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SOURCE Elektrichestvo, No 10, 1950, p 93.REVIEW OF N. G. DROZDOV'S BOOK "STATIC ELECTRICITY IN INDUSTRY"

Prof N. P. Bogoroditskiy, Dr Tech Sci
 Leningrad Elec Eng Inst imeni Ul'yanov (Lenin)

The use of modern high-speed machines and new materials has given rise to a number of problems connected with static electricity. In these circumstances static electricity often sets up fields of considerable intensity, produces silent or spark discharges, and causes the combustion of coal or other inflammable gases. It also causes sheets of paper in paper mills and printing presses to curl up, and affects motor and aviation transport.

The monograph under review examines the effects of static electricity in industry. The author was one of the first to make a study of this somewhat neglected field. He gives a detailed analysis of electro-static effects on belt-driven machines and considers these effects in the rubber industry, in textile enterprises and paper mills, in the electrification of compressed gases, and in motor and aviation transport.

In the section dealing with the electrification of aerosols, the author considers the possibility of combustion occurring in mixtures of coal dust, gunpowder, and other friable materials. In the section on the electrification of liquids, he describes effects relating to the use of gasoline, ether, and other inflammable liquids. He concludes with a short summary of protective measures, a description of new instruments for studying frictional electricity and weak electric fields, and some remarks on the theory of the electrostatic effects described in the book.

It is clear that this monograph is of interest both as an attempt to make a theoretical study of static electricity and as a summary of data of purely practical value. The author found it necessary to compress a large amount of factual material into a comparatively small book, 175 pp, which has resulted in a very broad approach. It would have been better if basic

- 1 -

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theory had been treated in greater detail. For example, the section entitled "Principal Features of the Mechanism of Electrostatic Effects" is extremely schematic, and the author's conclusions are therefore stated rather than developed.

The new instruments for studying frictional electricity and weak electric fields are of great interest, but even this section is so brief and schematic that the uninitiated reader is unable to get a true picture of the nature of these instruments. The book also pays insufficient attention to the relation between the electric state of the atmosphere and static discharges.

It would have been useful to point out that a string electrometer can be used when more suitable instruments are not available. The author recommends the use of a galvanometer with a sensitivity of 10^{-6} a/mm (p 13), but this would hardly be sensitive enough for this class of measurements.

To sum up, the monograph will be useful, and it is hoped that the theoretical part of the book will be dealt with more fully in a later edition.

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- 2 -

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