PROCESSES AND PROPERTIES INDEX

•On the Mechanical Properties of Light Aluminium Copper Alloys. W.
Broniewski and A. Pilko (Ann. Acad. Sci. Tech. Varsovie, 1936, 3, 231–237).
The mechanical properties of aluminium-copper alloys containing up to 13
weight-% of copper were measured after annealing at 350°, tempering at
525°, and ageing at 185° C. The tensile strength, elastic limit, extension,
constriction, hardness, and resilience were measured and the Brinell coeff.
and work of fracture calculated for each specimen. The tempering affects
the tensile strength, elastic limit, constriction, and hardness of alloys with
more than 1% copper, the same properties being affected by the ageing
process in alloys with more than 3% copper. The extension is not affected
by tempering or ageing below 5 or 6% copper. The resilience is affected by
tempering in alloys with more than 1% copper, but the subsequent ageing
seems to have little effect on this property. The heat-treatment appears to
produce an optimum effect in alloys containing from 5 to 6% copper, the
tensile strength reaching 40 kg./mm.² with an extension of 20%, a Brinell
hardness of 90, a resilience of 1 kg., and a work of fracture of 8 kg. In alloys
with from 7 to 8% copper the tensile strength reaches 46 kg./mm.², but the
extension is reduced to 10%. Thus, the light aluminium-copper alloys,
subjected to the appropriate heat-treatment, attain and even surpass the
mechanical properties of Duralumin.—P. W. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

7

Mechanical properties of light aluminum-copper alloys
W. Broniewski and A. Pilko. *Ann. acad. sci. tech. Varsovie* 3, 231-7 (1936); *Chimie & industrie* 38, 901
A study of the mech. properties of alloys contg. up to
12% Cu. From 1% Cu the effects of quenching on tensile
strength, elastic limit, structure and hardness can be
observed; tempering begins to make itself felt on the
values of these parameters starting at 3% Cu. For
elongation under tension, the effects of quenching and
tempering begin to be perceptible at between 5 and 6%
Cu. Resiliency is affected by quenching starting with
1% Cu, but seems to be only slightly affected by subse-
quent tempering. Heat treatment seems to give optimum
results on tempering alloys contg. 5.6% Cu; the tensile
strength at this point reaches 40 kg. per sq. mm., with
an elongation of 20%, a hardness of 90 Brinell, a resi-
liency of 1 kg., and work on breaking of 8 kg. Tempering
the 7.8% Cu alloy increases the tensile strength to 46 kg.
per sq. mm., but at the expense of a lowering of the
elongation to 10%. Light Al-Cu alloys, when subjected
to appropriate heat treatment, can equal and even exceed
the parameters of mech. properties considered suitable
for duralumins. A. P.-C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

BC

B-III-1

Classification of chernozem soils in relation to silica mobility. V. M. Frazo (Khim. Sotsial. Zemled., 1936, No. 7, [illegible]).—The mobility effect of SiO_2 is one of the characteristics of a degraded chernozem. Other chemical properties should be considered. Ch. Abs.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

PIL'KO, V.M.

Chlorosis in plants due to iron and manganese deficiency in soils. Bot.zhur. 45 no.8:1232-1235 Ag '60. (MIRA 13:8)

1. Astrakhanskaya gosudarstvennaya oblastnaya sel'skokhozyaystvennaya opytnaya stantsiya, g. Astrakhan'.
(Chlorosis (Plants)) (Plants, Effect of iron on)
(Plants, Effect of manganese on)

PIL'KO, Vladimir Matveyevich; BULGAKOV, L.P., kand.sel'skokhoz.nauk, otv. red.; TORKAYLO, I., red.; KALECHITS, G., tekhn.red.

[Fertility of the soils of White Russia] Plodorodie pochv BSSR. Minsk, Gos.izd-vo BSSR, Red.sel'khoz.lit-ry, 1959. 195 p. (MIRA 13:6)

(White Russia--Soils)

PIL'KO, V.M., kand.sel'skokhozyaystvennykh nauk

Soil surveys in Vileyka District. Zemledelie 7 no.1:82-84 Ja '59. (MIRA 12:1)

(Vileyka District--Soil surveys)

[illegible]

[illegible], [illegible]

USSR/Soil Science [illegible] Jun [illegible]
Phosphates

"Phos[illegible]

"Poc[illegible]

Determ[illegible]
of Whi[illegible]

[illegible]

PILIPOV, Shtefan

Contest for high-speed operators in Bratislava. Radio no.8:22 Ag '55. (MLRA 8:10)

(Bratislava, Czhechoslovakia--Radio--Competitions)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

[illegible], L.

[illegible]xperiences wit[illegible] for [illegible] metallurgy in the [illegible]

[illegible]. 4 4.
Vol 10, no. 1 , [illegible] [illegible]dapest, [illegible].

So: Eastern European [illegible] Vol. 5, no. 4, April 1956

PILISSY, L.

PILISS , L. Use of metallic calcium; an excerpt from an article. p. 13.
Peaceful use of thermonuclear energy. p. 14.
The antiproton. p. 18.
Use of light metals in the building industry. p. 19.
The Exhibition of Mining in Paris. p. 22.
Experimental dwellings made of prefabricated panels. p. 25.
Genesis of electrostatic charge in the textile industry. p. 27.

Vol. 11, No. 12, June 1956.
MUSZAKI ELET
TECHNOLOGY
Budapest, Hungary

So: East European Accession, Vol. 6, No. 2, Feb. 1957

PILISSY, LAJOS

1345* Experiences With Retorts in Silicon-Thermal Magnesium Metallurgy. Tapasztalatok a szilikotermikus magnéziumkohósítás retortáiról. (Hungarian.) Lajos Pilissy. *Kohászati lapok*, v. 10, no. 10, Oct. 1955, p. 454-457.

Review of various methods on the basis of the literature. Outline of Hungarian experiments necessary for determining the proper method and alloy to be used. Tables, graph, diagram. 4 ref.

FILITOWSKI, T.

The [illegible] p. 241. [illegible]
P[illegible] Warszawa. Vol. 1[illegible], No. 7, [illegible]
[illegible].

East European A[illegible] List (EEAL) Library of Congress
Vol. [illegible], No. [illegible], A[illegible].

ca

15

Several points on the classification of chernozem soils in relation to the silica mottling. V. M. Pilko. *Khim. Sotsialist. Zemledeliye* (Chemisation Socialistic Agr.) No. 7, 23-34(1932). P. presents data on the chem. properties of various types of chernozem soils and shows that the mottling effect of SiO_2 is one of the characteristics of a degraded chernozem. Other chem. properties should be considered even if there is no SiO_2 sepn. in the process. J. S. Joffe

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ac

A1

[illegible]

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

PROCESSES AND PROPERTIES INDEX

AC

a-1

[illegible] adsorption of [illegible] by manganese [illegible]. A. [illegible] (J. Gen. Chem. Russ., 1951, 2[illegible], [illegible]).—[illegible] pptd. by $(NH_4)_2S_2O_8$ from a solution containing Cs and [illegible] selectively absorbs [illegible] and U.X. R. Truszkowski.

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

6C

A-1

[illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible]liver, I. [illegible], jt. au.

[illegible] machine [illegible]

HF5679.[illegible]

1. Machine accounting. [illegible]liver, [illegible], jt. au.

PILLAR, Laszlo, dr., haltenyesztesi foeloado

More ducks and fishes, profitability of our fish [illegible] tud 20 no.9:418-421 5 Mr '65.

1. National Planning Office, Budapest.

[illegible]

[illegible] Vasilev [illegible]

[illegible] ferrite steels

[illegible] Metal [illegible], no. [illegible], abstract [illegible]
[illegible] July [illegible]

[illegible] is especially suitable [illegible] with ≥ [illegible] Cr. Composition [illegible] V, [illegible] Ni, [illegible] ≤ [illegible] Mn, ≤ 0.03 P, ≤ 0.03 S. In the [illegible] resistance (in 100,000 hours at [illegible] at 600 °C, 5.5 kg/mm²), is corrosion-resistant, [illegible] cracks are [illegible] seams.

S. Glebov

Abstracter's note: [illegible] translation

Card 1/[illegible]

33815

S/137/62/000/001/095/237
A052/A101

1 2300

AUTHOR: Pilous, Vaclav

TITLE: Welding cast steel with 13% Cr [4CH 422905 (ChSN422905)]

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 12, abstract 1E65 (Zvaranie, 10, no. 7, 1961, 198 - 202; Slovakian; summary in English, Russian, German)

TEXT: It is pointed out that stainless steel with 13% Cr is brittle and hard and unsuitable for welding. In accordance with the technology of production, castings after having been taken out of the mold are subjected to soft annealing at 700 - 750°C with a slow cooling-down. In this state their hardness and α_K are low. Castings repaired by welding must undergo heat treatment prior to welding (hardening at 950-1,000°C with air cooling and tempering at 700 - 750°C). After heat treatment the surface of castings is ground, magnetic control and handling of defects before welding are done. The welding is performed with E384 or 13% Cr-Ni electrodes. Prior to welding the castings are

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33815

S/137/62/000/001/095/237
A052/A101

Welding cast steel ...

preheated to 250 - 400°C. The final heat treatment consists of diffusion annealing at 950 - 1,050°C, hardening at 900-950°C and tempering at 700-720°C.

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

Z/046/62/000/001/007/007
D007/D102

12200

AUTHORS: Koutský, J., Engineer, Candidate of Sciences, and Pilous, V., Engineer, Candidate of Sciences

TITLE: Welding modified 12% chromium steels used at the Lenin Works in Plzeň

PERIODICAL: Zváračský sborník, no. 1, 1962, 154-169

TEXT: The Leninovy závody (Lenin Works) in Plzeň, in co-operation with the elektrodovna VÍKG (Electrode Plant, VÍKG) in Ostrava and the ŽAZ in Žamberk, developed the L 58 electrode for welding T 58 and T 59 steels which are used by the Lenin Works for production of power equipment designed for service at temperatures up to 600°C. The weld metal of the L 58 electrode has a chemical composition similar to the T 58 steel (approximately 0.16 % C; 11% Cr; 1% Ni; 2% W; 0.3% V) and is of martensitic structure with a ferrite-delta content up to 5%. Its mechanical values at 20°C, and the creep-strength values at 600°C after heat treatment are relatively high and satisfactory for both T 58 and T 59 parent metals. Welding is done with preheating to 350-400°C. Before heat treatment, the welded

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Z/046/62/000/001/007/007
D007/D102

Welding modified 12% chromium steels ...

joint has to be cooled below 100°C, then a full heat treatment, and eventually refining, is performed. For extreme cases tempering at 730°C for 4 hours with cooling in air is recommended. The notch-toughness values of the weld-parent metal transition correspond to those of the T 58 and T 59 parent metals. There are 20 figures and 4 tables. (Technical editor: Doctor of Natural Sciences A. Zapletálek, VÚZ Bratislava)

ASSOCIATION: Leninový závody (Lenin Works), Plzeň

Card 2/2

KOUTSKY, J., doc., inz., C.Sc.; PILOUS, V., inz., C.Sc.

Conference of the Rumanian Academy of Sciences in Timisoara. Hut listy 18 no.3:224-226 Mr '63.

1. Zavody V.I. Lenina, Plzen.

Z/034/63/000/003/004/004
E073/E335

AUTHORS: Koutský, L., Doctor Engineer, Candidate of Sciences, and Pilous, V., Engineer, Candidate of Sciences

TITLE: Conference of the Rumanian Academy of Sciences in Timisoara

PERIODICAL: Hutnické listy, no. 3, 1963, 224 - 226

TEXT: A conference on the welding and testing of metals, convened by the Technical Section of the Rumanian Academy of Sciences , was held in Timisoarabetween October 12 and 15, 1962. The following papers were read: Academician Miclosi: selection of steels for welded structures; Professor Doctor St. Nadasan: present state of testing steels; Academician K.K. Khrenov: new current sources for electric-arc welding; Engineer Ion Avram: methods and equipment for welding pressure vessels and pipes made of carbon and alloy steels (review of three papers submitted by individual authors); Professor Engineer Dan Mateescu: welded building and machine structures (review of four papers submitted by individual authors); Engineer Josif Hajdu: static and dynamic tests (review of six papers submitted by individual authors);

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Z/034/63/000/003/004/004
E073/E335

Conference of ....

Engineer Viorel Miclosi: pressure-welding and additives (review of three papers submitted by individual authors); Engineer Ovidiu Centea: flame- and electric-arc-cutting of metals (review of several submitted papers); Engineer M. Ratiu: test methods and test machines (review of four individually submitted papers); Engineer T. Salagean: additive materials (review paper summarizing experience gained in the manufacture of additive wires, electrodes and fluxes in Rumania); Engineer Vl. Popovici: various processes of welding high-grade alloy steels (review of several presented individual papers); Engineer L. Boleantu: non-destructive testing of metals (review of three submitted individual papers, including one on using betatrons for defectoscopy purposes); Engineer A, Ivancenco: new methods of welding (review paper on welding under flux, welding in a protective carbon-dioxide atmosphere and in an argon atmosphere); Engineer A. Bernath: fatigue-testing of metals (review of seven individually submitted papers); Engineer Josif Bonescu: problems of testing welding machines and of work safety (review paper). The conference was attended by over 230 Rumanian and 40 foreign specialists (5 Czech, 7 Polish, 9 East German, 17 Hungarian).

Conference of Z/034/63/000/003/004/004
E073/E335

The authors consider the contribution of Academician Miclosi on the "selection of steel for welded structures" to be the most interesting.

ASSOCIATION: ŽVIL, Pilsen

Card 3/3

LOBL, Karel, inz., kandidat technickych ved; PILOUS, Vaclav, inz.

Welding thick-walled austenitic castings for the power industry. Zvar sbor 10 no.2:169-185 '61.

1. Statni vyzkumny ustav materialu a technologie, Praha; Vyzkumny a zkusebni ustav, Leninovy zavody Plzen.

S/123/62/000/012/010/010
A004/A101

AUTHORS: Koutský, J., Pilous, V., Pokorný, R.

TITLE: Developing modified steels with 12% Cr for steam and gas turbine parts at the Plants im. V. I. Lenin at Pizen (Republic of Czechoslovakia)

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 12, 1962, 4 - ?, abstract 12G28 ("Zvárac. sb.", 1961, v. 10, no. 4, 353 - 371, Czech; Russian, German and English summaries)

TEXT: A highly heat-resistant T 58 steel grade of the martensite type has been developed (0.16 - 0.2% C, 11.5 - 12.5% Cr, 2.0 - 2.5% W, 0.15 - 0.25% V, 0.5 - 1.0% Ni), which is used in the manufacture of forged gas turbine parts. Another newly developed heat-resistant T 59 grade steel (0.10 - 0.15% C, 11.5 - 13.5% Cr, 0.5 - 0.8% W, 0.10 - 0.20% V, 0.5 - 1.0% Ni) represents a transition grade between the classic steel with 12% Cr and its highly heat-resistant modification, and is suitable for the manufacture of cast parts operating at 600°C. After oil-hardening at 1,050°C and tempering at 680°C the T 58 grade steel has

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$_{b}$ = 80 kg/mm^2, $_s$ = 60 kg/mm^2, = 5 % and a_k = . kgm/cm^2. The optimum condi- tions for the T 59 grade steel are .,05. °C (4 hours) (cooling in air), ... (6 hours) (air) or 700°C (6 hours) (air); $_b$ = 7. kg/mm^2, $_s$ = 55 kg/mm^2, = ..%, a_k = 5 - 6 kgm/cm^2. The modified steel grades T 58 and T 59 with 12% Cr can be welded with electrodes having the same mechanical properties as the base material. Such electrodes, which have been specially developed with the brands E 58 and E 58M, yield seams without cracks with a creep limit at 600°C which corresponds to the values of the steels to be welded (at 100,000 hours and 600°C not less than 1. kg/mm^2 for the T 58 grade and 4 kg/mm^2 for the T 59 grade steel). The E 58 electrodes produced from a steel modified with 2 - 2.5% W and V, yield a seam with a_k = 1.5 - 2.5 kgm/cm^2, this value being 4.0 - 8 kgm/cm^2 after heat treatment. These electrodes are suitable for welding material up to .5 mm thickness, intermediate annealing is required with material of greater thickness. The E 58M electrodes contain 0.4 - 0.6% [Abstracter's note: no designation given] and are suitable for welding material of more than 35 mm thickness in the case of an intermediate annealing being impracticable. The advantage of the E 58M electrode over the E 58 grade is the higher a_k value of the former, which amounts to 1.8 - 3 kgm/cm^2 after welding and 5 - 9 kgm/cm^2 after heat treatment. [Abstracter's note: Complete translation]

Ya. Polyakov

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

CZECH/34-59-5-9/19

AUTHOR: Pilous, Václav, Ing.

TITLE: Weldability of Škoda T-56 High Creep Strength Cr-W-Mo-V steels in the Forged State (Svařitelnost žárupevné oceli Cr-W-Mo-V Škoda T56 v kovaném stavu)

PERIODICAL: Hutnické Listy, 1959, Nr 5, pp 429-435 (Czechoslovakia)

ABSTRACT: This steel (which is patented in several countries) has been developed by the Research Laboratories of the Škoda Works. It is a ferritic-pearlitic alloy steel and is made with alloying elements relatively easily available in Czechoslovakia. It is intended for producing castings for steam turbines and in the forged state for rotors of 100 to 200 MW unit rating turbines operating with steam of an initial temperature of 565 °C. It is superior to the Cr-W-V steels TBW-50 and Loc-315 at present used for the same purpose. In the work described in this paper the metallurgical aspects of the weldability of this steel in the forged state were investigated using V Lof Spec Extra Czech produced (Cr-Mo-V) electrodes. The results can be summarised thus: 1. The steel Skoda T56 is weldable only in the heat

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CZECH/34-59-5-9/19

Weldability of Škoda T-56 High Creep Strength Cr-W-Mo-V steels in the Forged State

treated state and if possible it should be effected after tempering at 750°C.
2. Austenite to martensite transformation during welding is prevented by pre-heating the forgings to 380°C for 15 mins. The resulting structure after welding of the weld metal and of the transition zone is bainite which, after tempering at 750°C, becomes transformed into a ferrite-carbide structure.
3. After cooling from 1030°C at a speed of 1000 to 250°C/hr, the base material has low values of impact strength. Therefore, great attention must be paid to the pre-heating temperature during welding. In the case of welding 25 mm plates with pre-heating to 380°C the cooling speed in the transient zone in the temperature range 750 to 600°C is 40 000°C/hr. At higher pre-heating temperatures the cooling speed drops sharply and cracks may occur in the transient zone in the case of welding material of a large thickness. In the case of welding thick rings, where the heat conductivity is low, it is necessary to reduce the

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Weldability of Škoda T-56 High Creep Strength Cr-W-Mo-V Steels in the Forged State

content to a value which applies for cast steel Skoda T56 or to carry out the welding in such a way that the cooling speed in the transient zone does not reach critical values.

4. The Czech electrode material, V. Lof Spec Extra, is suitable for welding this steel. After sustained loading at elevated (operating) temperatures, the transition between the base material and the weld metal is gradual and has a ferrite-carbide structure. There are 13 figures, 7 tables and 10 references, 4 of which are Czech, 3 Soviet, 2 English, 1 German.

ASSOCIATION: Výzkumný a zkušební ústav Závodu V. I. Lenina, Plzeň (Research and Test Institute V. I. Lenin Works, Pilsen)

SUBMITTED: February 7, 1959

PILOUS, Vaclav, inz., ScC.

Third International Colloquy on Steel Weldability in Weimar. Zvaranie 12 no. 6: 177-178 Je '63.

1. Leninovy zavody Plzen.

[illegible], Ja[illegible], inz., candidate [illegible]

The problem [illegible] ferritic-pearlitic [illegible] welding with [illegible] austenitic layer on the welding edge. Zvar [illegible]

KOUTSKY, J., inz., C.Sc.; PILOUS, V., inz., C.Sc.

Welding of modified 12 per cent Cr steels used in the Lenin Works in Plzen. Zvar sbor 11 no.1:154-169 '62.

1. Leninovy zavody, Plzen.

PILOUS, Vaclav, inz., C.Sc.

New experience with the welding of alloy steel and alloys in Leninovy zavody [Lenin Works] in Plzen. Zvaranie 11 no.5:130-135 My '62.

1. Leninovy zavody, Plzen.

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PAWERA, Karel, inz.; PILOUS, Vaclav, inz., kandidat technickych ved;
POBORIL, Frantisek, inz., dr.

Microstructure and mechanical properties of weld joints of austenitic and ferrite pearlitic creep resisting steel for boilers with high parameters. Hut listy 16 no.3:18[illegible]-19[illegible] Mr '[illegible]

1. Vitkovicke zelezarny Klementa Gottwalda, Ostrava (for Pawera).
2. Zavody V.I.Lenina, Vyzkumny a zkusebni ustav, Plzen (for Pilous).
3. Vyzkumny ustav hutnictvi zeleza, Praha (for Poboril).

[illegible]
A066/A101

AUTHOR: [illegible], Václav

TITLE: On the problem of welding steels with different structural [illegible]

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 8, 1961, [illegible], abstract [illegible] ("Zváranie", 1960, 9, no. 9, [illegible]), Czechoslovak

TEXT: Welding rods of alloy [illegible] containing [illegible] Fe, and also W, Mo, Ti, and Al, were cast in a sand mold (the rod length was [illegible] mm, diameter [illegible] mm). Thereupon the rods were forged to a diameter of [illegible] mm. These rods were used to weld steel [illegible] (ferrite + pearlite) and [illegible] (austenite), after which the seam was heated up to [illegible]. For the seam metal at [illegible] and after heat-treatment at [illegible] the σ_b = [illegible] and [illegible] kg/mm² respectively, δ = [illegible] and [illegible]%, ψ = [illegible] and 55% respectively; $a_k \gg$ [illegible] kg-m/cm². Due to the fact that the coefficient of linear expansion of the metal of the rod [illegible] is intermediate to that of the steels welded, better results are obtained by means of it than by welding with rods of steel [illegible]. There are [illegible] references. [illegible] previous publications see RZhMet, [illegible]

M. [illegible]

[Abstracter's note: Complete translation]

Card 1/1

23306

SLOV/006/60/000/004...

D237/D304

1 2300 also 1573

AUTHOR: Pilous, Václav, Engineer, Candidate of Technical Sciences

TITLE: A contribution to the question of ferrite-pearlitic steel welding with an austenitic cushion

PERIODICAL: Zváračský sborník, no. 4, 1960, 439 - 444

TEXT: The article indicates methods for determining the weldability of steel with different structural basis (austenitic and ferrito-pearlitic). The detailed study at VÚZ in Bratislava established the advantage of sequence welding during which a "cushion" of a low-carbon electrode (E 44.83) with 0.06 - 0.08 % carbon content is welded onto a low-alloy material. The filling weld is by the austenitic stabilized electrode (E 391). The carbonization of the austenitic weld does not occur due to the low carbon content of electrode E 44.83. This welding procedure was worked out by Academician I. Čabelka (Ref. 1: SAV Bratislava 1953). The impact

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strength of the toe layers is satisfactory after welding and heat treatment. The weld can be used up to the working temperatures of high-alloy cladding steel if the load bearing steel is not very thick. The arc-welded heat resisting butt-joint with auxiliary material can be used for working temperatures from 450 to 500°C, when there is still no carbonization of austenitic welding metal from the low-alloy material due to the low-carbon "cushion". The joint between austenitic and low-alloy materials for the welding temperature in the range 500 - ... °C should be made by 18/8 CrNi electrodes, according to the ... ners. The large decarbonized zones occur in the low alloy m... al toe adjacent to the austenitic welding metal during heat treatment at working temperatures. The carbonization and decarbonization is due to the different solubility of carbon in alfa and gamma phases as quoted in F ... (Ref. 4: Journal of the Iron and Steel Inst. IX. 19... The yield thermal stress at 500 - 600°C additional to the ... stress causes cracks in a region close to the austenitic weld ... This is due to the different thermal expansion coefficient of the

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D237/D304

A contribution to the ...

austenitic welding material and the basic ferro-pearlitic material. One solution for preventing cracking is to form an anti-diffusion barrier between these two materials which prevents the transit of carbon from the low-alloy steel to the austenitic welding metal. The Leninovy závody, Plzeň (Lenin Works in Pilsen) solved the problem by using auxiliary rods VZÚ having 60/18 NiCr. This welding material has a coefficient of thermal expansion between the low-alloy ferro-pearlitic and the austenitic material coefficients so that cyclic thermal stresses are not so critical and also the solubility of carbon in VZÚ welding metal is small. The rods are manufactured by casting instead of rolling which is an advantage compared with foreign rods. Due to the shortage of nickel they are used mainly for welding alloy VZÚ of the distributors for gas turbines. Otherwise they are used as "cushions" of low-alloy ferro-pearlitic materials while the filling electrode is of type 18/8 CrNi. The welding of VZÚ layer is made in a protective argon atmosphere to form an effective barrier against carbon diffusion. The filling weld is made by austenitic electrodes 18/8 CrNi (E 391 or E 891).

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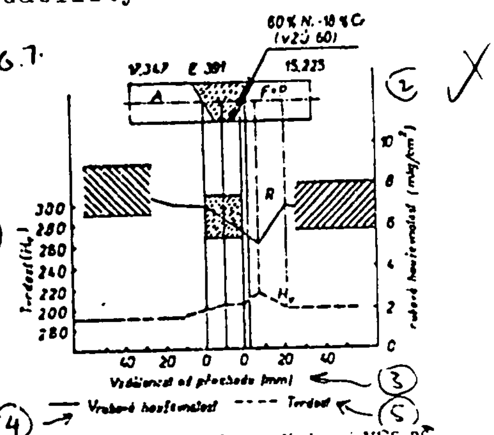
A contribution to the ...

The welding is made by pre-heating to a temperature corresponding to the low-alloy material and afterwards the weld is tempered to the temperature of low-alloy material (material 15 225 - tempering temperature 720°C). The impact strength and hardness established for tempering the weld by the direct weldability test VÚS 2S is shown in Fig. 7.

Fig. 7. Results of direct weldability tests VÚS 2S.

Legend: 1 - Hardness H_V; 2 - impact strength in mkg/cm^2; 3 - distance from toe in mm; 4 - impact strength; 5 - hardness.

FIG. 7.



Obr. 7. Výsledky přímé zkoušky svařitelnosti VÚS 2S.

Card 4/5

23306
SLOV/006/60/000/004/002/004
A contribution to the ... D237/D304

The maximum impact strength is 5.2 mkg/cm^2, the hardness is between 190 - 216 H_V. The maximum hardness in the affected region was obtained after welding close to the toe edge - 320 Hv. The samples were left at 00C during loading 15 kg/mm^2 after heat treatment. After 1500 s there was no breaking of the test pieces. Also no cracks were noted after cyclic thermal loading at 575°C for 1000 hours in 23 hour periods. The tests are being continued to obtain 5000 test hours at temperature. The micro-hardness of the toe region is in the range of 240 - 252 H_{vm}. Isolated cases had micro-hardness up to 350 H_{vm} in the zone close to the toe edge for the welding metal VZÚ 60. There are 8 figures and 8 references: 5 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: F.D. Richardson, Journal of the Iron and Steel Inst. IX, 1953, 33 - 51.

ASSOCIATION: Leninovy závody Plzeň (Lenin Works, Pilsen)

Card 5/5

[illegible]

"[illegible] of [illegible] Cr-[illegible]"

[illegible]

Monthly [illegible]

[illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

PILOUS, V.

Semiautomatic arc welding. p. 295. (Zvaranie, Bratislava, Vol. 3, no. 1[illegible], Oct. 1954)

SO: Monthly list of East European Accessions (EEAL), LC Vol 4, No. 6, June 1955, Uncl

Pilous, Vaclav

15881* Welding of Aluminum and Copper by Low Temperature Heat and Pressure. [illegible] (Czech.) Jiří [illegible] and Václav Pilous. [illegible], v. 4, no. 5, May [illegible], p. [illegible].

Transition pieces of the metals are carefully heated to a little below the melting point of Al and firmly pressed together. Diagrams, photographs, table.

PILOUS, V.

Cold pressure welding of aluminum and copper. p. 204.
STROJIRENSTVI Vol 5, no. 3, Mar. 1955
Czechoslovakia

SOURCE: EEAL, Vol 5, no. 7, July 1956

PILOUS, V.

Aluminum and copper cold-pressure butt welding. p. 357.

ZVARANIE, Vol. 4, No. 12, Dec. 1955.
Czechoslovakia.

SOURCE: East European Accessions List, Library of Congress
Vol. 5, No. 7, July 1956.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

Pilous, V.

5

V 13345* Cold Pressure Welding of Aluminum and Copper. [illegible] (Czech.) V.
M6 Pilous and I. Hasberis. Strojirenstvi, v. 5, no. 8, Mar. 1955, p. [illegible]-312.
Factors controlling welding results; design of welding stamps; methods of cleaning parts; pressure, temperature and speed of welding; previous heat treatment; mechanical tests of welded joints; corrosion and metallographic tests; theory. Diagrams, graphs, tables, micrographs, photographs. 4 ref.

Dj ① gr

PILOUS, V.

"Gas Exhaust in Arc Welding." p. 169, Praha, Vol. 2, no. 4, 1954.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress

67013
CZECH/... 10 ...

18.1150
18.7200

AUTHOR: Václav Pilous (Cand Tech. Sci., Engineer)

TITLE: Contribution on the Metallurgical Weldability of 5% Cr Steels Innoculated with Molybdenum or Tungsten

PERIODICAL: Hutnické Listy, 1959, Nr 10, pp 895-898

ABSTRACT: "Rena" steel with 5% Cr innoculated with 0.5% molybdenum is being supplied in the "as cast" state and also shaped by the Vitkovice Iron Works "K. Gottwald", for high temperature use. This steel is being used for media with outflowing temperatures up to 600 °C and wall temperatures up to 575 °C. In order to save molybdenum and nickel, ZVIL Pilsen, developed a 5% chromium steel grade 1555W (CSN 42 ...900) in which the same molybdenum is substituted by double the quantity of tungsten (1%). For welding these steels, the Welding Research Institute in Bratislava is applying ferritic perlitic electrodes with a composition similar to that of the welded material with alloying elements in the electrode coatings. The electrode plant of the Vitkovice Iron Works have produced for this purpose suitable electrodes in which the alloying material is located in the core of the electrode. In this paper the welding properties of (Mo-W)

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67013

CZECH/34-59-10-13/25

Contribution on the Metallurgical Weldability of 5% Cr Steels Innoculated with Molybdenum or Tungsten

steel are discussed. The weldability of these steels was judged from the hardness characteristic of Jominy rods querched at the faces and from the location of the perlitic front on the isothermal diagrams. The chemical compositions of the materials produced in the experimental heats are given in Table 1, p 695 The test results have confirmed that tungsten increases the stability of the austenite in the ferritic-perlitic range in steels containing 5% chromium. 5% Cr W (1555W and CSN 42 2900) steel in which molybdenum is substituted by double the quantity of tungsten (1% W) will have a similar welding behaviour to that of 5% Cr Mo steel (1555 - CSN 17 102). This was proved by the results of cooling experiments at stepped cooling speeds between 450000 and 20 °C per hour, Jominy end hardening tests and calculations of the cooling speeds from isothermal diagrams. By comparing the cooling speeds at which a 20% austenite decomposition takes place in the perlitic nose region with speeds reached in the case of welding with pre-heating to a temperature of 300-400 °C

Card 2/3

67013

CZECH/34 59-10-13/25

Contribution on the Metallurgical Weldability of 5% Cr Steels Innoculated with Molybdenum or Tungsten

and in the case of welding without pre-heating (Table 5), it can be seen that in no case will the speeds be so high that the perlitic nose of the S curves would be affected. From the point of view of welding, W has a favourable effect on chromium steels since it reduces the stability of the austenite in the region of the bainitic transformation by shifting the nose of the bainitic transformation to the left, thus accelerating the austenite transformation (Figs 6-8). Even if very thick sheets are welded, the resulting structure in the transient zone of the welded material will be bainitic which is transformed to a sorbitic structure with a high notch impact strength after tempering. Welding is usually followed by tempering at 720 °C and cooling in air. There are 9 figures, 5 tables and 6 references, of which 3 are Czech, 2 are English and 1 is German.

Card 3/3

ASSOCIATION: Výzkumný a zkušební ústav ZVIL, Plzeň (Research and Test Institute ZVIL, Pilsen)

SUBMITTED: April 18, 1959

Z/034/61/000/003/004/011
E073/E335

AUTHORS: Pawera, Karel, Engineer, Pilous, Václav, Candidate of Technical Sciences, Engineer and Pobořil, František, Engineer Doctor

TITLE: Microstructure and Mechanical Properties of Weld Joints Between Austenitic and Pearlitic Creep-resistant Steels for Boilers Operating at High Pressures and Temperatures

PERIODICAL: Hutnické listy, 1961, No. 3, pp. 186 - 197

TEXT: In thermal power stations with high operating steam temperatures and pressures austenitic steels have to be used for the hottest sections of the superheater and the high-pressure boiler whilst less thermally stressed sections can be made from cheaper ferritic-pearlitic steels. In 1959 the problem of producing satisfactory weld joints between these two types of steel became acute. Since at the time a satisfactory weld joint between ferritic-pearlitic and austenitic steels was not available, it was decided to verify the possibility of using a welding technology developed in the

Card 1/15

Z/034/61/000/003/004/011
E073/E335

Microstructure and Mechanical ...

Vyzkumny a zkusebný ústav, Závody V.I. Lenina v Plzni (Research and Test Institute of the V.I. Lenin Works, Pilson).

In the first part of the paper results published in the literature are reviewed: work is mentioned of A.S. Gel'man and V.S. Popov (Ref. 2), J.T. Tucker, Jr. and F. Eberle (Ref. 3), F. Erdmann-Jesnitzer, M. Beckert and H. Schmiedel (Ref. 4), B. Löfblad and E. Lindh (Ref. 5) and H. Linden and H. Henneke (Ref. 6) and information published by the International Nickel Company (Ref. 8) and also work by A.F. Kozajev, A.V. Sibanov (Ref. 9), L. Jenícek (Ref. 10), Z. Eminger, J. Krumpos (Ref. 11) and P. de Marneffe of France (Ref. 13) as well as earlier work of one of the authors (Ref. 1). Practical experience has shown that during heat-treatment and also when the material is held over long periods at the operating temperatures, a decarburised zone, a few tenths of a mm wide, forms in the transient zone in the ferritic-pearlitic steels, whilst in the strip which is directly adjacent to the austenitic weld metal a thin carburised zone forms. This behaviour is attributed to the

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differing solubility of carbon and the α and γ phases. For weld joints between ferritic-pearlitic and austenitic material which are exposed to high alternating thermal stresses under load, the Lenin (Škoda) Works make the weld using the material VZÚ 60, which contains 60% Ni and 50% Cr; the coefficient of thermal expansion of this material has a value which is intermediate between that of ferritic-pearlitic and that of austenitic steels (Fig. 3). The solubility of carbon in this material, which contains predominantly Ni, is very low and therefore it forms an effective barrier against carbon diffusion. Compared with similar fabricated electrodes produced by Messrs. Wiggin in Great Britain, the Czech-produced electrodes are cast rods, which are considerably cheaper. The V.I. Lenin Works have developed a reliable process for manufacturing such welded rods; the only scrap is that caused by the gatings, amounting to 25-30% of the charge weight. After casting, the rods are sand-blasted and cold-forged on a rotary forging machine TOS R 16 to a diameter of 3.5 mm. These electrodes are used for argon-arc welding of high-alloy alloys

operating at temperatures up to 700 °C. The welding metal has the most favourable mechanical and physical properties after hardening at 750 °C (250 H_V, impact strength up to 10 mkg/cm^2). The hardness of the welding metal after welding is 160 H_V with an impact strength of 9 mkg/cm^2. The mechanical properties of this metal are given in Table 1. The proneness to temper brittleness was investigated at the temperatures of 600, 650 and 700 °C for 1 000 hours; the impact strength does not change appreciably by the ageing and a drop by about 20% was detected only after cooling to 20 °C, which is attributed to the fact that the weld metal was perfectly hardened. The experiments were made on welds joining tubes of a diameter of 32 x 5 mm of the steel ČSN 15225 (Lof special extra) with tubes of equal dimensions of the steel ČSN 17481 (MnCrTi 17/7). The composition (in %) of these steels is as follows:
ČSN 15225 - 0.10-0.15 C, 0.45-0.65 Mn, 0.15-0.25 Si, 0.40-0.50 Cr, 0.90-1.00 Mo, 0.20-0.35 V, max 0.045 P and max. 0.045 S;

ČSN 17481 - 0.05-0.12 C, 17.0-19.0 Mn, max. 0.70 Si, 7.0-8.0 Cr, 0.30-0.60 Ti, max. 0.040 P and max. 0.035 S. The following combinations of weld joints and heat-treatment were used in the experiments:

Type of weld seam	Base Material	Weld Seam	Heat treatment (after welding)
A	15225/17481	VZÚ 60	a) 980°C/0.5 h/air 680°C/1 h/air b) 680°C/2 h/air c) without heat treatment
B	15225/15225	VZÚ 60	a) 980°C/0.5 h/air 680°C/1 h/air
C	17481/17481	VZÚ 60	a) 980°C/0.5 h/air 680°C/1 h/air
C1	17481/17481	"C"	d)1000°C/0.5 h/air.

The purpose of the combinations B and C was to determine the additional influence of the base materials 15225 and 17481 on the properties of the welding material VZÚ 60; the purpose of the combination C1 was to evaluate the stability of the weld of the austenitic tubes from the steel 17481 welded by the argon-arc method, using the material "C" (MnCrMo(Nb) 17/7) in accordance with the technology worked out by J. Novotný (Refs.16,17) at the Vyzkumný ústav svářečský (Welding Research Institute). The heat-treatment a) corresponds to that normally specified for the steel ČSN 15225; b) to that specified for erection weld seams of the steel ČSN 15225; d) corresponds to the heat-treatment specified for welds of the steel ČSN 17481. In contrast to the technology of argon-arc welding of uniform materials, where it is advantageous to fuse the root of the weld without additional material, it is in this case necessary to deposit material from the VZÚ 60 electrode also into the root, so as to prevent diffusion of carbon from the ferritic-pearlitic into the austenitic material. The results of X-ray tests with an oblique beam through two walls did not prove satisfactory

Z/034/61/000/003/004/011
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from the point of view of giving a reliable indication of the quality of the weld seam and should not be used for quality control. Therefore, the authors considered using an X-ray beam in two mutually perpendicular planes. In the bending tests (of A, B, C) bending angles between 38 and 73° were achieved before the first crack occurred and in two cases bending angles of 120 and 135° were achieved without any crack. These results show that the weld joint has a satisfactory plasticity. Bending tests on the tubes welded with the electrodes "C" showed good results; bending angles of 180° were achieved without fracture. In tensile tests at 20 °C, yield-point values of 30 - 41.4 kg/mm² were achieved, with strength values of 45.7 - 59.5 kg/mm² and contraction of 10.4 - 14.7%. The fractures always occurred in the weld metal VZÚ 60 which, at this temperature, has a lower strength than both the base materials, the mechanical properties are fully in accordance with the respective values for the cast alloy VZÚ 60. Tensile tests at 575 °C showed yield-point values of 13.2 - 18.9 kg/mm², strength values of 27.4 - 35.5kg/mm²

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and an elongation of 15.3 - 22.7%; fractures almost always occurred in the austenite and the results correspond with the appropriate values for the material ČSN 17481 at that temperature. The results of metallographic tests confirm that the alloy VZÚ 60 is suitable for welding ferritic-pearlitic steels with austenitic steels; the coefficient of thermal expansion of this alloy has a value which is intermediate between the respective values of the two materials. Due to its high nickel content, diffusion of carbon from the ferritic-pearlitic into the austenitic steel is prevented. The results of creep-rupture tests for specimens of the dimensions as shown in Fig. 13 (tube diameter 32 x 5 mm) are plotted in Fig. 14. It can be seen that the results roughly correspond to a straight line representing average values for the material 15225. The method of heat-treatment of the joints had practically no influence on the results. The fractures always occurred in the transition zone of the base material 15225. Compared with the respective values currently assumed for these materials, the strength under creep conditions of the transient zone of the material 15225 was somewhat lower and that of the material 17481 was somewhat higher. In 3-month corrosion tests the corrosion speed of both base materials was about 0.7 - 1.7 g/m^2day corresponding approximately to 0.03 - 0.09 mm/year. In no case was an intensive or local corrosion attack detected in the weld, neither the material "C" nor the material VZÚ 60 showed signs of having been attacked by corrosion in a power-station condensate which was saturated at 20 °C with oxygen and carbon dioxide. Acknowledgments are expressed to Duchek (VZÚ-ZVIL) and Pajůrka (VŽKG), who made the experimental weld joints Engineer Toman and Engineer Šeděnko (VZKG) and Tykal (VÚHZ) who carried out the metallographic analyses Baier (VŽKG) and Franc (VÚHŽ), for carrying out the mechanical and creep tests Engineer Šveřej (SVÚOM) for carrying out the corrosion tests and also to Engineer Huber (VŽKG) There are 14 figures, 7 tables and 20 references: 6 Czech and 14 non-Czech.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

Microstructural and Mechanical

Z/034/61/000/003/004/011
E073/E335

ASSOCIATIONS: VŽKG Ostrava (K. Pawera)
VZÚ ZVIL Pilsen (V. Pilous)
VUHZ Prague (F. Pobořil)

SUBMITTED: November 14, 1960

Card 10/15

Table 1

Temperature, °C	Heat Treatment	Yield point kg/mm^2	Strength kg/mm^2	Elongation (5d), %	Contraction %	Impact Strength, mkg/cm^2
20	No heat-treatment	23.2	44.4	25	25	9
20	[illegible]	33.4	55.6	20	20	7
500	[illegible]	17.2	34.4	26	28	9
550	[illegible]	16.5	32.4	27	28	9
600	[illegible]	15.5	30.2	27	28	9
650	[illegible]	14.5	29.6	24	27	9
700	[illegible]	13.2	28.4	22	26	9

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Microstructural and Mechanical ... E073/E335

Table 2.

	C	Mn	Si	P	S	Cr	Ni	Ti	Fe	W	Mo	Al
Specified composition	max 0.10	max 0.30	max 0.80			max 19.0	rest	max 1.50	max. 15.0	max. 5.0		max. 0.80
Composition of high-frequency heat No 479	0.06	0.21	0.4[illegible]	0.009	0.02[illegible]	18.05	[illegible]	1.22	10.94	2.10	2.19	0.47

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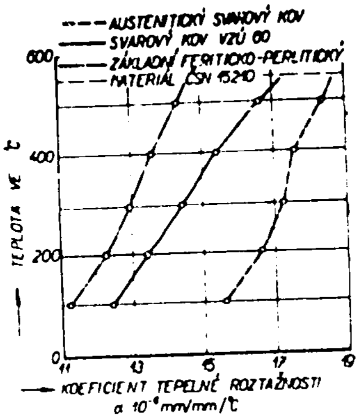
Fig. 3: Coefficient of thermal expansion of austenitic electrode material E 391, the weld alloy VZÚ 60 and of the base ferrite-pearlite material CSN 15210 in the temperature range 100 to 550 °C.

Temperature, °C versus coefficient of thermal expansion, $\alpha \times 10^{-6}$ mm/mm/°C.

---- Austenitic weld metal

____ Welding alloy VZÚ 60

—·— Base ferrite-pearlite Material CSN 15210



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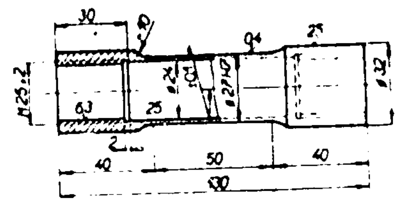
Microstructural and Mechanical ...

Fig. 13: Test specimen from the tube of diameter 32 x 5 mm for creep-rupture tests.



Obr. 13. Zkušební vzorek z trubky Ø 32×5 mm pro zkoušku tečení do lomu.

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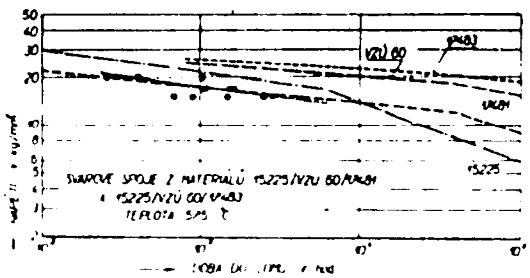
Fig. 14: Results of creep-rupture tests of experimental weld joints.
Stress, kg/mm^2 versus time-to-failure, hours.

Weld joints from the materials 15225/VZU 60/17481 and 15225/VZU 60/17483
Temperature 575 °C.



PILOUS, V.; JANDOS, F.

"Weldability of cast steel with 13 percent chromium content." p. 191.

SLEVARENSTVI. (Ministerstvo tezkeho strojirenstvi a Ceskoslovenska vedecka technicka spolecnost pro hutnictvi a slevarenstvi). Praha, Czechoslovakia, Vol. 7, No. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.
Uncla.

PIL?S, V.

Contribution to the properties of E 391 and E 491 austenitic electrodes. p. 2.

ZVARANIE. (Ministerstvo hutneho priemyslu a rudnych baní a Ministerstvo str... ...ierstva) Bratislava, Czechoslovakia. Vol. 8, no. 7, July 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, no. 1?, Oct. 19??. Uncl.

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67013
CZECH/34-59-10-13/25

AUTHOR: Václav Pilous (Cand Tech Sci., Engineer)

TITLE: Contribution on the Metallurgical Weldability of 5% Cr Steels Innoculated with Molybdenum or Tungsten

PERIODICAL: Hutnické Listy, 1959, Nr 10, pp 895-898

ABSTRACT: "Rena" steel with 5% Cr innoculated with 0.5% molybdenum is being supplied in the 'as cast' state and also shaped by the Vitkovice Iron Works "K. Gottwald", for high temperature use. This steel is being used for media with outflowing temperatures up to 600 °C and wall temperatures up to 575 °C. In order to save molybdenum and nickel, ZVIL, Pilsen, developed a 5% chromium steel grade 1555W (CSN 42 2900) in which the scarce molybdenum is substituted by double the quantity of tungsten (1%). For welding these steels, the Welding Research Institute in Bratislava is applying ferritic-perlitic electrodes with a composition similar to that of the welded material with alloying elements in the electrode coatings. The electrode plant of the Vitkovice Iron Works have produced for this purpose suitable electrodes in which the alloying material is located in the core of the electrode. In this paper the welding properties of (Mo-W)

Card 1/3

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

67013

CZECH/34-59-10-13/25

Contribution on the Metallurgical Weldability of 5% Cr Steels Innoculated with Molybdenum or Tungsten

steel are discussed. The weldability of these steels was judged from the hardness characteristic of Jominy rods quenched at the faces and from the location of the perlitic front on the isothermal diagrams. The chemical compositions of the materials produced in the experimental heats are given in Table 1, p 895. The test results have confirmed that tungsten increases the stability of the austenite in the ferritic-perlitic range in steels containing 5% chromium. 5% Cr W (1555W and ČSN 42 2900) steel in which molybdenum is substituted by double the quantity of tungsten (1% W) will have a similar welding behaviour to that of 5% Cr Mo steel (1555 - ČSN 17 102). This was proved by the results of cooling experiments at stepped cooling speeds between 450000 and 20 °C per hour, Jominy end hardening tests and calculations of the cooling speeds from isothermal diagrams. By comparing the cooling speeds at which a 20% austenite decomposition takes place in the perlitic nose region with speeds reached in the case of welding with pre-heating to a temperature of 300-400 °C

Card 2/3

67013

CZECH/34-59-10-13/25

Contribution on the Metallurgical Weldability of 5% Cr Steels Innoculated with Molybdenum or Tungsten

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Card 3/3

ASSOCIATION: Výzkumný a zkušební ústav ZVIL, Plzeň (Research and Test Institute ZVIL, Pilsen)

SUBMITTED: April 18, 1959

[illegible]S, Vaclav, Inz. CSc

Replacing cast wheels by welded [illegible]
3[illegible] [illegible]

[illegible]

P[illegible], [illegible].

Pil[illegible], [illegible] [illegible] [illegible]
ZA[illegible]; [illegible] PRODO[illegible]. [illegible], [illegible], [illegible], [illegible].

SO: Monthly List of East European Accessions, ([illegible]), [illegible], Vol. [illegible], No. [illegible], [illegible] 19[illegible], Uncl.

PILOUS, Z

The moss Pseudoleskea Saviana Latzel in Slovakia. p. 40.

BIOLOGIA. (Slovenska akademia ced) Bratislava CZECHOSLOVAKIA

Vol. 10, No. 4, 1955.

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 5, No. 1, January, 1956

PILOUS, Z.

BLATTNY, C.; PILOUS, Z.

Diseases of mosses (Bryephyta) and ferns (Pteridophyta), which are considered or suspected of being of virus origin. Chekh.biol. 2 no.2:84-92 Ap '53. (MLRA 7:2)

1. Institut biologii ChSAN, fitopatologiya, Praha.
(Mosses--Diseases and pests) (Ferns--Diseases and pests)
(Virus diseases of plants)

PILOUS, Z.

BLATTNY, C.; PILOUS, Z. "Diseases of Mosses (Bryophyta) and Ferns (Pteridophyta) which are Considered or Suspected to be of Virus Origin." p. 84. (Chekhoslovatskaia Biologiia. Vol. 2, no. 2, Apr. 1953. Praha).

SO: Monthly List of East European Accessions, Vol. 3, No.6 Library of Congress, June 1954, Uncl.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340910005-8"

BRANDIS, S.A.; IOSEL'SON, S.A.; PIDOVITSKAYA, V.N.

Functional changes in the body at rest and at work during prolonged inhalation of gas mixtures containing large amounts of oxygen. Fiziol. Zhur. 46 no. 7:801-809 Jl '60. (MIRA 13:8)

1. From the Central Research Laboratory for the Mining Salvation Work, Stalino, Donbass.
(OXYGEN—PHYSIOLOGICAL EFFECT) (EXERCISE)

[illegible] and Animal Physiology - (Normal and Pathological) [illegible] T

AUTHOR : [illegible]

AUTHOR : K[illegible], [illegible]itkaya, R.N.

INST. : U[illegible] Institute [illegible] : Traum[illegible] Orthopedics [illegible]

TITLE : [illegible] Metabolism in Patients with [illegible] Influence of It on Some [illegible] F[illegible]

ORIG. PUB. : [illegible] Ortopediya [illegible]

ABSTRACT : No abstract.

[illegible]

KOGAN, D.A., professor; PILOVITSKAYA, V.N., mladshiy nauchnyy sotrudnik; SAYAPINA, L.I.

Antitoxic hepatic function in fractures of the long bones as affected by some physical factors. Ortop., travm. i protez. 17 no.3:68 My-Je '56
(MIRA 9:12)

1. Iz Uzbekskogo nauchno-issledovatel'skogo instituta ortopedii, travmatologii i protezirovaniya (dir. - kandidat meditsinskikh nauk A.Sh.Shakirov)
(LIVER) (FRACTURES) (PHYSICAL THERAPY)

BRANDIS, S.A.; PILOVITSKAYA, V.N.

Functional changes in the body at rest and during work after breathing for many hours a gas mixture containing a high concentration of oxygen and a small concentration of carbon dioxide. Fiziol. zhur. 48 no.4:455-463 Ap '62. (MIRA 15:6)

1. From the Central Research Laboratory for Mining Rescue, Donetz Regional Economic Council, Donetz.

(RESPIRATION)
(STRESS (PHYSIOLOGY))
(METABOLISM, DISORDERS OF)

MANVELYAN, M.G.; NADZHARYAN, A.K.; AKOPYAN, Z.A.; PILOYAN, E.G.;
GAMBARYAN, S.G.; BABAYAN, S.A.

Changes of nepheline syenite and minerals constituting it during their treatment by potassium hydroxide solutions. Izv. AN Arm.SSR. Khim.nauki 14:417-423 '61. (MIRA 15:1)

1. Institut khimii Sovnarkhoza Armyanskoy SSR.
(Nepheline syenite)

PILOYAN, G.

Minerals genetically associated with the ultrabasic (magnesia-silicate) rocks of the northeastern shores of Lake Sevan.
Prom.Arm. 4 no.12:8-13 D '61. (MIRA 15:2)

1. Nachal'nik Sevanskoy geologorazvedochnoy partii.
(Lake Sevan Region—Minerals)

L 34551-65 EPF(c)/EPF(n)-2/EPR/EWP(j)/EWT(1)/EWT(m) Pi-4/Pc-4/Pr-4/Ps-4/
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Piloyan, Georgiy Ovanesovich

Introduction to the theory of thermal analysis (Vvedeniye v teoriyu termicheskogo analiza) Moscow, Izd-vo "Nauka", 1964. 230 p. illus., biblio. (At head of title: Akademiya nauk SSSR. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii) Errata slip inserted. 1,500 copies printed

TOPIC TAGS: thermodynamic analysis, heat theory, temperature

PURPOSE AND COVERAGE: In this book the author not only summarized already available theoretical materials dispersed in various literacy sources but he also tried to go further on the basis of, what were to him, accepted concepts of characteristics of curves. The book is intended for those who are very familiar with the practice of thermal analysis; although, the reader should be aware that it is not a textbook. For that reason, many problems are not considered in the book even though they are of vital importance in the practical application of this method while appearing elementary on the theoretical side. From this standpoint one can examine the work of G.O. Piloyan as a highly useful supplement to an already available practical book. It is somewhat overloaded with mathematical formulas but the applied mathematics is sufficiently simple and accessible for geologists as well

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as chemists. It is hoped that /this book/ will attract the attention of all who are interested in thermal analysis and its application.

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ALEKSANDROVA, T.A.; NOVIKOV, O.V.; PILOYAN, G.A.; GEVORKYAN, Kh.L.;
BABYSHEV, I.V.

Forsterite refractories from Shorzha dunites. Ogneupory 28
no.11:493-494 '63. (MIRA 16:12)

1. Vsesoyuznyy institut ogneuporov (for Aleksandrova, Novikov).
2. Sevanskaya geologorazvedochnaya partiya (for Piloyan,
Gevorkyan, Babyshev).

SHAKHBAZYAN, T.O.; PILOYAN, [illegible].A.; GEVORKYAN, Kh.O.; MARTIROSYAN, O.A.

Using forsterite refractory materials. TSement 29 no.[illegible]:10-11 [illegible] '63. (MIRA 17:3)

1. Sovet narodnogo khozyaystva Armyanskoy SSR, Shorzhinskiy keramicheskiy zavod i Yerevanskiy politekhnicheskiy institut.

LAPIN V.; [illegible]YAN, C.

[illegible] Anniversary Conferen[illegible]e on [illegible]mental and Te[illegible]
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30 no.[illegible]:155-160 Ja '65 (MIRA 18:[illegible])

MEDVEDEVA, I.Ye.; PETROV, V.P.; KABANOVA, Ye.S.; MARFUNIN, A.S.; TSVETKOV, A.I.; FILOYAN, G.O.; MARFUNIN, A.S., doktor geol.-miner.nauk, otv. red.; ZAKHAROV, Ye.Ye., prof., glav. red.

[Achievements of science: Geochemistry, mineralogy, petrography, 1963-1964] Itogi nauki: geokhimiia, mineralogiia, petrografiia, 1963-1964. Moskva, Akad. nauk SSSR. In-t nauchnoi informatsii, 1965. 235 p. (MIRA 19:2)

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PILOYAN, G. O.; TSVETKOV, A. I.; LAPIN, V. V.; VALYASHIKHINA, Ye. P.

"On solid-phase interaction between carbonates and clay minerals during thermal analysis."

Report submitted for the International Clay Conference, Stockholm, Sweden, 12-16 Aug 63.

PILOYAN, G.O.

Using DTA for the quantitative determination of some minerals in natural and artificial mixtures. Izv. AN SSSR. Ser.geol. 28 no.6:24-42 Je '63. (MIRA 16:8)

1. Institut geologii rudnykh mestorozhdeniy petrografii, mineralogii i geokhimii AN SSSR, Moskva.

(Mineralogy, Determinative)

TSVETKOV, A.I.; PILOYAN, G.O.

Third All-Union Conference on Thermography. Izv.AN SSSR.Ser. geol. 28 no.2:118-119 F '63. (MIRA 16:2)
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