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## Book Reviews

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## Book Reviews

**HOT MELT ADHESIVES. MANUFACTURE AND APPLICATIONS,**  
by M. J. Satriana.

Noyes Data Corp., Park Ridge, N.J. 1974. 301 pp. (\$36.00).

**PRESSURE SENSITIVE ADHESIVES. FORMULATIONS AND TECHNOLOGY,** by L. F. Martin.

Noyes Data Corp., Park Ridge, N.J. 1974. 308 pp. (\$36.00).

These two books, published simultaneously, are compilations of abbreviated U.S. patents. The average length of text is nearly 2.2 pages (or 1600 words) per patent in the first, and about 1.5 page (or 1100 words) per patent in the second compilation. The text is reproduced from typed pages and the margin is not justified, but the volumes have hard covers.

Each is provided with a Company Index, an Inventor Index, and a U.S. Patent Number Index, but no index of substances is given. This omission may annoy some users. Thus, on page 3 of Satriana's work, polyethylene is mentioned, and, on page 3 of Martin's volume, references to isooctyl acrylate and octyl acrylate are found. A company manufacturing or marketing these chemicals may be interested in knowing in what patents and to what purpose they are employed, but this information can be obtained only by reading each book from cover to cover.

The patents on hot melt adhesives are arranged in the following groups: Bonding metals; Bonding plastics; Bonding textiles; Bonding paper and paperboard; Shoemaking; and Bonding diverse substrates. The earliest issued in May 1954, and the latest as recently as March 1974, so that the book really may be classified as oven fresh. The six sections of the second book deal, respectively, with Acrylics; Elastomers; Other pressure sensitive polymers and additives; Web and backing construction and release coatings; Specialty tapes; and Containers, labels and other end uses. The period covered is from May 1965 to December 1973.

Will these two heaps of raw material prove useful? This depends, first of all, on whether the collections are or are not complete. Can, for instance, a person working on pressure sensitive adhesives be sure that all patents he needs have been abstracted by Martin? Fortunately for the reviewer, the

answer (which otherwise would have required months of investigation) is easily reached by comparing the two volumes. Satriana's book includes a subdivision entitled "Pressure Sensitive". It contains seven patents. One was published after the closure data of Martin's, two are abstracted in both compilations, but four are missing in the second book.

Comparison of the two abstracts common to both books shows that several important statements have been omitted in the shorted abstract; thus in many instances recourse to the full patent will prove necessary.

J. J. BIKERMAN

**ADHESION OF SOLID BODIES**, by B. V. Deryagin, N. A. Krotova and V. P. Smilga [Russian]. "Nauka" publ. Moscow, 1973. 280 pp. (Rub. 2.07)

The title may be misunderstood in two respects. First, the book deals not only with the solid-to-solid adherence (e.g., of dust to a wall) but also with ordinary adhesive joints in which the adhesive is applied liquid and then sets. Second, not the whole available knowledge of adhesion is reviewed but only the work performed by the authors and their collaborators. This is clearly indicated on p. 7; after noticing this warning, the reader is not astonished to see, for instance, that at least one of the authors is cited in 13 references out of the total of 23 in Chapter I, nor that the instruments in the first addendum are described as "Deryagin's pendulum adhesiometer", "Deryagin's bifilar adhesiometer", and so on, until we reach the "methods of rotating plate by Deryagin and Krotova".

The 9 chapters in the report are: Introduction—Theoretical ideas on the importance of electric phenomena for the rupture of adhesion and breaking of solids—Experimental studies of electroadhesional and electrocohesional phenomena in the rupture of adhesion and breaking of crystals—Theory of the electrostatic component of adhesion—Electroadhesional phenomena in semiconductors—Adhesion of dielectrics—Tack of polymers—Adherence of convex bodies and powders—Effect of adhesion on friction.

The main hypothesis is that a "donor-acceptor" bond forms between the adhesive and the adherend and that the force needed for rupturing the joint is that necessary for separating the electric charges present on the two interfaces. This assumption has been repeatedly criticized in the literature but criticism is disregarded by the authors. Their self-imposed isolation from the outside world is almost complete. Whenever truth is permitted to enter, it is not allowed to interfere with the authors' activity. Thus, on p. 167, it is mentioned that electric discharges in an inert gas raise the adhesiveness of poly(tetrafluoroethylene) because "a strengthened layer forms on the latter

as a result of the removal of low-molecular substances and formation of crosslinks between molecules” but this hint of weak boundary layers is forgotten on p. 168 on which similar observations by Krotova are recorded in detail.

The ghost of the recently departed anomalous water speaks loudly from the pages of this book.

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