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Guidelines for Precautionary Labeling for Arc-Welding and Cutting Products

NEMA

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

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GUIDELINES FOR PRECAUTIONARY LABELING FOR ARC WELDING AND CUTTING PRODUCTS

(Approved as Authorized Engineering Information 1-11-1983)

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 welding industry community. Copies were sent during the draft stage to a number of typical individuals and organizations in the public and private sector. These parties have an interest in, or responsibility for, the purchase, future application, use or inspection of arc welding power sources, and cutting products. Their comments, prior to final NEMA approval, provided vital user and general interest input and resulted in a number of substantive changes being made in this publication. 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 Arc Welding 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

Purpose

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

Scope

This publication sets forth guidelines for the wording and format of precautionary labeling for use on arc welding and cutting 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.

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Section 1
REFERENCE MATERIAL

1.1 ANSI Z129.1-1976, *American National Standard for the Precautionary Labeling of Hazardous Industrial Chemicals,* American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

1.2 *The Living Word Vocabulary*—Edgar Dale, Joseph O'Rourke, Dome Press, Inc., 1169 Logan Avenue, Elgin, IL 60120.

1.3 ANSI Z49.1-1973, *Safety in Welding and Cutting,* American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126, or P.O. Box 351040 Miami, FL 33135.

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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 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. (See 1.2.)

2.1.3 The labeling 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 labeling.

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 ARC-WELDING AND CUTTING PRODUCTS

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

1. **Product Identification**
2. **Signal Word (DANGER, WARNING, CAUTION)**
3. **Statement of Hazards and Their Consequences**
4. **Precautionary Measures**
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 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:

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. Examples are: exposed high voltage, open fans or pinch points.

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. Examples are: not using correct body protection, not using recommended ventilation, etc.

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 Z53.1-1979, *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", "LOUD NOISE can damage hearing", and "IMPROPER PARALLELING can damage equipment". The statement of 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 illustrations used above should apply both to the product and to the process.

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

Section 3
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; revise until it is easily understandable.

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Appendix A
PRECAUTIONARY LABELING

Preface

(Accepted by ANSI June 12, 1979, to revise ANSI Z49.1-1973, *"Safety in Welding and Cutting"*)

As a minimum, the information shown in Figure 1, or its equivalent, shall be placed on stock containers of materials such as wires, fluxes, and electrodes and on major equipment such as power supplies, wire feeders and controls used in arc welding, arc cutting, and allied processes. The information shall be readily visible and may be on a label, tag, or other printed form.

Where noise has been determined to be a hazard, the statement of hazard "NOISE can damage hearing" shall be added. It should be placed after the statement of hazard, "ELECTRIC SHOCK can kill".

Additional precautionary measures can be added as appropriate to special requirements, or when new knowledge indicates.

First aid information is an optional item. It is generally recommended only on products that present immediate and major health hazards. First aid information shall follow the last precautionary measure.

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

A label identification number shall appear on the label.

Figure 1
PRECAUTIONARY LABEL

WARNING: Protect yourself and others. Read and understand this label.

FUMES AND GASES can be dangerous to your health. ARC RAYS can injure eyes and burn skin. ELECTRIC SHOCK can kill.

- Read and understand the manufacturer's instructions and your employer's safety practices.
- Keep your head out of the fumes.
- Use enough ventilation, or exhaust at the arc, or both, to keep fumes and gases from your breathing zone, and the general area.
- Wear correct eye, ear, and body protection.
- Do not touch live electrical parts.
- See American National Standard Z49.1, *Safety in Welding and Cutting,* published by the American Welding Society, 2501 N.W. 7th Street, P.O. Box 351040, Miami, FL 33135: OSHA Safety and Health Standards, 29 CFR 1910, available from U.S. Government Printing Office, Washington, DC 20402.

DO NOT REMOVE THIS LABEL

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Appendix B
ENGINE-DRIVEN ARC-WELDING POWER SOURCES

In addition to the precautionary labeling information shown in Appendix A, the following minimum information, or its equivalent, should appear on engine-driven arc-welding power sources. When appearing on separate labeling, the appropriate signal word should be used, as required by the guidelines.

ENGINE FUEL can cause fire or explosion.

- Stop engine before fueling.
- Do not smoke when fueling.
- Avoid sparks and open flame when fueling.
- Do not overfill tank.
- Clean up spilled fuel before starting engine.

ENGINE EXHAUST GASES can kill.

- Use in open, well-ventilated areas or vent the engine exhaust to the outside.

MOVING PARTS can cause serious injury.

- Keep clear of moving parts.

Do not operate with protective covers, panels, or guards removed.
Stop engine before servicing.
Only qualified personnel should install, use, or service this equipment.

OPTIONAL: NOISE can damage hearing.

- Wear proper ear protection.

ELECTRIC SHOCK can kill.

- Do not touch live electrical parts.

Appendix C
TRANSFORMER/TRANSFORMER-RECTIFIER/MOTOR-DRIVEN ARC-WELDING POWER SOURCES

In addition to the precautionary labeling information shown in Appendix A, the following minimum information, or its equivalent, should appear on transformer, transformer-rectifier, and motor-driven arc-welding power sources. When appearing on separate labeling, the appropriate signal word, as required by the guidelines, should be used.

ELECTRIC SHOCK can kill.

- Install and ground machine in accordance with the National Electrical Code and local code(s). Use grounding stud inside. Read Operating Manual before installing or operating.

Do not operate with protective covers, panels, or guards removed.
Disconnect input power before servicing.
Only qualified personnel should install, use, or service this equipment.

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NEMA STANDARDIZATION

The purpose of NEMA Standards, their classification and status are set forth in certain clauses of the NEMA Bylaws, which are quoted below:

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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 the purchaser in selecting and obtaining the proper product for its particular need. 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.

(Bylaw—Art. V, Sec. 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.

(Bylaw—Art. V, Sec. 2, Subsection A)

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.

(NEMA Policy Memorandum 84-2, dated June 7, 1984)

Classes of Standards

National Electrical Manufacturers Association Standards are of two classes:

1. NEMA Standard, which relates to a product 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.

(Bylaw—Art. V, Sec. 2, Subsection B)

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.

(Bylaw—Art. V, Sec. 6, 1st Sentence)

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.

(Bylaw—Art. V, Sec. 4, Subsection A)

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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ARC WELDING SECTION
OF THE
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

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