

CHRONICLES

SEMINAR ON WEAR AND BRITTLINESS OF STEELS AND ALLOYS

E. N. Zhukova

A seminar on the fracture and brittleness of steels and alloys sponsored by the Republican House of Economic and Scientific-Technical Propaganda of the Znanie Society (Ukrainian SSR) and the Institute of Casting Problems, Academy of Sciences of the Ukrainian SSR was held Feb. 22-24, 1977, in Kiev.

The seminar was attended by representatives from commercial enterprises and scientific-research organizations in various cities of the USSR.

The theory and practice of metal science, the effect of heat treatment, structure, and methods of de-oxidation, alloying, and testing conditions on the fractographic characteristics and resistance to fracture of machine parts and structures were the subjects of 43 papers presented at the plenary session and two section meetings.

The seminar opened with reports by M. P. Braun (Kiev) and Ya. E. Gol'dshtein (Chelyabinsk) on the effect of the metallurgical purity of the metal, alloying, and heat treatment on the nature of lithoidal fracture.

The report by M. E. Blanter (Moscow) concerned the effect of testing conditions (loading rate) on the ductile-brittle transition temperature.

The effect of the structure on the fracture of steels was discussed by I. I. Kleshcheva (Moscow), A. S. Opal'chuk, K. K. Fishman, L. A. Belinskaya, and I. G. Neizhko (Kiev), and V. F. Volokushin (Vinnitsa).

Several participants remarked on the higher level of applied and scientific research conducted at research institutes and factory laboratories - the use of SEM fractographs and light microscope fractographs, and so forth.

The effects of structure, heat treatment, method of loading, and other factors on the characteristics of the fracture surface were considered in reports by E. A. Shur and I. I. Kleshcheva (Moscow), A. S. Opal'chuk (Kiev), and V. F. Volokushin (Vinnitsa).

G. V. Pachurin, A. N. Martynenko, V. N. Paderno, and O. S. Kostyrko (Kiev), and M. N. Georgiev and A. P. Martynenko (Moscow) discussed fatigue strength and fracture toughness.

Several reports concerned the improvement of methods of determining transition temperatures in notch toughness tests. It was reported once again that these temperatures can be determined more precisely on the basis of fractographic data by the percentage of ductile components in the fracture.

Considerable attention was given to the effect of metallurgical purity (nonmetallic inclusions) of steel on the plasticity during hot deformation (S. M. Polonskaya, Volgograd) and on the anisotropy of the notch toughness of steel plates (T. V. Korzh, Volgograd).

Several reports concerned the effect of melting (method of refining) on the properties of steel produced by deoxidation without silicon (G. A. Filippov, Moscow). It was shown that the effect of harmful impurities (phosphorus) on the cold shortness and temper brittleness of steel can be reduced by austenite grain refining (Ts. P. Latyshkova, Moscow) or the use of large quantities of rare-earth metals (V. V. Lapin, M. V. Kukhtin, Sverdlovsk).

On the whole, considerable progress was demonstrated in the adoption of various methods of determining resistance to fracture and also methods of macrofractographic and microfractographic analysis and the development of an overall approach to the problem of increasing the structural strength of steels and alloys.

Translated from *Metallovedenie i Termicheskaya Obrabotka Metallov*, No. 8, p. 79, August, 1977.

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