [illegible]—210).—The various [illegible] commercial turpentine from the common [illegible] hydrocarbons of the same qualitative composition, [illegible] containing α- and β-pinene, D-terpene, Δ^3-carene, [illegible], dipentene, and terpinolene. Component ratios and physical data are tabulated. G. S. Smith

METALLURGICAL LITERATURE CLASSIFICATION

2585. Application of the Darmois method to analysis of Soviet turpentines. I. Constancy of the ratio $(\alpha_A - \alpha_M)/(\alpha_M - \alpha_B)$. I. I. Bardyshev and A. L. Pryanishnikov (*J. appl. Chem. USSR*, 1948, **21**, 1174–1179).—Darmois formula, $x = (\alpha_M - \alpha_B)/(\alpha_A - \alpha_B)$, where x is the percentage content of one constituent of a binary terpene mixture, and α_A, α_B, and α_M are the sp. rotations of the individual constituents and of the mixture, respectively, is applicable to binary, but not ternary, mixtures of Δ^3-carene and D- a- and L- β-pinene. R. Truscoe [illegible] SH[illegible] [illegible]

[illegible]

Proizvodstvo i sluzhba [illegible] [illegible]
[illegible] S [illegible]

[illegible] IS [illegible]

Presence of Δ^3-carene in the turpentine from common spruce (Picea excelsa, Lk.). I. I. Bardyshev, A. Pertsovsky, K. Bardysheva, and O. Cherysova (*J. appl. Chem., USSR*, 1960, 33, 847—852) —Two samples of turpentine were investigated. The first (I) was obtained (1·7 wt.-%) from spruce saint by steam-distillation. The second (II) was obtained (0·3%) from resin which stayed on the wood for a year. In I the fractions distilling up to 210° contain L-α-pinene (~48), L-β-pinene, (17) D-Δ^3-carene (4) a mixture of dipentene and limonene (10%), and some substances with high b.p. whose nature has not been investigated. II consists of L-α-pinene (40), L-β-pinene (20), D-Δ^3-carene (10), a mixture of dipentene and L-limonene (10%), and some substances with high b.p. whose nature has not been established. Therefore the ratio of components in the turpentine obtained from spruce saint changes with the time it remains on the tree or in storage, but the qual. composition of hydrocarbons does not change. I. B. J. Zaba.

PIRYATINSKIY, L.B.

Modifications of general immunological reactivity under arctic conditions at various seasons. Zhur.mikrobiol.epid. i immun. 28 no.3:65-66 Mr '56. (MLRA 10:6)

(CLIMATE,
immunol. reactions in arctic cond. during various seasons (Rus))
(IMMUNOLOGY,
same)

"The Problem of Changes in General Immunological Reactivity in Polar Regions at Different Periods of the Year," by L. B. Piryatinskiy, Zhurnal Mikrobiologii, Epidemiology, i Immunobiologii, No 3, Mar 57, pp 75-6

The author reports on experiments on 321 healthy young persons regarding the resistance of the human organism to disease in the polar regions where, according to a number of physicians who have worked in northern latitudes, certain diseases have specific characteristics. The young people were divided into three groups, one of which was tested during the polar night, the other during the polar day, and the third during both the polar night and the polar day. The tests consisted of injecting intracutaneously one ml of a 1 100 dilution of "so-called antihuman serum" furnished by the Microbiological Department of the Institute of Experimental Medicine, Academy of Medical Sciences USSR. Normal rabbit serum was used as control.

Two tables are included in the article showing the following: for group 1, during the polar night immunological reactivity was lowered positive reactivity was twice that observed during the polar day (35.3 percent against 72.0 percent); for group 2, during the polar day the percentage of positive reactions was not as high as that observed by Ioffe and co-workers, who had found 95 percent positive reactions; and for group 3, during the polar night increased reactivity was found in 55 of the 80 people studied, no change was apparent in 22, and reactivity was lowered in 3 cases. (U)

PIRYAZEV, D.I.

Investigating contact friction forces in the center of deformation in rolling. Izv. vys. ucheb. zav.; chern. met. 7 no.1:100-106 '64. (MIRA 17:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov.

[illegible] KNYAZEV, [illegible] [illegible]CHEK, [illegible]

[illegible] conditions [illegible] mills at the [illegible]
[illegible]. Sb. trud. TsNIIM [illegible] '64 (M[illegible])

DOLZHENKOV, F.Ye.; KRIVONOSOV, Yu.I.; PIRYAZEV, D.I.; VOLCHEK, F.R.; BAT', Yu.I.

Production of bimetals by the vacuum rolling method. Met. i gornorud. prom. no.3:34-35 My-Je '64. (MIRA 17:10)

ACC NR AR6009956 SOURCE CODE: UR/0137/65/000/012/D...

AUTHOR: Dolzhenkov, F. Ye., Krivonosov, Yu. I., Piryazev, D. I., Bat', Yu. I., Vo... , F. R.

TITLE: Production of bimetal compounds by vacuum rolling

SOURCE: Ref. zh. Metallurgiya, Abs. 12D75

REF SOURCE: Sb. tr. Ukr. n.-i. in-t metallov, vyp. 11, 1965, 183-196

TOPIC TAGS: bimetal, metal rolling, titanium, low carbon steel

ABSTRACT: The optimal temperature for commencing the vacuum rolling (R) of ... bimetal is 1000°C. At higher temperatures liquid phase may form. It is ... R at 900°C, since a decrease in temperature leads to a sharp rise in spec... as well as to the occurrence of considerable internal stresses in the bimetal layers. ... content of steel adversely affects the cohesion to Ti, and hence it is desirable to use ... with a lower C content as the base-layer Me. Reduction in R temperature and increase ... duction of area contribute to the decrease of the transition zone of the steel-Ti bimetal. ... R of two-layer and sandwich packs with the P-plates positioned outermost, the diffe...

Card 1/2 UDC: 621.771.001

ACC NR. AR6009956

the deformation of layers increases with increase in reduction of area. As the thickness of the Ti layer decreases, its deformation resistance changes, and this leads to a change in the nonuniformity factor of the plastic deformation of the pack. The broadening of the contact surface of the pack is insignificant, reaching its maximum at the interface. The relation of specific pressure and torque to reduction in area, temperature, thickness ratio and other factors is investigated. 9 illustrations, 1 table. Bibliography of 6 titles. L. Kochenova. [Translation of abstract]

SUB CODE: 13, 11

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S/137/62/000/001/079/237
A060/A101

AUTHORS: Piryazev, I. I., Golubov, M. M., Dabagyan, I. P., Timofeyev, D. I., Meleshko, A. M., Kovynev, M. V.

TITLE: The roll separating force of the metal and the loading of the main motors in the course of rolling on the thick sheet mill 2800

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 4 - 5, abstract 1D21 ("Sb. tr. Ukr. n.-i. in-t metallov", 1961, no. 7, 165 - 177)

TEXT: The authors studied the power conditions for rolling at the thick-sheet mill 2800 of the Plant imeni Voroshilov. The mill is designed for rolling sheets with thickness 6 - 50 mm, width 2,500 - 2,600 mm. It consists of a stand with vertical rolls, a roughing two-high stand with working rolls 1,150 mm dia, a universal finishing four-high stand 800/1400. The stands are arranged in a sequence. The roll separating force of the metal in the roughing and the finishing stands was measured by means of force meters with wire tensometers. The force meters were welded to the pedestals of the working stands on the side of drive. The pulses from the tensometers were recorded by a magnetoelectric oscillograph ПОБ -14 (POB-14). A calculation of the forces from the torque was

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The roll separating force of...

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A060/A101

carried out to verify the values determined by the force meters. The mean pressures were calculated from the total forces obtained experimentally. Simultaneously with the measurement of the forces, the operation of the main drive motors was oscillographed. The oscillograms recorded the current, voltage, and the number of revolutions of the motors. The investigations have demonstrated that: 1) the separating force of the metal on the rolls of the four-high stand is, in all the cases investigated, below the admissible; 2) the closest agreement with the experimental data is given by the values of the mean pressures as calculated by the Golovin-Tyagunov method; 3) the main motors of the mill 2800 are not utilized to full capacity.

G. Grigoryan

[Abstracter's note: Complete translation]

Card 2/2

PAVLOV, I.M.; PIRYAZEV, D.I.

Axial stresses in the cold rolling of pipe. Trudy Inst. met. no.4:134-140 '60. (MIRA 14:5)
(Rolling (Metalwork))
(Pipe mills)

L 29809-66 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW
ACC NR: AP6020871 SOURCE CODE: UR/0383/66/000/001/0032/0034

AUTHOR: Piryazev, D. I. (Candidate of technical sciences); Khoroshilov, N. M.; Krivonosov, Yu. I.; Timofeyev, D. I.; Shul'ga, Ye. A.; Syts'ko, A. A.

ORG: none

TITLE: Variations in the thickness of clad sheet

SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 1, 1966, 32-34

TOPIC TAGS: metal cladding, sheet metal, metal rolling, metallurgic furnace, thermal conduction, steel/0Kh13 steel, Kh17N13M2T steel

ABSTRACT: The authors discuss the variations in thickness of two-layer steel caused by a combination of variations and nonuniformities in the thickness of the individual slabs which make up the pack. These variations may reach ±20% of the nominal value in individual cases. Variations in the thickness was determined for mass produced sheets with a cladding layer of Kh18N10T, Kh17N13M2T and 0Kh13 steel. The variations in thickness and deviations from nominal value were studied during rolling of bimetal sheet from packs weighing less than 5 tons (small packs) and from packs weighing 10-12 tons (large packs). Sheet rolled from large packs shows less variation in thickness than that rolled from small packets. This is because the large slabs were hot when they were fed into the continuous furnaces and were therefore heated more uniformly. However, completely uniform heating was impossible even in three-zone continuous furnaces. The following furnace conditions are recommended

UDC: 621.9-419.004

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L 29809-66

ACC NR: AP6020871

for reducing variations in the thickness of plates rolled on the 2800 mill. Temperature of upper and lower sections in the joining zone should be identical: 1300-1310°C; temperature of the soaking zone should be 1260-1270°C. Total heating time should be divided into 40% for preheat, 30% for joining and 30% for soaking. Experiments showed that planing the slabs on both sides reduced variations in thickness up to approximately 20%. The lubricating interlayer has a low thermal conductivity and impedes heat exchange between the upper and lower parts of the packet during heating which prevents temperature equalization. This causes variations in the thickness of the finished sheet. It was found that the absolute variation in thickness increases with the thickness of the sheets. The relative variations in thickness are approximately the same for sheets of all thicknesses with the exception of 16 mm sheets for which variations are somewhat lower. In 80% of the cases, deviations from the nominal thickness vary within limits from -10 to +12%. The following recommendations are given for reducing deviations from the nominal thickness using existing equipment: reducing variations in the thickness of initial slabs to ±2 mm by eliminating bending or by planing on both sides; increasing thickness of the upper slab in the pack by 7% as compared with the lower slab; heating the packets in continuous furnaces with equal temperatures for the upper and lower sections in the joining zone, a temperature of 1260°C in the soaking zone and holding in this zone for 30% of the total heating time. Taking part in the work of the article were TsNIIChM specialists L. V. Moandrov, V. A. Ustimenko, A. V. Tkachev and Kommunarskyy Metalurgical Plant specialists S. R. Sarkisyan and A. N. Nesmachnyy. Orig. art. has: 4 figures. [JPRS]

SUB CODE: 13, 11 / SUBM DATE: none

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7

PAVLOV, I.M.; PIRYAZEV, D.I.

Investigating complete pressure on rolls during the cold rolling of pipe. Trudy Inst. met no.4:141-149 '60. (MIRA 14:5)
(Rolling (Metalwork)
(Pipe mills)

S/137/61/000/011/024
A1937/183

AUTHORS: Pavlov, I. ..., and [illegible]ryazev, D.I.

TITLE: Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy. No. 4, 1960. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody i ...ledovaniya. pp. 141-149

TEXT: The object of the present inv... igation was to study the effect of various parameters of the rolling process on the pressure exerted on the rolls during cold reducing of tubes made of aluminium alloys Д-1 (D-1) and АМГ (AMG), brasses Л-62 (L-62) and Л-68 (L-68), German silver and copper. Mills ХПТ-32 (Kh.T-32) and ХПТ-1... (KhPT-1...), ХПТ-2... (KhPT-2...) and ХПТ-75 (KhPT-75) were used in the experiments, and the measurements were carried out with the aid of carbon pressure gauges accommodated in the housing of the rolls the electrical pulses generated by the gauges being recorded by a 14-loop oscillograph ПОБ-14 (POB-14). The long-term object of the investigation was to gather data that could be utilized for improvement of the roll

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Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

pass design developed at Kafedra prokatki Instituta stali (Mechanical Rolling Department of the Steel Institute). To this end, the passes in the rolls used in the present investigation were calculated from the formulae due to I. S. Pavlov et al. (Ref.3):

$$t_x = \frac{t_2}{\dots} \qquad (1)$$

and

$$t_x = \frac{t}{\dots} \qquad (2)$$

where: t_x - wall thickness (mm) at the given point of the pass;

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Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

t_z - wall thickness (mm) of the stock; $\mu_\varepsilon = t_z/t_{tp}$ - total reduction in the wall thickness; l - length (mm) of the reducing portion of the pass; x - the coordinate (distance from the wide end) of the given point of the pass (mm); n_1 and n_2 - constants (n_1 = 0.64, n_2 = 0.1). Formula (1) was used to design the roll passes for mills KhPT-2½" and KhPT-75, formula (2) having been used for the two other mills. Some of the results obtained during rolling of alloy AMG (mill KhPT-32) through a tapered pass 34 x 3 - 23 x 1.0 mm (elongation μ_o = 4.32, feed m = 8.0 mm), are reproduced in Fig.1, where the roll pressure P_Σ (kg, left-hand scale, lower curve) and the decrease Δt_x (mm, right-hand scale, upper curve) in the wall thickness are plotted against the distance x (mm), from the leading end of the pass. In Fig.2, P_Σ (kg) is plotted against the distance ℓ_p (mm) from the leading end of the pass, curves 1 and 2 relating respectively to the forward and reverse movement of the rolls of the mill KhPT-75, used for rolling alloy D-16 through a 4-zone pass 54 x 4 -

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E193/E183

Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

35 x 1.75 mm (m = 10 mm). In Fig.3, P_Σ (kg) during the forward movement of the rolls (mill KhPT-1½" used for rolling copper through a pass 40 x 2 - 27 x 0.8 mm) is plotted against feed m (mm), curves 1, 2 and 3 relating to rolling to attain elongation μ_o of 3.0, 3.9 and 5.6 respectively; the variation of P_Σ during the reverse movement under the same conditions is similarly illustrated in Fig.4. The effect of elongation, μ_o, is illustrated in Fig.5, where P_Σ during the forward movement of the rolls is plotted against μ_o, graphs (a) and (b) relating respectively to points at a distance of 99 and 140 mm from the leading end of the pass: the graphs were constructed for alloy D-1, rolled on mill KhPT-32 through a pass 34 x 3 - 25 x 1 mm (m = 7.9 mm). Fig.6 shows P_Σ (at x = 177 and 53 mm) as a function of the absolute deformation Δt (mm), the data having been obtained during rolling of alloy D-1 on mill KhPT-32 (μ_o = 4.13). Fig.7 shows P_Σ (at x = 201.5 and 59.5) as a function of the relative deformation $\Delta t/t$ x 100, the curves

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Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

having been constructed for copper rolled through a pass 32 x 3 - 20 x 1 mm (μ_o = 4.65). In Fig.8, P_Σ at x = 94.7 mm (curve 1) and x = 235.7 mm (curve 2) is plotted against the wall thickness t_z (mm) of the stock, this graph relates to brass L-62 rolled through a pass 38 x 3 - 25 x 1 mm (forward movement). The results reproduced in Fig.9, where P_Σ is plotted against the rolling speed n (reciprocal revs/min), relate to alloy AMG, rolled on mill KhPT-32, through a pass 29 x 3 - 18 x 0.8 mm (m = 7.8 mm). Finally, the results of lubricating tests are reproduced in Fig.10, where P_Σ is plotted against various types of lubricants used in the rolling of brass L-68 on mill KhPT-1½" through a pass 36 x 3 - 24 x 1 mm (μ_o 4.65, m = 8.3 mm), curves I and II relating to the forward and reverse movement respectively. The type of lubricant is shown as follows: open circles - oil/graphite mixture, full circles - solidol; full triangle - emulsol, full circle (on the extreme left) - mineral oil. The following conclusions were reached.

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Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

(1) Irrespective of the size of the mill and type of alloy rolled, more favourable distribution of the roll pressure along the pass is obtained if instead of a 4-zone pass a tapered pass calculated from the formulae (1) and (2) is used. Since the maximum roll pressure in a tapered pass is 1.5 times lower than that in a 4-zone pass, the introduction of the former in industrial practice should increase the output of the mill and improve the quality of the product. (2) A two-fold increase in the feed increases the roll pressure by a factor of 1.3-1.5. (3) In rolling tubes to the final wall thickness > 1.3 mm, the increase in the roll pressure due to increased feed is approximately the same as that due to increased elongation, when the final wall thickness is below 1.3 mm the effect of elongation becomes more pronounced. (4) Doubling the wall thickness of the stock increases the roll pressure by a factor of 1.2 during the forward movement, and by a factor of 1.3 during the reverse movement of the rolls. (5) Within the range of the rolling speeds studied
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Investigation of the Total Roll Pressure During Cold Rolling (Cold Reducing) of Tubes

(10-80 reciprocal revs/min), the roll pressure remains practically constant. (6) Best results (lowest roll pressure) are obtained when an oil/graphite mixture is used for lubrication. However, this lubricant is difficult to remove from the finished product, and the application of emulsol or solidol is recommended instead. There are 10 figures, 1 table and 4 Soviet references.

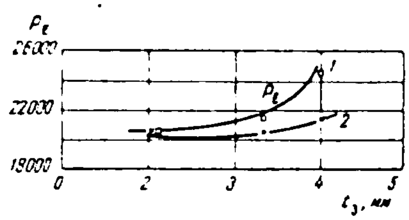

Fig.8

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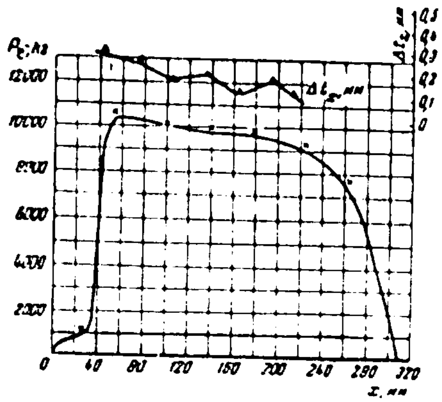

Fig. 1

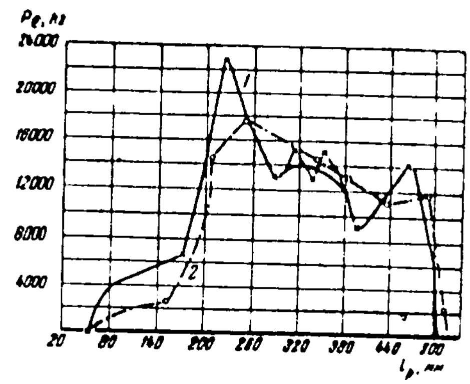

Fig. 2

Investigation of the Total Roll.. S/509/60/000/004/011/024
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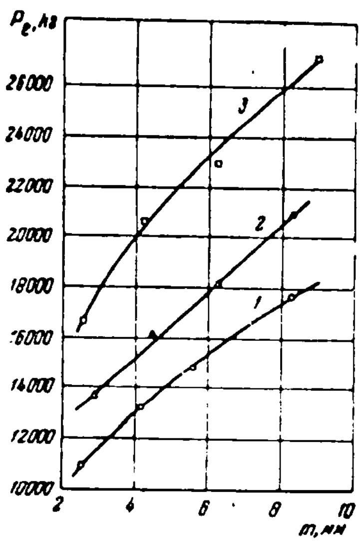

Fig. 3

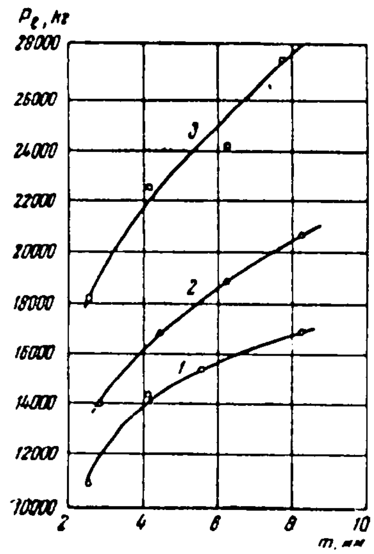

Fig. 4

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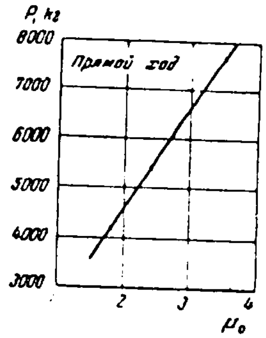
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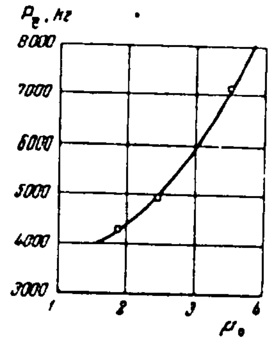
6000
5000
4000
3000
Прямой ход
2
3
4
μ₀


P₂, kг
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7000
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1
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Fig. 5 a б

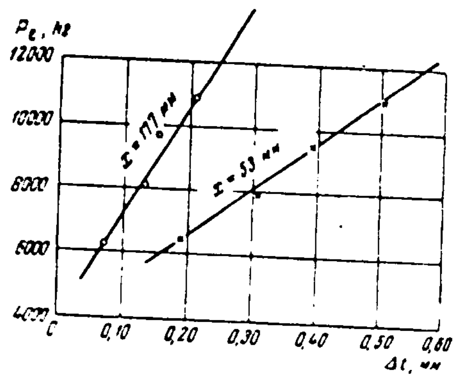

Рис. 6 Зависимость P_{Σ} от Δt

Fig. 6

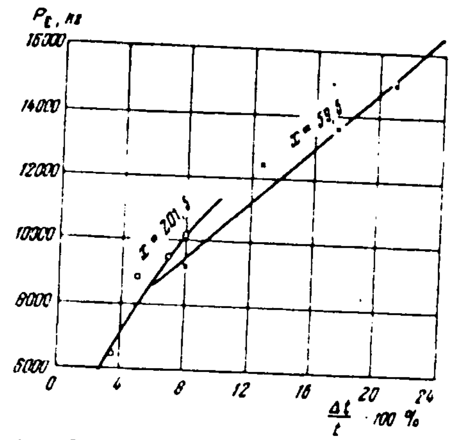

Рис 7. Зависимость P_{Σ} от $\Delta t \cdot 100$ при

Fig. 7

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Fig.9

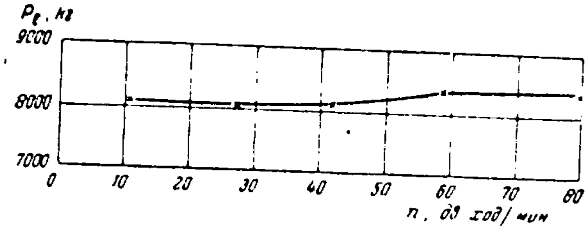

Fig.10

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[illegible]ZE[illegible], [illegible].I.

Distrib[illegible] [illegible] [illegible]
def[illegible]rmation during [illegible]lling. Sb. r. [illegible] [illegible] [illegible]
([illegible])

PAVLOV, I.M.; PIRYAZEV, D.I.

Unit pressure in the cold rolling of tubes. Trudy Inst. met. no.4:123-134 '60. (MIRA 14:6)

(Pipe mills)

AUTHOR: [illegible]

TITLE: Investigating metal pressure [illegible]

PERIODICAL: Referativnyy zhurnal, Metallurgiya [illegible] "Tr. Konferentsii. Tekhn. progress v tekhn. [illegible]"

TEXT: Metal pressure [illegible] was measured [illegible] sheets of various steel grades. Data given [illegible] the [illegible] Maximum [illegible] [illegible] kg/mm² [illegible] The admissible [illegible] kg/mm² [illegible] first few passes [illegible] pressure of metal [illegible] the permissible value [illegible] Metal pressure [illegible] The experimental [illegible] [illegible] data are in satisfactory agreement [illegible]

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[illegible]

Card 2/2

PIRYAZEV, D.I.; ALEKSANDROV, P.A.

Unit pressures in hot rolling and the analysis of formulas and methods for their determination. Trudy Ukr. nauch.-issl. inst. met. no.6:157-170 '60. (MIRA 14:3)
(Rolling (Metalwork))

PIRYAZEV, D.I., kand.tekhn.nauk; GOLUBOV, M.M., inzh.; DABAGYAN, I.P., inzh.; TIMOFEYEV, D.I., inzh.; MELESHKO, A.M., inzh.; KOVYNEV, M.V., inzh.; Prinimali uchastiye: VOLCHEK, F.R.; SOKOLOV, B.A.; KRIVONOSOV, Yu.I.

Metal pressure on rolls and loading of the main motors during the operation of 2800 plate rolling mills. Trudy Ukr. nauch.-issl. inst. met. no.7:165-176 '61. (MIRA 14:11)

(Rolling mills--Electric driving)

PIRYA?EV, D.I.

Investigation of sli;;ing, contact friction and forces in the deformation center. Trudy Ukr. nauch.-issl.inst. met. no.6:171-179 '60. (MIRA 14:3)

(Rolling mills)(Deformations(Mechanics))

S/509/60/000/004/010/024
E193/E183

AUTHORS: Pavlov, I.M., and Piryazev, D.I.

TITLE: Axial Loads in Cold Rolling (Cold Reducing) of Tubes

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No. 4, 1960. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya, pp.135-140.

TEXT: Many of the mechanical failures, encountered in the cold-reducing process (seizure of the stock, bending of the rod supporting the mandrel, excessive wear of various parts of the feeding mechanism) are caused by axial loads which, in addition, constitute a factor limiting the protective capacity of the mill. It was for these reasons that the present investigation, concerned with axial loads in rolling non-ferrous metals and alloys, was undertaken. The measurements were carried out on cold-reducing mills ХПТ-$1^{1}/_{2}$" (KhPT-$1^{1}/_{2}$") and ХПТ-$2^{1}/_{2}$" (KhPT-$2^{1}/_{2}$"), used for rolling copper and brass tubes. The axial loads, acting directly on stock, were measured with the aid of carbon pressure gauges, mounted in a special device attached to the end of the stock. In the case of mill KhPT-$1^{1}/2$, only the

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compressive loads were measured; the device used during rolling on mill KhPT-2 1/2" was designed to measure both compressive and tensile loads. A general view of this device is reproduced in Fig.1, which shows a cylinder (1) to which the stock (2) was rigidly attached, and flanges (3) and (4); the compressive loads were measured with the aid of three carbon gauges (5), similar gauges of the membrane type having been used to measure the tensile loads. The electric pulses generated by the gauges were recorded with the aid of a magneto-electric oscillograph ПОБ-14 (POB-14). In addition to the axial loads, the roll pressure was also determined. In the case of mill KhPT-1 1/2", the measurements were carried out during rolling of copper and brass tubes through six different passes. Mill KhPT-2 1/2" was used to study the variation of axial loads during rolling of brass tubes through a tapered pass (61 x 6 - 36 x 3 mm) and through a 4-zone pass (61 x 6 - 38 x 3 mm). Some of the typical results are reproduced graphically. In Fig.2, the roll pressure, P_{Σ} (kg, left-hand scale) is plotted against the distance, x (mm) from the leading

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end of the pass, curves 1 and 2 relating to the forward and reverse movements of the rolls respectively. Similarly, curves 3 (forward movement) and 4 (reverse movement) show the variation of the axial load, Q_{Σ} (kg, right-hand scale). The results, reproduced in Fig.2, relate to copper tubes rolled on mill KhPT-1½" through a pass 40 x 3 - 27 x 0.8 mm, the other rolling parameters being μ_o (elongation) = 3.9 and m (feed) = 8.3 mm. The results for brass Л-68 (L-68) rolled on mill KhPT-2 1/2" through a 4-zone pass 61 x 6 - 38 x 3.0 mm (μ_o = 2.9, m = 4 mm) are reproduced in the same manner in Fig.3, except that in this case P_{Σ} is given in tons. In Fig.4, the axial load Q_{Σ} (kg) is plotted against the distance x (mm) from the leading end of the pass, curves 1 and 2 relating respectively to the forward and reverse movement during rolling of brass L-68 through a tapered pass 61 x 6 - 36 x 3 mm (μ_o = 3.5, m = 4.0 mm). The combined effect of the variation of feed, m, and elongation, μ_o, on Q_{Σ} (kg) during rolling of copper (reverse movement) on mill KhPT-1 1/2", through a pass 40 x 2 - 27 x 0.8 mm, is plotted against m (mm), curves 1, 2 and

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3 relating to μ_o = 3.0, 3.9 and 5.6 respectively, see Fig.5). In Fig.6, Q_Σ (kg) during rolling of brass L-68 on mill KhPT-1$^1/_2$" through a pass 36 x 3 - 24 x 1 mm (μ_o = 3.9) is plotted against m (mm), curves 1 and 2 relating respectively to points at a distance of 154.7 mm from the leading end of the pass (forward movement) and 126.7 mm (reverse movement). In the final experiments, the effect of various lubricants on Q_Σ was studied. The results, obtained during rolling of brass L-68 on mill KhPT-1$^1/_2$" through a tapered pass 36 x 3 - 24 x 1 mm (μ_o = 3.9, m = 8.3 mm), are reproduced in Fig.7, showing the variation of Q_Σ due to change of the lubricant, curves 1 and 2 having been constructed for the forward and reverse movement of the rolls, and the experimental points relating to an oil/graphite mixture (open circles), solidol (full circles), emulsol (full triangles), and mineral oil (full squares). The main conclusions reached by the present authors can be summarised as follows. (1) In analogy to the roll pressure, the axial loads during cold reducing of tubes vary along the pass. The axial loads during the reverse movement are considerably higher

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than those during the forward movement rolls, constituting 8-10% of the roll pressure in the former, and only 2.5-6% in the latter case. If, therefore, seizure of the stock occurs, it probably takes place during the reverse movement of the rolls.
(2) Two-fold increase in the feed increases the axial loads 1.3-1.8 times; a similar increase in the wall thickness of the stock increases the axial loads by a factor of 2.3.
(3) Minimum axial loads are ensured by using an oil/graphite mixture for lubrication; mineral oil, used for this purpose, raises the magnitude of the axial loads to its maximum.
There are 7 figures, 2 tables and 2 references: 1 Soviet and 1 German.

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Axial Loads in Cold Rolling....

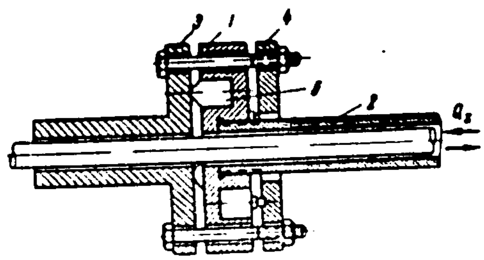

Fig. 1

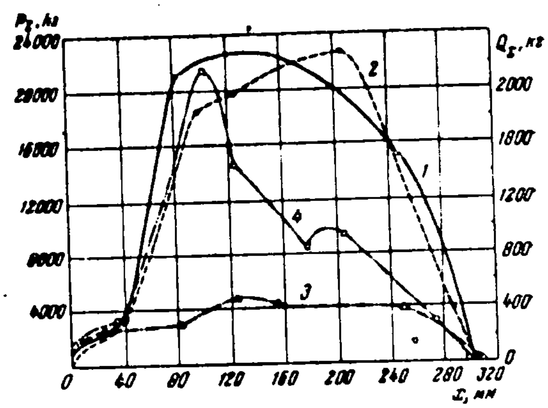

Fig. 2

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Axial Loads in Cold Rolling... S/509/60/000/004/010/024
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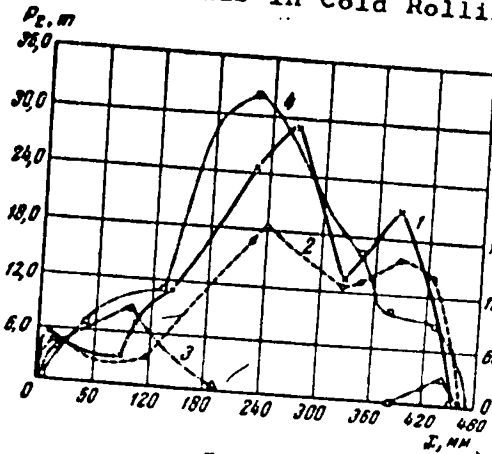

Fig. 3

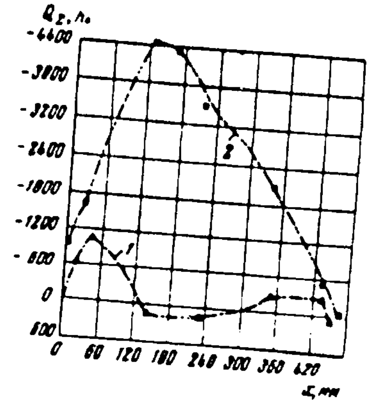

Fig. 4

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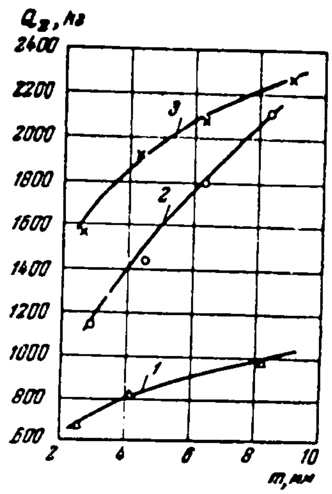

Fig. 5

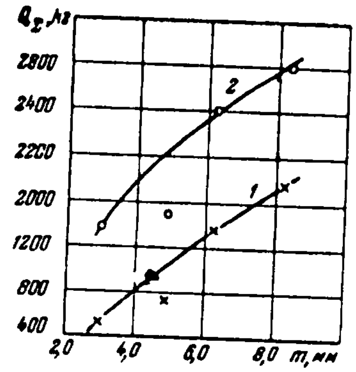

Fig. 6

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020006-4"

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Axial Loads in Cold Rolling (Cold Reducing) of Tubes

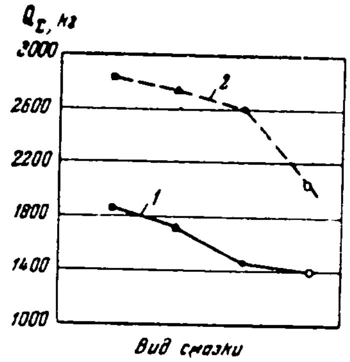

Fig. 7

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E193/E183

AUTHORS: Pavlov, I.M., and Piryazev, D.I.

TITLE: Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No.4, 1960. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya, pp 123-134

TEXT: Problems such as the determination of the roll pressure in tube rolling, roll pass design, and assessment of the degree of wear of various parts of the rolling mill, become easier to deal with if data on the magnitude and distribution of specific pressure are available and if it is known how these parameters are affected by other variables of the process. Since the only experimental data on this subject are those due to Yu.F. Shevakin (Ref.5) the investigation described in the present paper was undertaken in order to study the effect of feed, elongation, and the magnitude of absolute and relative deformation on the specific pressure and its distribution along both the deformation region (contact zone) and the roll pass (reducing

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

groove). In addition, the average magnitude of specific pressure was determined, and an attempt was made analytically to solve the problem of distribution of pressure in the deformation region. The measurements of the specific pressure were carried out under industrial conditions on a cold-reducing mill ХПТ-32 (KhPT-32). Specially designed rolls (300 mm in diameter) permitted direct determination of the pressure at six points of the pass with the aid of six carbon pressure gauges of the membrane type constructed by TsNIITMASh. Fig.1 shows the expanded pass with the location of the pressure gauges indicated by dots and their distance from the wide end of the pass given in mm. Each of the two semi-circular rolls accommodated three of these gauges in the manner shown in Fig 2. All gauges were located in the plane of the crown of the pass the problem of distribution of pressure across the groove being outside the scope of this investigation. The electrical pulses generated by the pressure gauges were recorded on a photographic film with the aid of a magneto-electric oscillograph ПОБ-14 (POB-14). The groove and the mandrel were

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

designed to give a pass which tapered from 34 x 3.0 to 23 x 1.0 mm. The pressure measurements were carried out during rolling of tubes of aluminium alloys АМГ (AMG), Д-1 (D-1) and Д-16 (D-16). The stock (33.2 outside diameter 3.0-3.2 mm wall thickness) was rolled to the following final sizes 23 x 0.75, 23 x 0.83, 23 x 1.0, 23 x 1.1, 23 x 1.5 and 23 x 1.75 mm. Both the roll grooves and inside walls of the tubes were lubricated with mineral oil. The magnitude of feed was determined from the number of reversals per 100 mm of the length of the stock rolled. Owing to the difficulties encountered in measuring the pressure at normal rolling speeds a speed of 10-12 reciprocal revs/min was used in the experiments. In addition to the specific pressure, the total roll pressure was measured with the aid of a gauge accommodated in the roll housing. Preliminary to experiments proper, a formula was derived for the critical angle, β, in the plane of the groove crown, and the values of this angle and of the contact angle θ_0, were calculated for various feeds, m. It was shown that at small m (e.g. m = 1.5 mm) $\beta < \theta_0$ for the entire length of the

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