



Standard Classification System for Rubber Compounding Materials for Use in Computer Material Management Systems¹

This standard is issued under the fixed designation D 5899; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This classification is intended to establish a method to find compounding materials on a computer data base by both functional and chemical classification. This classification will include rubber compounding materials or ingredients normally used in formulating rubber compounds. This classification is not intended for use in rubber latex or solvent based rubber adhesive applications.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Significance and Use

2.1 Commercially available computer material management programs are being used regularly in the rubber industry. These programs typically will retrieve information from a raw material or compounding material data base by chemical name, CAS registry number, trade name, and supplier name. Retrieving information by these fields can present problems. The common chemical names are not standardized. IUPAC nomenclature is standardized but the names typically are too lengthy for easy retrieval. Also, the user may not have information such as trade name, supplier name, or CAS registry number.

2.2 An alternate method of retrieving information from a raw material or compounding material data base is to sort by classification. This has the added advantage of enabling a compounder to select a compounding material from a given classification for a new compound formulation.

3. Basis of Classification

3.1 This classification is based on two methods.

3.1.1 The primary method of classifying raw materials or compounding materials is on the basis of functionality. Functionality is defined by the principal reason for the material's

use in the rubber formulation. Even though some compounding materials may have multiple functions, only the principal function should be included in the functional classification. The compounding material should not be included under more than one functional classification.

3.1.2 Under each functional classification there is a second level of classification by chemical description.

4. Classification System

4.1 The classification for compounding materials given in a computer's material management system is as follows:

4.2 *Functional Classification*—Accelerators:

4.2.1 *Chemical Classification*:

4.2.1.1 Dithiocarbamates

4.2.1.2 Guanidines

4.2.1.3 Maleimides

4.2.1.4 Sulfenamides

4.2.1.5 Sulfenimides

4.2.1.6 Thiazoles

4.2.1.7 Thioureas

4.2.1.8 Thiurams

4.2.1.9 Dithiophosphates

4.2.1.10 Amines

4.2.1.11 Other

4.3 *Functional Classification*—Adhesion Promoters:

4.3.1 *Chemical Classification*:

4.3.1.1 Methylene donors

4.3.1.2 Resorcinol donors

4.3.1.3 Cobalt salts/compounds

4.3.1.4 Polyisocyanates

4.3.1.5 Other

4.4 *Functional Classification*—Antidegradants:

4.4.1 *Chemical Classification*:

4.4.1.1 Bisphenols

4.4.1.2 Polyphenols

4.4.1.3 Alkyl aryl phosphites

4.4.1.4 Alkyl aryl-p-phenylene diamines

4.4.1.5 Dialkyl-p-phenylene diamines

4.4.1.6 Diaryl-p-phenylene diamines

4.4.1.7 Mercaptobenzimidazoles

4.4.1.8 Quinolines

4.4.1.9 Substituted amines

4.4.1.10 Substituted phenols

¹ This classification is under the jurisdiction of ASTM Committee D11 on Rubber and is the direct responsibility of Subcommittee D11.20 on Compounding Materials and Procedures.

Current edition approved Dec. 10, 2002. Published February 2003. Originally approved in 1996. Last previous edition approved in 1998 as D 5899-98.