



NACE Standard RP0690-2004
Item No. 21047

Standard Recommended Practice

Standard Format for Collection and Compilation of Data for Computerized Material Corrosion Resistance Database Input

This NACE International standard represents a consensus of those individual members who have reviewed this document, its scope, and provisions. Its acceptance does not in any respect preclude anyone, whether he has adopted the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in conformance with this standard. Nothing contained in this NACE International standard is to be construed as granting any right, by implication or otherwise, to manufacture, sell, or use in connection with any method, apparatus, or product covered by Letters Patent, or as indemnifying or protecting anyone against liability for infringement of Letters Patent. This standard represents minimum requirements and should in no way be interpreted as a restriction on the use of better procedures or materials. Neither is this standard intended to apply in all cases relating to the subject. Unpredictable circumstances may negate the usefulness of this standard in specific instances. NACE International assumes no responsibility for the interpretation or use of this standard by other parties and accepts responsibility for only those official NACE International interpretations issued by NACE International in accordance with its governing procedures and policies which preclude the issuance of interpretations by individual volunteers.

Users of this NACE International standard are responsible for reviewing appropriate health, safety, environmental, and regulatory documents and for determining their applicability in relation to this standard prior to its use. This NACE International standard may not necessarily address all potential health and safety problems or environmental hazards associated with the use of materials, equipment, and/or operations detailed or referred to within this standard. Users of this NACE International standard are also responsible for establishing appropriate health, safety, and environmental protection practices, in consultation with appropriate regulatory authorities if necessary, to achieve compliance with any existing applicable regulatory requirements prior to the use of this standard.

CAUTIONARY NOTICE: NACE International standards are subject to periodic review, and may be revised or withdrawn at any time without prior notice. NACE International requires that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of initial publication. The user is cautioned to obtain the latest edition. Purchasers of NACE International standards may receive current information on all standards and other NACE International publications by contacting the NACE International Membership Services Department, 1440 South Creek Drive, Houston, Texas 77085-4906 (telephone +1 [281]228-6200).

Reaffirmed 2004-03-31
Reaffirmed 1998-03-24
Approved 1990
NACE International
1440 South Creek Drive
Houston, Texas 77085-4906
+1 (281)228-6200

ISBN 1-57590-054-8
© 2004, NACE International

Foreword

This NACE standard recommended practice defines data categories and specific data elements (fields) that are considered desirable or essential to accommodate search strategies and reliable data comparisons in computerized corrosion databases. It is intended to facilitate the recording of corrosion test results and does not imply or endorse any particular database design or schema. The data entries are designed to accommodate data relative to the basic forms of corrosion and to serve as a guide for structuring multiple-source database compilations with the capability of assessing compatibility of engineering materials (metals and nonmetals) for a wide range of environments and exposure conditions.

Utilization of the guidelines and format are designed for use with computerized database applications but may be useful for other applications in which systematic recording of corrosion data is desired. This standard should aid persons involved with the selection or evaluation of metallic or nonmetallic materials for various applications who desire to record corrosion data in a computerized format.

This standard was originally prepared in 1990 by Task Group T-3U-1 of Unit Committee T-3U on Computers in Corrosion Control (originally Task Group T-3-2 of Group Committee T-3). It was reaffirmed in 1998 by Unit Committee T-3U and in 2004 by STG 07 on Computer Applications. This standard is published under the auspices STG 07. Task group participants included representatives from materials groups from chemical and process industries, material suppliers, research institutions, technical associations, corrosion consulting firms, and government laboratories.

In NACE standards, the terms *shall*, *must*, *should*, and *may* are used in accordance with the definitions of these terms in the NACE Publications Style Manual, 4th ed., Paragraph 7.4.1.9. *Shall* and *must* are used to state mandatory requirements. The term *should* is used to state something good and is recommended but is not mandatory. The term *may* is used to state something considered optional.

RP0690-2004

**NACE International
Standard
Recommended Practice**

**Standard Format for Collection and Compilation of Data for
Computerized Material Corrosion Resistance Database Input**

Contents

1. General.....	1
2. Standard Format Design Considerations	1
3. Corrosion Data Search Strategies.....	2
4. Data Entry Fields	2
Table 1—Standard Data Entry Format for Corrosion Database Development.....	2
References.....	11

Section 1: General

1.1 This standard presents guidelines for determination of data elements (fields) for data collection to aid in the development of computerized corrosion databases. These guidelines facilitate database structuring to (a) accommodate data from diverse sources, (b) provide comparisons between metals and nonmetals, (c) integrate data emphasizing various forms of corrosion, (d) ensure compatibility between various corrosion and other material property databases, and (e) permit data search strategies to meet specific user interests.

1.2 This standard is intended to be a general guide for designing data input formats. Certain specialized corrosion tests may require additional data elements to fully characterize the data recorded. This standard does not preclude these additions. Various standard guides developed by ASTM⁽¹⁾ Committees E 49 and G 01⁽²⁾ may be helpful.

1.3 Reliable comparisons of corrosion data from multiple sources are expedited if data are provided for as many of the listed fields as possible. When data are limited, some degree of uncertainty is present.

1.4 This standard is not directed toward recording data from electrochemical corrosion tests.

1.5 Data categories and fields listed for nonmetals emphasize identification and performance data for engineering polymers. Additional descriptors should be added when compiling data for ceramics, composites, or other types of nonmetals.

1.6 This standard provides a useful reference to be consulted before initiating a corrosion test to ensure plans are made to record relevant data.

Section 2: Standard Format Design Considerations

2.1 The following general categories for data collection should be considered:

2.1.1 **Test identification:** Unique code to identify groupings of multiple specimens exposed at the same time and under identical conditions.

2.1.2 **Type of test:** Standardized, laboratory, field tests; test relation to specific process or application (e.g., sulfide stress cracking test for sour gas production tubing).

2.1.3 **Test emphasis:** Specific form of corrosion or degradation being evaluated (e.g., pitting, corrosion fatigue, dimensional changes, etc.).

2.1.4 **Test environment:** Generic description, concentration, and state of principal components, contaminants, etc.

2.1.5 **Exposure conditions:** Duration, temperature, pH, hydrodynamic conditions, aeration, etc.

2.1.6 **Material identification:** Material class, subclass, and family, common name, standard designation, condition, manufacturing process, product form, etc.

2.1.7 **Test specimen identification:** Test specimen number, size, geometry, surface condition, composition, and properties.

2.1.8 **Test specimen performance:** Mass change, property change, localized attack, and performance relative to specific corrosion mechanism.

2.1.9 **Data source or reference.**

2.2 Supplementary notes may be used to document additional information considered important to interpret data.

⁽¹⁾ ASTM International (ASTM), 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.

⁽²⁾ ASTM Committees E 49 (Computerization of Materials Property Data) and G 01 (Corrosion of Metals), ASTM, West Conshohocken, PA.