APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

***The Solubility of Gold and Silver in Thioures.** I. N. Plaksin and M. A. Kozhukhova (*Compt. rend. (Doklady) Acad. Sci. U.R.S.S.*, 1941, **31**, 671–674; *C. Abs.*, 1943, **37**, 561). [In German.] The solubility of gold and silver in thiourea, in the absence and presence of other reagents, was investigated. The time allowed was 6 hrs. During this time gold did not dissolve in thiourea alone. In thiourea + 1% $H_2SO_4$ or + 0·06% $H_2O_2$ the solubility was slight (approx. 3%). Good results were obtained in a mixture of the three. Concentrations of thiourea of 0·3–2% were tried; the solubility increased with increasing concentration. The solutions of gold thus obtained remained clear for 30 hrs. After this, there appeared a cloudiness due to the liberation of sulphur. In consequence of the deposition of sulphur on the gold particles the solubility of the latter decreased rapidly. The liberation of sulphur was successfully prevented (delayed for 48–72 hrs.) by addition of $FeCl_3$. The solubility of gold was investigated in the presence of 1% $H_2SO_4$, H + $HNO_3$, NaOH, or 0·1% CaO. Best results were obtained with HCl, followed by $H_2SO_4$ and $HNO_3$. In the presence of CaO the solubility is diminished and the presence of NaOH arrests it. A change in the concentration of $H_2SO_4$ from 0·5 to 2% was without noticeable effect. Silver behaved similarly to gold. Silver–gold alloy was more soluble than pure gold.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Chemical methods for combating frothing in the flotation of Au ores.** I. N. Plaksin and E. A. Marenkov. *Tsvetnaya Metal.* 16, No. 14/15, 50-3 (1941); *Chem. Zentr.* 1943, II, 1042-3.—In the flotation of Au ores by cyanide solns., foaming has been attributed to lubricating oils. These oils formed no foam when added in the amt. of 10 g./cu. m. and formed stable foam only when added in the amt. of 150 g./cu. m. Frothing is caused by resinous substances which originate from wood (used to reinforce the pits), splinters from which contaminate the ore. The foam is stable and coarse; its Au content is the same as that of the ore being dressed. The resin can be removed from the cyanide soln. only by vigorous stirring for 24 hrs. Frothing can be reduced by adding 0.5-2.0 kg. of starch per ton or by increasing the consistency of the material being treated, keeping the free alkali content at 0.002-0.003% of CaO, or by adding 0.8 kg. of MnO or 0.0 kg. of $KMnO_4$ per cu. m. Partial or complete replacement of CaO by NaOH in the flotation reagent does not change the nature of frothing. Addn. of 40 g. of pine oil per cu. m. resulted in the formation of a considerably more stable foam. W. R. Henn

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

**Solubility of platinum in mercury.** I. N. Plakun and N. A. Suvorovskaya. *J. Phys. Chem.* (U. S. S. R.) 15, 978-80(1941).—The soly. of Pt in Hg soln. varies from 0.0205 at. % at 16.5° to 1.08 at. % at 144.0° and 1.77 at 200.0°. Up to the point of heterogeneous transformation at 159.1° the soly. is given approx. by the equation $\log N_2 = k/T$. The soly. increases in the order Pt < Ag < Au.

R. H. Rathmann

COMMON ELEMENTS

COMMON VARIABLES INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

9

CA

**Extraction of platinum and palladium by chlorination**

I. N. Plaksin and S. K. Shabarin. *J. Applied Chem.* (U.S.S.R.) 14, 1021-5(1941)(French summary); cf. *C.A.* 39, 2043[1]. Chlorination is applicable to ores contg. large amts. of Pt and Pd, when the metals are in the sulfide state, or bound with As, or, in case of Pd, exist in the oxide form. Optimum conditions are: equal amts. of sulfide and oxide ores are mixed, and treated at 500-60° with Cl for 4 hrs.; in some cases a 2-hr. treatment is satisfactory. Granulation to 28 mesh size is sufficient. In all cases complete extn. of Pd is easy, under conditions which otherwise ext. often not more than 50-75% of Pt.

G. M. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

6

***The Relation Between Composition of the Metallic Phase and Rate of Solution of Gold Silver Alloys and Native Gold in Cyanide Solution with Various Concentrations of Oxygen.** I. N. Plaksin and A. I. Sinel'nikova (*Izvest. Sekt. Fiziko-Khim. Anal.* (*Akad. Nauk S.S.S.R.*), 1941, **14**, 303–316).—[In Russian.] Cf. P. and Shibaev, *ibid.*, 1936, **9**, 159; *Met. Abs.*, 1937, **4**, 58; and P. and Shabarin, *ibid.*, 1940, **12**, 65; *Met. Abs.*, 1941, **8**, 304. The rates of solution of alloys from 100% silver to 100% gold in sodium cyanide solutions under various pressures of air and oxygen, were determined. In agitated solutions a notable rise in rate of solution occurs with increasing silver content of the alloy. The rate of solution of pure gold and 90 : 10 gold silver alloy in agitated solution in contact with air, increases with concentration of the cyanide solution. The quantity of gold dissolved from gold-silver alloys is greater than that dissolved from pure gold itself. The rate of solution of gold from 90 : 10 alloy in 0·4% NaCN solution under an air pressure of 7 atmospheres is more than three times greater than under ordinary pressure, though scarcely any increase is observable in the case of chemically pure gold. In a still cyanide solution at 25° C. under an atmosphere of oxygen, gold dissolves 1·5–2·0 times and 90 : 10 alloy 2·5 times (depending on the concentration of cyanide) faster than in air. Increasing the concentration of oxygen in the solution by raising its partial pressure in the gaseous phase to 25 atmospheres results in a marked increase in the rate of solution of gold from alloys but not from chemically pure gold sheets. Small additions (10%) of gold decrease the rate of solution of silver in cyanide solutions, and, contrariwise, additions of silver to gold increase the rate of solution of the latter. The significance of these results in the extraction of gold from its ores, &c., is discussed.—N. B. V.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

CA

The chemistry and technology of the cyanide process (1843 to 1939). I. N. Plaksin. *J. Applied Chem.* (U. S. S. R.) 14, 151-54(1941).—A review with 9 references.
A. A. Bochtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

1 **Platinum-mercury system.** I. N. Plaksin and N. A. Suvorovskaya. *Compt. rend. acad. sci. U. R. S. S.* 27, 460–3(1940)(in English).—A solid soln. of Hg in Pt with a max. concn. up to 23 at. % Hg exists. Three intermetallic compds., termed according to x-ray analysis, β, γ and δ phases, exist, the β from 73 to 76 at. % Hg, γ from 60 to 70 at. % Hg and δ from 45 to 55 at. % Hg. These compds., β, γ and δ, are likely to dissoc. above the respective temps. 159.1°, 236° and 435.1°. The rational
2 compn. of the first compd., β, forming a solid soln. with its components approaches 75 at. % Pt and 25 at. % Hg ($Pt_3Hg$); for the second compd., γ, 60.7 at. % Pt and 33.3 at. % Hg; for the third, δ, the proportion is 50 at. % of each element (PtHg). The amalgams of Pt were obtained from pure powd. Pt and pure Hg, both of them being placed in a vessel contg. $H_2O$ acidified with $H_2SO_4$. By decompg. the latter electrolytically, $H_2$ needed for
3 activation of the Pt surface was obtained. The anode used was Pt and C was employed as cathode. Thermal analysis methods were employed.

W. A. Cook

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

11

2

***The System Platinum-Mercury.** I. N. Plaksin and N. A. Suvorovskaja (*Zhur. Priklad. Khimii* (*J. Applied Chem.*), 1940, **13**, 677–685; *Brit. Chem. Abs.*, **1941**, [AI], 107).—[In Russian.] Results suggest that the compound PtHg decomposes at 159·1° C., $Pt_2Hg$ at 236° C., and $Pt_3Hg$ at 485·1° C. The solubility of platinum in mercury increases from 0·02% at 17° to 1·2% at 172° C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS — PROCESSES AND PROPERTIES INDEX — 3RD AND 4TH ORDERS

CA

**Platinum-mercury system.** I. N. Plaksin and N. A. Suvorovskaya. *Acta Physicochim. U. R. S. S.* 13, 83-96(1940)(in English); *J. Applied Chem.* (U. S. S. R.) 13, 677-85.—See *C. A.* 34, 7714[1]. F. H. Rathmann

**The constitution of the magnesium-rich alloys in the systems magnesium-lead, magnesium-tin, magnesium-germanium and magnesium-silicon.** Geoffrey Vincent Raynor. *J. Inst. Metals* 66, Pt. 12, 403-20(1940) (Paper No. 869).—The liquidus lines were detd. by cooling curves, and the solidus and solid-soly. lines by microscopic examn. and x-ray expt. A method of etching Mg-Pb alloys is described. The Mg-Pb eutectic contg. 19.1 at. % Pb forms at 465°. The solid soly. of Pb decreases from a max. of 7.75 at. % at 465° to 0.5 at. % at 200°. The liquidus curve for Mg-Sn falls smoothly from the m. p. of Mg to a eutectic at 560.6° and 10.7 at. % Sn. The solid soly. of Sn is 3.35 at. % at 560.6° and decreases to 0.6 at. % at 350° and less than 0.2 at. % at 250°. The Mg-Ge system has a eutectic at 634.7° contg. 1.15 at. % Ge. The solid soly. of Ge in Mg is very slight (about 0.003 at. %) at 600° and negligible at 450°. The Mg-Si eutectic contg. 1.10 at. % Si forms at 637.6°. The solid soly. of Si in Mg is approx. the same as that of Ge. The results are discussed from the viewpoint of the theories of solid solns. and intermetallic compds. 30 references. James W. Poynter

Lab. Noble Metal Metallurgy, Moscow Inst. Non-Ferrous Metals and Gold.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Physico-Chemical Conditions for the Solution of Gold and Its Alloys in Cyanide Solutions.—I.** I. N. Plaksin and S. K. Shabarin (*Izvest. Sekt. Fiziko-Khimich. Analiza.* (*Ann. Secteur Anal. Phys.-Chim.*), 1940, **12**, 65-84). [In Russian.] The effect of such factors as concentration of cyanide solution (up to 0·75% KCN), oxygen content of solution (additions of $H_2O_2$), and rate of stirring on the solution of annealed and polished sheet specimens of gold, and of gold alloys with 10% silver and 10% copper, respectively, was investigated. The shape of the rate of solution-concentration curve is determined by the proportions of oxygen and cyanide reaching the surface of the metal. The first part, which rises steeply, represents conditions under which excess oxygen reaches the surface, and the rate of solution increases with increasing concentration of KCN. The second, slightly inclined portion of the curve, corresponds to conditions under which the amount of oxygen reaching the surface approaches equivalence with the amount of KCN. Finally the third portion of the curve, which is horizontal or inclined downwards, corresponds to conditions under which the amount of oxygen is equivalent to or less than the amount of KCN reaching the surface. Depending on the conditions, the

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

7

**Rational analysis of gold losses in tailings** I. N. Plaksin and L. D. Plaksina. *Zolotaya Prom.* 12, No. 5-6, 26-8(1940).—On the basis of exptl. data obtained at two mills an attempt is made to show the production man the simplest methods of classifying Au losses in flotation tailings. Only analytical procedures and methods employed widely in mills are used. B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

9

CA

**The metallurgy of gold.** I. N. Plaksin. *Zolotaya Prom.* 1940, No. 11-12, 7-9; *Khim. Referat. Zhur.* 4, No. 9, 102(1941).—Newest methods in the metallurgy of Au are reviewed and various methods of increasing the percentage of Au extn. are described. The cyanidation can be improved by increasing the pressures of air and O. Hydrometallurgical and pyrometallurgical expts. were carried out to ext. Au from As and Sb ores. Au can be extd. from As concentrate by heating at 400-500° for 20 min. The combination pyro-hydrometallurgical process and the deposition from solus. also were studied.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

PROCESSES AND PROPERTIES INDEX

9

C4

**Recovery of gold.** A. N. Plakun. Russ. 58,582, Dec. 31, 1940. The pulp obtained in the cyanide treatment of Au ores is treated with Zn amalgam.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

CA

7

**The effect of ozone on the extraction of gold in cyanidation.** I. N. Plaksin and A. I. Smel'nikova. *J. Applied Chem.* (U. S. S. R.) 12, 1630-6 (in French, 1636) (1939). — Ozone decreases cyanide concn. in consequence of the reaction $3KCN + O_3 = 3KCNO$. The soln. of Au in the presence of $O_3$ is due to the reaction $2Au + 4KCN + H_2O + \frac{1}{2}O_2 = 2KAu(CN)_2 + 2KOH$. This method gives higher yields of Au than the old method, but yields are lower than those obtained by extn. under pressure and in the presence of $O_3$. A detailed description of the expts. is presented. A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

9

CA

**Standardization of the loss of noble metals in the manufacture of articles from them.** I. N. Plaksin and E. A. Marenkov. *J. Applied Chem.* (U. S. S. R.) 12, 844–3(1939); *Chem. Zentr.* 1940, I, 1741. Using as an example the manuf. of spoons from an alloy contg. 875 parts of Ag, the loss of Ag in the different individual operations is analyzed. Ag, Pt, Ir and Rh can be recovered from the waste material produced during the polishing with rouge by the use of the Pb method, which is described.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Oxygenation of cyanide solutions.** I. N. Plaksin and A. I. Sinel'kova. *Zolotaya Prom.*, No. **3**, 33-5(1939). Results are reported on expts. to increase the $O_2$ concn in cyanide solns. without increasing the total pressure of the gaseous atm. The effects of temp., amt. of $O_2$, time of oxygenation, and concn. of solns (0.05, 0.10 and 0.30% KCN) upon the soln. of the $O_2$ were investigated. For 0.05-1.0% KCN solns. the soln. of $O_2$ is independent of the cyanide concn. Time required for complete oxygenation of a 0.05% soln. drops from 25-30 min. at an $O_2$ speed of 0.5 l./min. to 15 min. at a speed of 2-4 l./min. Further increase in speed does not reduce the time required for complete oxygenation. By increasing the temp. from 17.5° to 55° the $O_2$ solv. dropped from 42.0 to 24.6 mg./l. At 35° there was some decompn. of the cyanide. Expts. with Au ores showed that oxygenation increased the Au extn. without at the same time increasing the use of reagents. For 3 ores under investigation the Au extns. were increased from 10 to 36 times. B. Z. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Regeneration of cyanide solutions.** I. N. Plaksin. *Zolotaya Prom.* No. 1, 24-7(1940). A review of the existing methods for the regeneration of cyanide solns.

H. Z. Kaunch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

A 1

**Changes in the contact angle and in the wetting time in the electro-amalgamation of gold.** I. N. PLAKSIN and M. A. KOSHUCHOVA (Ann. Sect. Platine, 1938, No. 15, 101—111).—The cosine of the angle of contact of a drop of Hg on a Au foil cathode increases from 0·906 to 0·961 as the potential rises from —0·2 to —2 v., and then gradually falls to 0·883 as the potential rises further to —6·5 v.; the reverse effects are observed with a Au anode. The rate of amalgamation of Au in crushed ores is approx. doubled by connecting the Hg with a cathode (p.d. 2—7 v.), in 0·05% NaCl. R. T.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

2ND LETTER

3RD AND 4TH ORDERS

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

**The volatility of silver under the influence of gases, temperature and the components of (binary) silver alloys.** I. N. Plaksin and A. Yu. Brekhstedt. *J. Applied Chem.* (U. S. S. R.) 11, 1656-62 (in French, 1662-3)(1938).—The volatility of Ag was investigated in atms. of $O_2$, $CO_2$, $N_2$ and illuminating gas at 1085°, 1158° and 1262° and the following samples were used: pure Ag, Ag-Au (3:1), Ag-Pt (3:1), Ag-Sn (1:1), Ag-Sb (1:1) and Ag-Cu (3:1, 1:1 and 1:3). The chief cause of the difference in volatility of Ag at high temp. in different gases is the presence of dissolved oxide (and, probably, O) in the liquid Ag, which decreases the surface tension of Ag and increases the evapn. of the latter. The wetting of Ag by a molten metal with which it is in contact has an important role in the increased evapn. of Ag. Eighteen references.

A. A. Podgorny

CONTROL ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

**The solubility rate of gold in cyanide solutions in relation to the composition of the liquid phase. The effect of complex cyanide compounds of zinc, copper and iron and sodium and calcium hydroxides.** I. N. Plaksin and N. A. Suvorovskaya. *Ann. secteur anal. phys.-chim., Inst. chim. gén.* (U. S. S. R.) 10, 187-209(1938); cf. C. A. 29, 6883[1]; 30, 7074[1]. - Addnl. exptl. data are shown on the retardation of the soly. rate of Au in KCN soln. in the presence of contaminating Zn, Cu and Fe salts capable of reacting with the KCN and that of NaOH and $Ca(OH)_2$. Contrary to previous statement, Fe, NaOH and $Ca(OH)_2$ have a harmful effect on the cyaniding soln. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

***The Gold–Mercury System.** I. N. Plaksin (*Izvest. Sekt. Fiziko-Khimich. Analiza* (*Ann. Sect. Anal. Phys.-Chim.*), 1938, **10**, 129–150). —[In Russian.] The equilibrium diagram of the gold–mercury system was established by thermal analysis between 700° and −100° C., by micro-examination at room temperature and at high temperatures of alloys containing between 37 and 100 atomic-% gold, and by X-ray examination of the gold-rich alloys. The eutectic point almost coincides with the melting point of mercury. There are five transition points on the liquidus, viz. at −36° C., near to pure mercury at 122° C. and 1·3, at 310° C. and 13·5, at 402° C. and 50·3, and at 420° C. and 55·5 atomic-% gold. At −36° and 122° C., the compound $AuHg_3$ undergoes polymorphic transformations. At 310° C. it decomposes into $Au_2Hg$ + liq. At 402° C. the reaction $Au_2Hg \longrightarrow Au_2Hg$ + liq. occurs; the existence of $Au_2Hg$ is confirmed. At 420° C., $Au_2Hg$ decomposes into a liquid and the solid solution of mercury in gold (α phase). X-ray patterns show that the solubility corresponds to 16·7 atomic-% mercury and is almost independent of temperature between 218° and 400° C.—N. A.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Flotation of gold.** I. N. Plaksin. *Zolotaya Prom.* 1938, No. 10, 6-11; *Khim. Referat. Zhur.* 2, No. 4, 95 (1939).—The upper limit of the flotation corresponds to 0.3 0.4-mm. size of the particles. The sulfide Au ores are most easily floated. The quartz and the oxidized ores usually can be floated by an addn. of the sulfide ores or by the addn. of special reagents which favor the formation of a stable froth. In a no. of cases not only Au, but also other valuable components of the ore (Cu, Pb, As, etc.) are sepd. by flotation. Before flotation the coarse particles of the Au must be sepd. by concn. on tables, in settling app., etc., as well as by amalgamation. A proper selection of the concn. of the pulp is important. The optimum ratio is solid liquid = 1:2.5. W. R. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

**Colorimetric determination of gold.** I. N. PLAKSIN and N. A. SUVOROVSKAJA (Zavod. Lab., 1938, 7, 1202—1203).—The ordinary colorimetric reduction methods are applicable only to pure salts; salts of most of the heavy metals, and even alkali metal salts, interfere with development of the coloration. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Ways of increasing gold extraction in the treatment of Balei ores.** I. N. Plaksin. *Sovet. Zolotopromy* 1938, No. 3, 28-36. A summary of an investigation made at the Ordjonikidze Au-extn. plant with the object of increasing yield of Au. Replacing air with $O_2$ in the cyanidation process reduced the Au in the tailings to one-half. Cyanidation under pressure did not result in any appreciable increase in Au extn. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

**Twenty Years' Progress of Soviet Chemistry Applied to the Metallurgy of Gold and Other Noble Metals.** I. N. Plaksin (*Zhur. Priklad. Khimii* (*J. Applied Chem.*), 1937, **10**, (10/11), 1775-1783). [In Russian.] A review, which also considers the investigation of noble metal alloys. — N. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Achievements of the Soviet chemistry in the metallurgy of gold and other noble metals for twenty years.** I. N. Plakun. *J. Applied Chem. U. S. S. R.* 10, 1775-8 (1937). A review with 58 references. A. A. P.

**Use of air slaked lime in cyanidation.** I. W. O'Brien. *Chem. Eng. Mining Rev.* 30, 79-81 (1937). Air-slaked lime is considered here as burnt lime exposed to the air in a shallow layer and turned over periodically. Use of this form showed a material improvement in precious metal recovery. Treatment of ore at Hillgrove, N. S. W., is outlined. W. H. Boynton.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

COMMON ELEMENTS

OPEN

MATERIALS INDEX

**Use of crude "black cyanide" for gold extraction.** I. N. Plaksin and N. F. Antonova. *Sovet. Zolotoprom.* 1937, No. 8, 50-4; *Chimie & industrie* 40, 78. —The crude product under consideration contains about 32-33% cyanides (calcd. as $Ca(CN)_2$), 23-34% of insol. residue consisting of carbonaceous matter and $CaCO_3$. This carbonaceous matter and the alkali sulfides present (over 1%) interfere with the extn. of Au by cyanidation, and should therefore be first sepd. The desulfided and filtered solns. of "black cyanide" give a better extn. of Au than NaCN solns. The most rational method of desulfidation involves treatment with Pb compds. A. Papineau-Couture

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS

**Lead salts in cyaniding Balei ores.** I. N. Plakson and N. A. Suvorovskaya. *Sovet. Zolotoprom.* 1937, No. 6, 47-8.—The presence of Sb in Balei ores is one of the reasons of incomplete extn. of Au from this ore during cyanidation. Addn. of $Pb(CH_3COO)_2$ improves extn. With Sb over 1% it is recommended to introduce the NaOH toward the end of the cyaniding operation. With Sb less than 0.1% the best results are obtained by the addn. of CaO together with $Pb(NO_3)_2$ or $Pb(CH_3COO)_2$. An excess of Pb salt is detrimental to Au extn.

S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

**Intensifying gold extraction by the cyanide process under pressure.** I. N. Plaksin and A. P. Zenkov. *Zeleloprom.* **1937**, No. 2, 63-75. Theoretical considerations show that in the reaction expressing the cyanide process of Au extn., 2 Au + 4 KCN + $^{1}/_{2}$ $O_2$ + $H_2O$ = 2 KAu(CN) + 2 KOH, an increase of the air pressure over the reaction soln. will speed up the reaction. With solns. contg. 0.1% or more NaCN, an increase of pressure from 1 to 7 atm. resulted in an increase of the rate of Au soln.

10, 24 and 36 times in the case of Balef, Mindyaksk and Bakr Uzyaksk ores, resp. S. L. Madorsky

Gold and [illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

**Plaksin, I. N.** *The Attack on Gold Alloys and Native Gold by Mercury and Cyanide Solutions. The Theory of Amalgamation and Cyanidation.* (In Russian.) Pp. 303. 1937. Leningrad and Moscow: Onti. (Rbl. 6.)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

3RD AND 4TH ORDERS

2ND LETTER

AUTHOR INDEX

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

## The physicochemical basis for the amalgamation process.

I. N. Plaksin and M. A. Kozhukhova. *Ann. secteur platine, Inst. chim. gén.* (U. S. S. R.) No. 13, 95-111 (1936).—The first stage in amalgamation is wetting the metal surface by Hg. Au is easily wet, while Ag is not. Au-Ag alloys contg. 60-90% Au are not wet by Hg, though alloys with less Au are. Amalgams contg. 0.1-8.0% Cu do not wet Au in 1 hr., though with longer contact they do. Those with 0.2-0.5% Cu at first wet Au less than pure Hg, but later act at the same rate. Those contg. 0.05-0.1% Cu wet Au twice as fast as pure Hg. Amalgams contg. 0.1-5.0% Zn do not wet Au even after 24 hrs. Those with 0.05% Zn wet it 1-4 times as fast as does pure Hg. Polishing the Au surface under $C_6H_6$, electrolytic formation of $H_2$ on the surface or the presence of weak $H_2SO_4$ solns. when the wetting agent is Cu amalgam all increase the rate of wetting of Au by Hg. This effect is due to the removal of the oxide layer from the surfaces involved.

H. M. Leicester

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

8

CM

**Recovery of gold and platinum from slimes.** I. N. Plaksin and V. V. Suslova. *Sovet. Zolotoprom* 1936, No. 11, 47-51. Chem. analysis and methods of recovery of Au and Pt are given for slimes from various Russian Au mining districts. Amalgamation and cyanide methods or a combination of these 2 are used. S. I. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Water of hydration of some complex salts and nickel sulfate.** I. N. Plaksin. *Ann. secteur anal. phys.-chim., Inst. chim. gén.* (U. S. S. R.) **9**, 271-8(1936).—The method of tensimetric detn. of the water of hydration (cf. Berman, *J. Russ. Phys.-Chem. Soc.* **56**, 177(1925)) was applied to $NiSO_4$, $Cr[C_2H_4(NH_2)_2]_3Cl_3$ (I) and $(NH_4)_3Co(C_2O_4)_3$ (II). The hydrated salts were dehydrated under atm. and reduced pressures over $H_2SO_4$ of different concns. in a desiccator with the exclusion of light at 25° for various periods of time up to 1 year. The existence of mono-, hexa- and hepta-hydrates of $NiSO_4$ was confirmed, and that of a dihydrate was detd. The existence of a trihydrate (Hauer, *Sitzber. Akad. Wiss.* **39**, 305(1890)) and a tetrahydrate (Vanyukov, *J. Russ. Phys.-Chem. Soc.* **41**, 688(1905)) could not be verified. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

CA

2

**Solubility rates of gold, silver and copper in cyanide solutions in relation to the diagrams of state of the systems: gold-copper, silver-copper and gold-silver.** I. N. Plaksin and S. V. Shibaev. *Izvs. sektsii anal. phys.-chim., Inst. chim. gen.* (U. S. S. R.) **9**, 159-69(1936).—The soly. rates in the systems with the 2 components sol. in aq. KCN were studied. The method makes it possible (1) to give in the form of soly. rate new quant. characteristics of the properties of alloys as a function of the kinetic process of solvation of 2 components from the peripheral layer of an alloy, (2) to investigate a given property as a continuous function throughout the extension of a binary metallic system. Pure Au, Ag, Cu, Au-Cu, Ag-Cu and Au-Ag were annealed and then treated with 200 cc. of 0.15% KCN in $H_2O$ (previously satd. with $O_2$) at 19° for 20, 40, 60, 80 and 136 hrs. To det. the effect of the concn. of KCN on the soly. rates, the specimens were also treated with 0.05, 0.15, 0.3, 0.6 and 1.2% KCN for 40 hrs. The soly. rates of Au, Ag, Au-Cu and Au-Ag increase slowly with the increasing concn. of KCN and then gradually drop; the max. is reached for Au at 0.25 (MacLaurin, *Trans. Chem. Soc.* (London) **63**, 724(1893)), for Au-Ag at 0.3, and for Au-Cu at 0.35% KCN. In the following the soly. rates are given in at. percentages. *Au-Cu system.*—The soly.-rate diagram showed a max. corresponding to 50.9% Au, to the chem. compd. AuCu, and a less-sharply defined max. corresponding to 26% Au, or $AuCu_3$. *Ag-Cu system.*—For the soly. rate of Cu, (1) the curves from pure Cu to 1.7% Ag rise sharply and then change to a sloping section, retained at the level of the max. rate in the interval of 1.7-12% Ag (corresponding to the solid soln. of Ag in Cu); (2) for 12-39.8% Ag the curves descend to the axis of abscissas, forming a sharply defined min., corresponding to the eutectic compn. of the alloy; (3) the curves for 60-91.8% Ag show a sharp rise. For the soly. rate of Ag, the rate for pure Cu to 37% Ag is equal to zero, i. e., in alloys composed of Cu crystallites and eutectic the Cu protects Ag from the dissolving action of KCN; (2) at 60.2% Ag (eutectic Ag-Cu) the rate is at the max. and then drops; (3) from 84% Ag to pure Ag the soly. rate increases. *Au-Ag system.*—The soly. rate for Au is represented by a concave curve with a min. for an alloy contg. 40% Au; for 40-68% Au the rate again rises sharply, after which the curve becomes nearly horizontal (68-100% Au), having very faint tendency to an increase at an interval of about 78% Au. The latter anomaly is being investigated. The curves of the soly. rates of Ag are of the reverse form in relation to those of Au. The Ag rate curve rises gradually from the ordinate of pure Ag to 42% Au, at the interval of 56% the ascent becomes very sharp, and at 68% the curve drops equally sharply. Thus, a comparison of the diagrams of soly. rate with those of state shows a definite relation between these 2 forms of diagrams of compn. vs. property. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Probable causes of incomplete recovery of gold from Balei ores.** I. N. Plaksin. *Sovet. Zolotoprom.* 1936, No. 9, 39-41.—Au grains from Balei ores contain on the av. Au 74.82, Ag 18.25 and Fe 1-1.3%. The low extn. of Au from these ores by the cyanide process should therefore be ascribed to some harmful impurity in the gang and not in the metal grains. Samples of the ore were cyanided in the presence of CaO. Au extns. of 99.52, 95.80, 94.05, 80.43, 75.78 and 77.70% corresponded to amts. of CaO used, in percentage wt. of the ore, 0.1, 0.5, 1.5, 2.0, 2.5 and 3, resp., and to concns. of CaO in corresponding solns. 0.0197, 0.0413, 0.2147, 0.2266, 0.2266 and 0.1990%. With other ores, Au extn. remained const. after the limit of solv. of CaO was reached. Similarly, in the presence of NaOH, cyanidization gave Au extns. of 98.34, 15.71, 4.29, 7.48 and 33.41%, corresponding to amts. of NaOH used, in percentage wt. of ore, 0, 0.5, 1.0, 2.0 and 3.0, resp., and to concn. of NaOH in corresponding solns. 0, 0.1463, 0.3215, 0.5100 and 1.0780%. With other ores, NaOH had a much smaller inhibiting effect on Au extn. In another series of expts., addn. of $Pb(NO_3)_2$ or $Pb(CH_3COO)_2$ to the Balei ore gave on treatment with pure NaCN, a Au extn. of 94.66-99.27% as compared with 5.63-13.51%, when Pb salts were omitted. These expts. led to the assumption that the Sb found in the Balei ores was the inhibiting factor, as follows: $Sb_2S_3 + 6NaOH = Na_3SbS_3 + NaSbO_3 + 3H_2O$; the $Na_3SbS_3$ then removes O from soln. $2Na_3SbS_3 + 3NaCN + 3H_2O + 1\frac{1}{2}O_2 = Sb_2S_3 + 3NaCNS + 6NaOH$. The Pb-salt counteracts this: $2Na_3SbS_3 + 3Pb(NO_3)_2 = 3PbS + 6NaNO_3 + Sb_2S_3$, and thus destroys the inhibiting effect of the $Sb_2O_3$. In the presence of an excess of NaOH the $Sb_2S_3$ changes again into the oxidizable salt as shown above. Amalgamation of Balei ores can be carried out more easily in an acid soln. than in a neutral or basic soln. This is explained on the ground that the Au grains are covered with a passive coat which is destroyed by the acid.

S. I. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

CA

**Rate of solution of gold in the cyaniding process and the effect of contact with minerals and metal surfaces on this rate** I. N. Plaksin and V. V. Sulova. *Sovet Zoloto prom* 1936, No 7, 41-7. Rate of soln. was tested in the case of pure Au leaf and Au ore consisting of quartz admixed with some arsenopyrite, pyrite, chalcopyrite and limonite. Tests with ore were carried out in cast-Fe and porcelain ball mills with balls made of cast Fe, porcelain or quartz, by wet grinding the ore in the presence of a cyanide soln. In 0.05% KCN soln., the percentage extn. of Au, after 12 hrs.' grinding, was in the cast-Fe mill, with cast-Fe balls, 80.62%, with porcelain balls, 49.61%, and with quartz balls, 50.90%. In the porcelain mill, extn. was, with porcelain balls, 63.82%, with cast-Fe balls, 76.74% and with quartz balls 63.82%. In each case the wt. of the balls was 25% of the wt. of the charge. Tests with Au leaf were carried out by bringing the leaf in contact with a plate made of various minerals. The Au-mineral combinations were placed in a 0.3% KCN soln. which was kept agitated. Amts. of Au dissolved, after 24 hrs. in contact with no mineral, quartz, limonite, chalcopyrite, galenite and pyrite, were 10.28, 40.33, 74.83, 73.81, 67.15 and 91.33%, resp. S. L. Madorsky.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

**Hygroscopicity of cyanide slimes (precipitates).** L. N. Plaksin and V. A. Pukhova. *Sovet. Zolotoprom.* **1936**, No. 1, 44-50. In modern Russian practice An cyanide ppts. are not treated at the mine but are sent out to plants in foreign countries, and the problem of hygroscopicity of the ppts. is very important. The method of measuring hygroscopicity consisted in desiccating samples of the slime over $P_2O_5$ or $H_2SO_4$ at 25° under various conditions of size of particles, thickness of layer, time of desiccation and concn. of $H_2SO_4$, when this was used. Tables and isotherms are given showing the results of these tests on various slimes. From these data it is possible to find the limiting amt. of moisture absorbed by the samples.

S. I. Madorsky

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

PROCESSES AND PROPERTIES

**Shape and composition of gold nuggets in sulfide ores**

I. N. Piaksin and I. G. Nasluzov. *Sovet. Zolotoprom.* **1935**, No. 10, 38-40. Photographs of nuggets obtained from Kochkar, Dzhetuncarm, Kolsim, Akdazhol, Boko and Darasun Au deposits are given, together with the dimensions and chem. compos. of these nuggets.

S. I. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Gold ores of Retiv and Aleksandrovsk veins.** I. N. Plaksin and S. V. Shibaev. *Sovet Zolotoprom* 1935, No. 6, 44-51.—Most of the Au in these veins is in the free state and only a small fraction in the form of sulfide. Free Au content in the ore from Retiv and Aleksandrovsk vein is 1.97 and 4.51 g. per kg. ore, resp. A mixt. of these ores was ground to a fine pulp and extd. by a cyanide method. Grinding the ore to 65 mesh gave an 85% Au extn. by this method. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

23

**Plaksin, I. N.** *The Metallurgy of Gold, Silver, and Platinum.* Part I.—*The Physico-Chemical Principles.* [In Russian.] Pp. 198. 1935. Moscow and Leningrad: ONTI. (Rbl. 2.25.)

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Losses of precious metals during melting.** I. N. Baksin and M. A. Kozhukhova. *Sovet. Zolotopromm.* 1934, No. 6/7, 38-43.—Au forms volatile compds. when heated to a high temp. in some gases. The Au was mixed in each case with one of the following metals: Cd, Zn, Hg, Sn, Sb, Pb and Cu, and heated at 1262° in an atm. of illuminating gas, $N_2$, $CO_2$, $O_2$ or $Cl_2$, also, in $O_2$ at 1055°. The volatilization of Au was particularly pronounced in illuminating gas and $Cl_2$, owing to the formation of $AuH_3$ and $AuCl_3$. When mixed with Hg, Au is volatile to the same extent in all gases, except in $Cl_2$, where it is higher. Volatilization of Au from Au-Zn and Au-Cd mixts. in various gases was in the following increasing order: $O_2$, illuminating gas, $N_2$, $CO_2$ and $Cl_2$.

S. L. Madorsky

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

*Rate of Solubility of Gold, Silver, and Copper Alloys in Cyanide Solutions. I. N. Plaksin and S. V. Shibaev (*Sovet. Zolotoprom*, **1934**, (3-4), 40-41; *C. Abs.*, 1934, **28**, 7230). [In Russian.] A brief report is given of a study of solubility of the systems gold copper, silver copper, and gold silver in cyanide solution. S. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

PROCESSES AND PROPERTIES INDEX

**Treatment of low-grade gold ores.** I. N. Plakun and N. A. Suvorovskaya. *Sovet. Zolotoprom.* **1934**, No. 3-4, 34-9. The Au ore of the Petvomai mine contains about 6 g. Au and 8.5 g. Ag per ton. The amalgamation method yielded at most 52.8% of the Au while the cyanide method yielded almost 100%. Aeration of the ore in alk. medium lowered the cyanide consumption by 64%. Optimum conditions are: fine grinding of the ore, concn. of cyanide 0.2-0.3%, time of agitation 36 hrs. and a ratio of liquid to solid = 3. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Technique of Amalgam Assaying of Platinum.** L. N. Plaksin and S. M. Shtamova (*Izvestia Platinago Instituta* (*Annales de l'Institut de Platine*), 1933, (11), 141–157). [In Russian.] To prepare successfully an amalgam of native platinum containing iron the superficial film of iron oxide must first be removed by agitating the metal in 0·37–0·63% sulphuric acid for 12 hrs., and then setting the mixture aside for 1–2 days. From 90 to 97·1% of the platinum is amalgamated.—N. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

CA

7

**Theory of the process of amalgamation.** I. N. Plaksin. *Sovetskaya Zoloto-prom.* 1933, No. 9-10, 29-5. The process of extg. Au with Hg does not depend on soly. of Au in Hg, since it is only 0.15-0.20%. This is rather a case where the Hg enters the Au particles and forms a solid soln. to the extent of 10% Hg. Hg then wets these Au particles and sops them out in the form of a slime. Chemically pure Hg is not as effective as that contaminated with Au or Ag. Cu enters the Hg through its reduction by Fe from its salts, thus $Cu^{++} + Fe = Cu + Fe^{++}$. Fe will amalgamate with Hg only when its surface is free from oxide. Under industrial conditions amalgamation with Fe occurs as follows. Cu coming in contact with Fe is reduced by it, as shown above, and deposits on the surface of the latter, thus protecting it from oxidation. Later, when the deposited Cu amalgamates with Hg, the clean Fe surface is exposed and the Hg amalgamates with it. Both Cu and Fe interfere with the process of Au extn. by means of Hg.

S. T. Madorsky

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**Determination of gold by hydrazine hydrochloride and application of the method to the analysis of its alloys.** I. N. PLAKSIN AND M. A. KOYUKHOVA. *Tsvetnaie Metal* 6, 35-40(1931); *Chimie et industrie* **27**, 1080(1932). The detn. of Au by means of hydrazine-HCl is easy and accurate to within ±0.1%. For pure gold treat with 1:4 or 1:5 $HNO_3$-HCl and remove $HNO_3$ by repeated evapn. with HCl at not over 60-70°, dissolve in a few drops concd. HCl, dil. with $H_2O$, filter, make to definite vol. so that 50-100 cc. contains 0.1 g. Ppt. Au by adding double the wt. of a 10% hydrazine HCl soln. in small portions with stirring, stir a further 1-3 min. till the ppt. agglomerates, let stand 4-6 hrs., filter, wash and weigh. With alloys it is advisable first to dissolve the other metals, using either HCl or 30-40% $HNO_3$ for Au-Zn and Au-Cd and HCl + Br₂ for Au-Sn; Au-Sb alloy is treated directly with aq. regia. In the presence of a large amt. of other metals, it is necessary to make a double pptn. A. PAPINEAU-COUTURE.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

FLAKS [illegible], Igor' Nikolaevich, 1900-

Hydrometallurgy of mercury ores and concentrates. Moskva, TSvetmetizdat, 1932. (Mic 53-556) Collation of the original as determined from the film: 61 p.

Microfilm TJ-5

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

C-I-6

RECOVERY OF GOLD AND SILVER FROM PRAPHITIC AND NON-GRAPHITIC WASTE. E. Plaks n and N. L.

ZHURLOV (Tsvet. Met., 1931, 1156—1179).—The curves showing the effect on recovery of time and concn. of NaCN solution were plotted. Max. extraction of Au is obtained in < 18 hr. By cyaniding in presence of kerosene or pine tar to prevent adsorption, 99·03% Au and 94·93% Ag were recovered. Alternatively, cyaniding followed by treatment with $Na_2S$, or ignition followed by amalgamation, may be used. Pt may be extracted by chloridising ignition at about 1100° followed by amalgamation, or by amalgamation with Zn-Hg in presence of $CuSO_4$ or in $Cl_2$-$H_2O$. The treatment of lean non-graphitic waste is also described. CH. ABS.

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

**The recovery of gold from the ores of Marynskaya Tayga.** I. N. PLAKSIN. *Mineral'noe Suir'e i Tsvetnaie Met.* 4, 1235-52(1929). A brief description is given of the ores and mining operations.

M. A. TERNAKOFF

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6

PROCESSES AND PROPERTIES INDEX

Moisture in coal. I. N. PLAKSIN. *Zhur Prikladnoi Khim.* 2, 500-77(1929).
Moisture in coal can be detd. by the desiccator method developed by N. S. Kurnakov and his associates (*Trudas Mendeleevskago S'ezda* 1928; Bergman, *C. A.* 20, 1344). Drying by exposure to the air is unsatisfactory because of variations in humidity and temp. Max. moisture adsorption capacity of coals can be detd. in a similar manner. At 25° such detns. should be made over substances having a vapor pressure of water of ≤ 25 mm. Hg.
V. KALICHEVSKY

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200053-6