A V Volkovich *et al*, *Soviet J Non-ferrous Metals, May 1965, 86, (in Russian).*

37 : 47

876. The increase of O_2 and N_2 in the furnace atmosphere during the melting of metal in a vacuum induction furnace. *(USSR)*
The determination of the increase in concentrations of O_2 and N_2 in the atmosphere of a vacuum induction furnace showed that the main source of O_2 and N_2 in the furnace atmosphere are gases desorbed from the refractory of the MgO crucible.
M I Slosmen, *Izv Tomskogo Politek Inst, 114, 1965, 40–42, (in Russian).*

37

877. Heat-treatment of metals under vacuum. *(Germany)*
The author considers the metallurgical principles of vacuum annealing with special reference to ferrous metals and reviews present trends in vacuum annealing furnace design.
K Werner, *Technik, 20, 1965, 472–477, (in German).*

37

878. A decade of vacuum degassing at US Steel Corporation. *(USA)*
During the last ten years, the US Steel Corp has designed and installed four research and five commercial vacuum degassing units. All of these units use steam ejectors to create and maintain the required vacuum and operate on the stream-degassing principle. Some of the units are described briefly and the advantages of vacuum degassing are indicated.
C J Hunter and J N Hornak, *Blast Furnace Steel Plant, 33, Aug 1965, 699–703.*

37

879. Ladle to ladle vacuum stream droplet degassing facility and operations at Sharon Steel Corporation. *(USA)*
A description and use of the ladle to ladle vacuum stream droplet degassing technique is described.
L H Wilson and T F Unick, *Blast Furnace and Steel Plant, 53 (10), Oct 1965, 823–832.*

37

880. Surface decarburization-free annealing under vacuum. *(USA)*
W Herdieckerhoff, *Wire, 1965, 112–113.*

37

881. Vacuum aids heat treating. *(USA)*
The present techniques used are reviewed with illustrations of furnaces used.
Anon, *Steel, 157, 1965, 102.*

37

882. Ladle degassing with induction stirring and high vacuum. *(USA)*
Induction stirred ladle vacuum degassing has provided a reliable production tool for upgrading quality and improving the reproductibility of high-grade aircraft and bearing steels.
T E Perry, *Iron and Steel Eng, 42 (10), Oct 1965, 89–94.*

37

883. Manufacture of high-strength rails with the use of a vacuum. *(Czechoslovakia)*
Z Motlock and S Horejs, *Hutn Listy, 20, 1965, 468–473, (in Czech).*

37

884. Vacuum treatment of molten ferrochromium. *(USSR)*
S V Bezobrasov *et al*, *Stal', 25 (9), 1965, 820–823, (in Russian).*

37

885. "Choke" casting cuts mold costs. *(USA)*
Copper components with a surface finish of 250 micron-in., rms and dimensional tolerance of 0.002 in. are vacuum cast in high purity molds. To permit removal of the casting without mold damage, a special design was adopted in which the mold sections are arranged in a vertical stock contained within a graphite jacket with a screw-down top.
Anon, *Iron Age, 196 (7), 1965, 138–139.*

37

886. Final stage densification in vacuum hot-pressing of alumina. *(USA)*
The kinetics of the final stage of densification of fine-grained alumina were studied by vacuum hot-pressing between 1150° and 1350° and from 2000 to 6000 psi. The kinetics are consistent with the Nabarro Herring diffusional creep model.
P C Rossi and R M Fulrath, *J Amer Ceramic Soc, 48 (11), 1965, 558–564.*

37

887. New techniques in steel making. *(USA)*
Describes the continuous casting process. Diagram of casting using a curved mould, includes the solidification chamber and withdrawal rolls. Vacuum degassing by the Dortmund-Horder process. Diagrams of vacuum vessel suction nozzle, ladle and addition hoppers.
Anon, *Factory Plant, 53 (6), 1965, 34–39.*

37

888. Heat treatment of metallic materials in vacuum. *(Germany)*
A review of theory and practice.
G Ogiermann, *Haerterei-Tech Mitt, 23 (3), 1965, 180–186, (in German).*

37

889. Determination of elevated temperature fatigue data on refractory alloys in ultrahigh vacuum. *(USA)*
A research programme is conducted to obtain fatigue life data on refractory alloys for use in designing space electric-power systems. The technique of displacement measurements using a cathetometer is described.
C R Honeycutt and J C Sawyer, *(Thompson Ramo Wooldridge Inc, Cleveland, Ohio), Quarterly Report, July 1965, NAS-3-6010, 25 pages.*

37

890. Method of melting metals in vacuum furnaces. *(USSR)*
The object of the invention is a method of melting metals in vacuum furnaces. Combined electron and induction heating of metals is used to increase the efficiency of the furnaces.
V V Bachenko *et al*, *Soviet Patent No 166977 (Appl No 797782/24–7, 9 Oct 1962), (in Russian).*

37

891. Purification of lithium metal by high-vacuum fractional distillation. *(USA)*
Distillation carried out using an additive of boric oxide in the charge yielded a higher purity distillate than distillations without the additive. Distillation carried out at a lower temperature yielded higher purity distillates.
P H Schmidt, *J Electrochem Soc, 113 (2), Feb 1966, 201–203.*

37

892. Impact properties of air and vacuum melted AISI 4340 steel. *(USA)*
Investigation of several commercial heats of air and consumable-electrode vacuum melted AISI 4340 steel to determine their mechanical properties.
G E Gazza and F R Larson, *ASM Trans Quart, 58, 1965, 183–194.*

37

893. The application of vacuum metallurgy in the purification of rare earth metals. *(USA)*
A critical review is presented of the state of the art. Since the metal preparation step is the major source of impurities, a significant reduction in the amount of contamination can be achieved by improvement of the technique as applied to preparing the metals from their oxides. Vacuum melting and distillation are two of the most important processes.
K A Schneider Jr, *US Atom Energ Comm, IS-1195, 1965, 45 pages.*

37

894. Sensitivity of detection of oxygen in niobium by vacuum fusion. *(USSR)*
The data obtained by three methods of determining oxygen in Nb: (a) vacuum fusion in a platinum bath; (b) vacuum fusion in an Fe bath; and (c) vacuum extraction at 2000° without fusion of the sample, show no significant differences among the methods.
Yu A Karpov *et al*, *Zavodsk Lab, 31 (10), 1965, 1190–1191, (in Russian).*

37

895. Vaporization of tantalum carbide-hafnium carbide solid solutions at 2500-3000°K. *(USA)*
The vaporization rates in vacuum of hot-pressed Hf-C, Ta-C and solid solutions of these carbides in the temperature range of 2500–3000°K were determined by a Langmiur type method.
D L Deadmore, *NASA Lewis Research Center, Cleveland, Ohio, 1965, 26 pages.*

37

896. Vacuum melting of electric arc steels in furnaces. *(Rumania)*
Experience collected in vacuum melting of ordinary C steel, weakly alloyed construction steel, ferritic steels with chromium, austenitic