



Standard Guide for Computerized Exchange of Corrosion Data for Metals¹

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1. Scope

1.1 This guide defines the techniques used to encode corrosion of metals test results for exchange between computer systems.

1.2 Guidelines are given for creating a data exchange appendix for each ASTM corrosion of metals standard.

1.3 Instructions are given for creating data translation software from the contents of the data exchange appendix.

2. Referenced Documents

2.1 ASTM Standards:

G 106 Practice for Verification of Algorithm and Equipment for Electrochemical Impedance Measurements²

G 107 Guide for Formats for Collection and Compilation of Corrosion Data for Metals for Computerized Database Input²

2.2 ANSI Standards:³

ANSI/ISO 9899: 1990 [1992] Programming Language C

ANSI X3.4-1986: Coded Character Set 7 Bit ASCII

3. Terminology

3.1 Definitions:

3.1.1 *datatype*—a group of rules specifying the format of an object.

3.1.2 *global data*—information shared among several standards.

3.1.3 *local data*—information specific to a certain standard.

3.1.4 *semantics*—information meaning.

3.1.5 *syntax*—information format.

3.1.6 *tagged object*—a named block of information.

3.1.7 *translator*—a computer routine which writes or reads data files.

4. Significance and Use

4.1 This guide establishes a formalism for transferring corrosion test data between computer systems in different laboratories. It will be used by standards developers to specify the format of files containing test results.

4.2 This guide defines a generic approach to structuring data files. It will be used by software developers to create programs which read and write these files.

4.3 Each standard test procedure will define a unique data file derived from this guide. Each time a standard test is performed, the results can be summarized in a data file specific to that test.

4.4 Some experimental information will be global, that is, common to several standards, and will be contained in Guide G 107 and other global data dictionaries. Other information will be local, that is, unique to a given standard, and will be defined in that standard.

5. Guide for Standards Authors

5.1 Local and Global Data:

5.1.1 Some information may be used across several corrosion standards, that is, global. Global data is defined in Guide G 107 and other global standards.

5.1.2 Some information may be local to a particular corrosion standard. Local data is defined in the standard's data exchange appendix.

5.2 Data File:

5.2.1 Each test will generate a single test data file. File name formats are not specified.

5.2.2 The data file is arranged as a set of named or tagged objects. Each time a standard test is performed a set of objects is obtained. The data file can be thought of as a permanent repository for this set of objects.

5.2.3 Each tagged object will take two or more lines in the data file. Lines are strings of ASCII (ANSI X3.4-1986) characters terminated with a carriage return/linefeed character pair or a single linefeed character.

5.2.4 Lines are further subdivided into tab delimited ASCII fields that are particularly suitable for manipulation by spreadsheet and scientific charting programs. For example, Fig. 1 shows how a section of a data file would show up on printed output.

5.3 Tagged Object:

5.3.1 A tagged object is a repository for an individual block of information. It may be a simple piece of data, the test date for example, or it may be complex, such as a current/voltage/time curve. A tagged object contains three subordinate areas: (1) the tag, (2) the datatype, and (3) the actual data. The tag and datatype are the first two fields of the first line while the actual

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² Annual Book of ASTM Standards, Vol 03.02.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.