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Guidelines for Precautionary Labeling of Magnet Wire

NEMA

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION ■ 2101 L STREET, N.W., WASHINGTON, D.C. 20037

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GUIDELINES FOR PRECAUTIONARY LABELING OF MAGNET WIRE

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TABLE OF CONTENTS

FOREWORD i
SCOPE ii
PURPOSE ii

SECTION 1 REFERENCED STANDARDS 1

SECTION 2 GUIDELINES FOR WORDING AND FORMAT FOR PRECAUTIONARY LABELING
General Requirements 2
Labeling Information for Magnet Wire Products 2
Descriptions 2

SECTION 3 REVIEW OF LABEL
Review of Label 4

SECTION 4 PRECAUTIONARY LABEL
Preface for Precautionary Label 4
Sample Precautionary Label 4

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FOREWORD

User needs have been considered throughout the development and revision of these guidelines.

This NEMA Standards Publication is intended to provide a basis of common understanding within the electrical and electronics industries. Copies were sent during the draft stage to members of the NEMA Joint Sections Committee on magnet wire for their review and comments. These parties have an interest in or responsibility for specifications, future application, use, or inspection of magnet wire products. Their comments, prior to final NEMA approval, provided vital user and general interest input. As future major revisions to this publication are proposed, NEMA intends to offer the same or similar individuals and organizations an opportunity to participate in such changes.

These recommendations will be reviewed periodically by the Magnet Wire Section for the purpose of updating. Proposed or recommended revisions should be submitted to:

Manager, Engineering Department
National Electrical Manufacturers Association
2101 L. Street, N.W.
Washington, D. C. 20037

This entire NEMA Standards Publication, which was approved by the NEMA Codes and Standards Committee on March 1, 1989, is classified as Authorized Engineering Information.

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SCOPE

This publication sets forth guidelines for the wording and format of precautionary labeling for use on magnet wire products. It suggests factors to be considered in deciding whether precautionary labeling is necessary.

Precautionary labeling, as used in this publication, is an informative marking attached to or marked on a product or its package, intended to be read at close range, which calls attention to immediate or potential hazards and their consequences to persons or property. It tells how such hazards may be avoided and may also list other sources of information should complete details make the labeling too wordy.

An important intent of this document is the inclusion of information required by government regulation in regard to compliance with OSHA (Occupational Safety and Health Administration) regulations.

PURPOSE

The purpose of this publication is to provide manufacturers and users of magnet wire products with a uniform system of guidelines for precautionary labeling regarding wording and format which should be used throughout the magnet wire industry. These guidelines should promote uniformity in the precautionary labeling practices of manufacturers.

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Section 1
REFERENCED STANDARDS

The following publications are listed as reference documents in these guidelines.

American National Standards Institute
1430 Broadway
New York, New York 10018

ANSI Z53.1-1979 *Safety Color Code for Marking Physical Hazards*

Dome Press, Inc.,
1169 Logar Avenue,
Elgin, Illinois 60120

E. Dale and J. O'Rourke, *The Living Word Vocabulary*, 1981

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Section 2
GUIDELINES FOR WORDING AND FORMAT FOR PRECAUTIONARY LABELING

2.1 GENERAL REQUIREMENTS

2.1.1 The effectiveness of precautionary labeling may be improved by uniformity of wording and format. Uniformity aids in rapid comprehension and minimizes confusion.

2.1.2 The wording should be as brief and as clear as possible. All information should be easily understood by the consumer. Use of the "Living Word Vocabulary" is recommended.

2.1.3 The precautionary information should be in a conspicuous place on the product or its package. If such space is not available, a reference note should appear in a conspicuous place identifying the location of the precautionary information.

2.1.4 Where possible, precautionary labeling should last as long as the hazard may exist.

2.1.5 The size and legibility of the labeling should be such that it is likely to be read and understood by users of the product before they are likely to encounter the hazards warned against.

2.2 LABELING INFORMATION FOR MAGNET WIRE PRODUCTS

The elements to be considered in precautionary labeling and their suggested order of listing are the following:

1. product identification,
2. signal word (DANGER, WARNING, and CAUTION),
3. statement of hazards and their consequences,
4. precautionary measures, and
5. additional information.

Precautionary labeling for a given product may not require all of the above elements. However, the labeling should warn and instruct the reader. The included elements should depend upon the product, the process, and the hazards.

2.3 DESCRIPTIONS

The following are detailed descriptions for each "Labeling Information" element.

2.3.1 Product Identification

Product identification should be employed only in cases where the product is not otherwise identified.

2.3.2 Signal Word

A signal word is used to draw attention to the presence and degree of a hazard or hazards. There should be three recognized signal words. In descending order of severity they are the following.

a. **DANGER.** The signal word DANGER should be used to call attention to immediate or imminent hazards which if not avoided will result in immediate, serious, personal injury or loss of life.
b. **WARNING.** The signal word WARNING should be used to call attention to potential hazards which could result in personal injury or loss of life.
c. **CAUTION.** The signal word CAUTION should be used to call attention to hazards which could result in minor personal injury or damage to equipment.

The signal word should be printed so that it is the dominant word in the labeling and it should be in capital letters. Where one or more signal words could be used, because of multiple hazards, only the signal word corresponding to the class of greatest hazard should be used.

When red, orange and yellow are associated with the signal words **DANGER, WARNING,** and **CAUTION** respectively, the colors should conform to ANSI Z53.1, *Safety Color Code for Marking Physical Hazards*.

2.3.3 Statement of Hazards and Their Consequences

This means to warn, in brief terms, of the specific hazard(s) and their consequences. For example, "HIGH VOLTAGE can kill" and "LOUD NOISE can damage hearing." The statement of hazard or hazard(s) should be so printed that it is the second most dominant wording and it should be in capital letters.

2.3.4 Precautionary Measures

Immediately following the statement of hazard and its consequences, understandable statement(s) that describes the precaution(s) to be taken should be given. For instance, a signal word, statement of hazard and consequence, and precaution might be:

"DANGER – HIGH VOLTAGE can kill. Do not touch electrically live parts."

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It is possible that the same product might qualify for other signal words and statements of hazard and precautions, such as:

"WARNING – LOUD NOISE can damage hearing. Wear proper ear protection."

Another possible signal word might be as follows:

"CAUTION – IMPROPER PARALLELING can damage equipment. See operating manual."

In a case where all these hazards are present, only the greatest hazard signal word should be used, but all of the statements of hazards, their consequences, and precautions should be included. The label would then read:

DANGER – HIGH VOLTAGE can kill. Do not touch electrically live parts.
LOUD NOISE can damage hearing. Wear proper ear protection.
IMPROPER PARALLELING can damage equipment. See operating manual.

An alternate arrangement could be as follows:

DANGER – HIGH VOLTAGE can kill.
LOUD NOISE can damage hearing.
IMPROPER PARALLELING can damage equipment.
Do not touch electrically live parts.
Wear proper ear protection.
See operating manual.

Note that the warning illustrations used above should apply both to the product and to the process.

2.3.5 Additional Information

When complete details cannot be reasonably given on the label, sources of additional information should be listed.

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SECTION 3
REVIEW OF LABEL

3.1 REVIEW OF LABEL

The object of the precautionary label should be to clearly convey the necessary information. Review the label; ask others to explain its meaning; and revise the label until it is easily understandable.

SECTION 4
PRECAUTIONARY LABELING

4.1 PREFACE FOR PRECAUTIONARY LABELING

As a minimum, the information shown in paragraph 4.2, or its equivalent, should be placed on magnet wire spools, reels, pails, drums, or reel-less packages to warn of toxic fumes or dust that may be generated when soldering, etc.

First aid information may also be included as an optional item. It is generally recommended on products that present immediate and major health hazards. First aid information should follow the last precautionary measure.

The company name and address should appear on the label unless it is readily visible elsewhere on the product.

A label identification number should appear on the label.

4.2 SAMPLE PRECAUTIONARY LABEL

The following is a sample precautionary label:

WARNING

HAZARDOUS FUMES or DUST may be generated when soldering, welding, hot staking, burning, wire brushing, melting, or processing magnet wire. Excessive exposure to dust may cause irritation to eyes, skin, and/or respiratory systems.

- Wear proper protective eye, skin, and breathing equipment.
- Use adequate ventilation.
- Avoid breathing fumes.
- Further information is available on the product material safety data sheet.

DO NOT REMOVE THIS LABEL

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NEMA STANDARDIZATION

The purpose of NEMA Standards, their classification and status, are set forth in certain clauses of the NEMA *Standardization Policies and Procedures* manual and are referenced below.

Purpose of Standards

National Electrical Manufacturers Association standards are adopted in the public interest and are designed to eliminate misunderstandings between the manufacturer and the purchaser and to assist purchasers in selecting and obtaining the proper product for their particular needs. Existence of a National Electrical Manufacturers Association standard does not in any respect preclude any member or nonmember from manufacturing or selling products not conforming to the standard. *(Standardization Policies and Procedures, p. 1)*

Definition of a Standard

A standard of the National Electrical Manufacturers Association defines a product, process, or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, rating, testing, and the service for which they are designed.

(Standardization Policies and Procedures, p. 2)

Dimensions

Where dimensions are given for interchangeability purposes, alternate dimensions satisfying the other provisions of the Standards Publication may be capable of otherwise equivalent performance.

(Standardization Policies and Procedures, p.8)

Categories of Standards

National Electrical Manufacturers Association Standards are of two classes:

1. NEMA Standard, which relates to a product, process, or procedure commercially standardized and subject to repetitive manufacture, which standard has been approved by at least 90 percent of the members of the Subdivision eligible to vote thereon;
2. Suggested Standard for Future Design, which may not have been regularly applied to a commercial product, but which suggests a sound engineering approach to future development, which standard has been approved by at least two-thirds of the members of the Subdivision eligible to vote thereon.

(Standardization Policies and Procedures, pp. 7 & 16)

Authorized Engineering Information

Authorized Engineering Information consists of explanatory data and other engineering information of an informative character not falling within the classification of NEMA Standard or Suggested Standard for Future Design, which standard has been approved by at least two-thirds of the members of the Subdivision eligible to vote on the standard.

(Standardization Policies and Procedures, pp. 7 & 16)

Official Standards Proposal

An Official Standards Proposal is an official draft of a proposed standard which is formally recommended to an outside organization(s) for consideration, comment, and/or approval, and which has been approved by at least 90 percent of the members of the Subdivision eligible to vote thereon.

(Standardization Policies and Procedures, pp. 7 & 16)

Identification of Status

Standards in NEMA Standards Publications are identified in the foreword or following each standard as "NEMA Standard" or "Suggested Standard for Future Design." These indicate the status of the standard. These words are followed by a date which indicates when the standard was adopted in its present form by the Association.

The material identified as "Authorized Engineering Information" and "Official Standards Proposal" is designated similarly.

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MAGNET WIRE SECTION
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MEMBER COMPANIES

Algonquin Industries, Inc.
Guilford, CT 06437

American Wire Corporation
Sandy Hook, CT 06482

Bridgeport Insulated Wire Company
Bridgeport, CT 06610

Chicago Magnet Wire Corporation
Elk Grove Village, IL 60007

Elektrisola, Inc.
Penacook, NH 03301

Essex Group, Inc.
Fort Wayne, IN 46804

Hudson Viking, Inc.
Trenton, GA 30752

MagneTek-Universal Manufacturing
Gallmon, MS 39077

Optec D.D. USA, Inc.
St. Louis, MO 63139

Phelps Dodge Magnet Wire Company
Fort Wayne, IN 46801

Rea Magnet Wire Company, Inc.
Fort Wayne, IN 46896

Southwire Specialty Products
Osceola, AR 72370

Westinghouse Electric Corporation
Abingdon, VA 24210

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