THE RMA RUBBER HANDBOOK™
FOR MOLDED, EXTRUDED, LATHE CUT
AND CELLULAR PRODUCTS

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Rubber manufacturers and their customers have long recognized the need for a “universal language” by which design engineers can express their exact requirements and specifications for rubber parts.

In designing rubber parts, engineers have always had the problem of specifying requirements in terms sufficiently clear to enable the manufacturers to determine with a reasonable degree of accuracy what is actually described in terms of performance, tolerance and service characteristics.

A portion of this problem, namely a standard means for designating rubber materials, has in large part been solved. By using the charts, symbols and definitions developed jointly by ASTM International and the Society of Automotive Engineers (presently under the jurisdiction of SAE) and approved and published as ASTM D-2000 and as SAE J-200 (or ASTM D-1056 and SAE J-18 for sponge and expanded cellular products), design engineers are able to place on their drawings appropriate symbols and numbers to express precise material requirements. The rubber manufacturers, in turn, by referring to the same basic ASTM or SAE data, can interpret accurately what the engineers have specified. With the use of these charts approaching complete acceptance, error and misunderstanding of material requirements have been substantially reduced.

Thus, part of the “universal language” has been established and is in common usage. There remains, however, a large area to be covered. This area includes the means of specifying engineering and quality conformance requirements. This handbook is the effort of the molded, extruded, lathe-cut and cellular rubber industries to provide engineers with a uniform method of stating these requirements in a manner their suppliers can approach with the same certainty of understanding.

Rubber manufacturers seek in this handbook to establish a language which will enable engineers to express, on their drawings, requirements which will give them what they need, but not more than they need. To accomplish this, we set up the “language” on the following pages in the form of symbols, charts and definitions.

The manufacturing techniques, capabilities, limitations and problems are different for molded rubber parts than for extruded rubber parts or lathe-cut or cellular (expanded and sponge) rubber parts. Each is treated in a separate chapter with its own charts and definitions. Quality conformance is treated in a separate section.

The use of this handbook will lead to a better understanding between Design Engineers, Purchasing Departments and Inspection and Quality Control Departments of the users of these rubber products and the Technical, Production and Quality Control Departments of the rubber companies.

The expressions used throughout this handbook are the standard terminology used in the rubber manufacturing industry. It will be noted that the chapters on molded, extruded, lathe-cut and cellular (expanded and sponge) products are specifically pointed towards an exposition of the manufacturing techniques, capabilities and limitations of these areas. A method of prescribing the technical aspects of the quality desired is presented in these sections, (qualitative standards).

Concerning quality, this sixth edition provides recommendations for a total quality program to meet the demands for zero defects by the OEM. It is recognized that for certain products customers will agree to a less rigorous approach. In such cases, the producer may choose to use only those recommendations in this handbook that are necessary to achieve the agreed upon level of acceptance.

Recognizing the possible need for metric values we have printed all tables in both English and metric units. We have applied the rules for the use of the International System of units as outlined by the International Organization for Standardization (ISO).

As a supplement to the industry recommendations contained in this handbook, the RMA’s General Products Group, and its members, have developed the RMA Worker Training & Certification Program. This comprehensive training software was developed by industry as a self-contained training curriculum for operators involved in injection molding, compression / transfer molding, extrusion, and material mixing. For additional information on this product please go to www.rma.org or call the RMA’s General Products Group at (202) 682-4800.
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