

EXIT Signs Listed to UL 924 Standard



In light



In darkness

Product Specifications

Product IDs: Series DGRAE-6, DGGAE-6 & DGRAE-8

Material & Structure: Long-afterglow Strontium Oxide Aluminate photoluminescent pigment embedded within 0.1875 inch-thick solid, high-impact rigid acrylic sheet. Acrylic sign panel chemically welded to 0.010 inch white reflector.

Background: DuraGlow® glowing photoluminescent background.

Text: Screen-printed in opaque RED or GREEN.

Chevron Arrows: Screen-printed at factory *or* Peel & stick for Field Application

Formats Available: Single & Double Faced

Mounting Options: Unframed with 4 lined corner holes *or* Framed for Wall, Side or Ceiling mount.

Activation: 5 foot-candles unfiltered fluorescent illumination on sign face for 60 minutes.

Viewing Distance: 50 feet.

Life Expectancy: 20+ years, depending on wear and tear and environmental conditions.

Cleaning: Wipe clean with non-abrasive cloth dampened with plain water. Do not clean with chemical solvents.

Conforms to:

- UL 924 - Supplement SG, Photoluminescent EXIT Signs, Standard for Safety for Emergency Lighting & Power Equipment, 8th Edition including revisions through 07-11- 2001.
- NFPA 101, 2000 Edition, Clause 7.10.7.2, Photoluminescent Signs.
- DIN 67510, Parts I & II.
- IMO (International Maritime Organization) Resolution A.752(18).
- ASTM E-2072-00.



3007164

CONFORMS TO UL 924 STANDARD

AUTHORIZATION TO MARK

This authorizes the manufacturer to apply the ETL mark to certified products; also to the multiple listee model numbers as listed on the correlation page of the Listing Report where applicable; when made in accordance with the accompanying descriptions and drawings under the conditions set forth in the Certification Agreement herein:

Applicant: Dura Engraving Corp.
48-15 32nd Place, Long Island City, NY 11101
Contact: **Name:** Robert S. Katz **Phone:** 718-706-6400

Manufacturer: Dura Architectural Signage
Same address
Contact: **Name:** Same **Phone:**

Reference Report No.: 3000053-003
Product Covered: Photoluminescent Exit Sign DuraGlow (trademark) model DGRAE-8.
Photoluminescent Exit Sign DuraGlow (trademark) model DGRAE-8-R.
Photoluminescent Exit Sign DuraGlow (trademark) model DGRAE-8-L.
Photoluminescent Exit Sign DuraGlow (trademark) model DGRAE-6.
Photoluminescent Exit Sign DuraGlow (trademark) model DGRAE-6-R.
Photoluminescent Exit Sign DuraGlow (trademark) model DGRAE-6-L.
Photoluminescent Exit Sign DuraGlow (trademark) model DGGAE-6.
Photoluminescent Exit Sign DuraGlow (trademark) model DGGAE-6-R.
Photoluminescent Exit Sign DuraGlow (trademark) model DGGAE-6-L.

Description: The photoluminescent exit sign consists of an acrylic sheet blended with photoluminescent pigment and backed with an opaque white reflector. The photoluminescent material forms the background, and the legend and directional indicators are opaque red or green characters silk screened on the acrylic sheet. The sign is mounted by 4 corner screw holes, or it can be supplied with an aluminum-mounting frame.

Standard(s): Standard for Safety for Emergency Lighting and Power Equipment, UL 924, eighth edition including revisions through 7/11/01



This procedure, with all revisions, etc., is the property of Intertek Testing Services and is intended solely for the guidance of the listee and the representative of Intertek Testing Services, and is not transferable.

Issued by: Intertek Testing Services NA Inc., 24 Groton Avenue, Cortland, NY 13045-2014 USA



Authorized by: William T. Starr

Date: June 27, 2002



William T. Starr
Certification Manager



Control Number: 30071104



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SUPPLEMENT SG - PHOTOLUMINESCENT EXIT SIGNS

SG1 General

SG1.1 Photoluminescent signs with a legally required legend such as "EXIT", with or without directional indicators, shall comply with the requirements elsewhere in this Standard as supplemented or modified by this Supplement.

SG1.1 added July 11, 2001

SG1.2 Photoluminescent signs evaluated in accordance with this Standard are complete assembled units ready for installation. All decals, pigments, markings, etc., must be applied by the manufacturer and are not eligible for field installation or modification.

SG1.2 added July 11, 2001

SG1.3 Photoluminescent signs evaluated in accordance with this Supplement are for use only indoors where not exposed to direct sunlight, liquids, or temperatures outside the range of 10 – 40°C (50 – 104°F).

SG1.3 added July 11, 2001

SG2 Mechanical Construction

SG2.1 A photoluminescent sign shall be provided with a rigid structure or mounting means so that the sign remains flat when mounted as intended.

SG2.1 added July 11, 2001

SG2.2 Photoluminescent pigments shall be applied uniformly across the legend and any directional indicators, or across the sign background, in the minimum coating thickness and/or pigment density evaluated for compliance with the Visibility Tests of SG4.2.

SG2.2 added July 11, 2001

SG2.3 A photoluminescent sign shall be provided with a means to permanently secure the sign to a mounting surface. Adhesive shall not be provided as the sole means for mounting. A minimum of two holes with the appropriate mounting hardware shall be provided. At least one hole shall not be in the form of a keyhole.

SG2.3 added July 11, 2001

SG3 Legend dimensions

SG3.1 A photoluminescent sign shall comply with the dimension and location requirements for the legend and directional indicators, if applicable, per Exit Sign Visibility, General, Section 39.

SG3.1 added July 11, 2001

SG4 Performance**SG4.1 Sample conditioning****SG4.1.1 Mold Stress Relief**

SG4.1.1.1 Prior to any other conditioning or testing, photoluminescent signs with a polymeric structure are to be conditioned for 7 hours in an oven maintained at 70°C (158°F). Upon removal from the oven, the samples shall be examined for damage, distortion, or warping that could affect the legibility of the sign. The samples are then to be stored in a dark environment of standard atmosphere and room temperature for 16 – 96 hours, prior to any further conditioning or testing.

SG4.1.1.1 added July 11, 2001

SG4.1.2 Humidity Exposure

SG4.1.2.1 All photoluminescent exit signs are to be exposed for 72 hours in a chamber maintained at 32°C (90°F), 85 percent R.H.

SG4.1.2.1 added July 11, 2001

SG4.1.2.2 Upon removal from the humidity chamber, the samples are to be stored in a dark environment of standard atmosphere and room temperature for 16 – 96 hours prior to initiation of the Visibility Tests.

SG4.1.2.2 added July 11, 2001

SG4.2 Visibility tests**SG4.2.1 Light Exposure**

SG4.2.1.1 Signs that have been conditioned per SG4.1 shall be subjected to the applicable exposure conditions of SG4.2.1.2. Each sample set shall be exposed to only one type of illumination source. The number of samples per set shall be determined by the particular visibility test conducted per SG4.2.2 or SG4.2.3.

SG4.2.1.1 added July 11, 2001

SG4.2.1.2 A sample set shall be exposed for 60 minutes to one or more of the following light sources, as appropriate for the product markings required by SG5:

- a) An incandescent lamp at 1 ft-c illuminance;
- b) An incandescent lamp at 5 ft-c illuminance with the sign marked in accordance with SG5.2;
- c) A fluorescent lamp at 5 ft-c illuminance with the sign marked in accordance with SG5.3;
- d) Any other light source type at 5 ft-c illuminance with the sign marked in accordance with SG5.4.

SG4.2.1.2 added July 11, 2001

SG4.2.1.3 Illuminance levels noted in SG4.2.1.2 are to be measured on the face of the sign and shall be uniform within ± 10 percent across the sign face. Incandescent lamps used for exposures SG4.2.1.2(a) and SG4.2.1.2(b) shall be 60 W, type A19, "soft white", rated for 800 – 900 lumens and seasoned for at least 45 minutes. Fluorescent lamps used for exposure SG4.2.1.2(c) shall be 34 W straight tube, T8 or T12, color temperature 4000 – 4500° K, seasoned for at least 100 hours. Light sources used for exposure SG4.2.1.2(d) shall be as specified in the product marking in accordance with SG5.4.

SG4.2.1.3 added July 11, 2001

SG4.2.1.4 Photoluminescent signs shall comply with Section 40 (Performance) as modified in this section. All samples are to be conditioned per SG4.1 and exposed to light as specified in SG4.2.1.2.

SG4.2.1.4 added July 11, 2001

SG4.2.1.5 Photoluminescent signs subjected to the Analytical Luminance Visibility and Contrast Measurement tests shall be evaluated in accordance with SG4.2.2. Photoluminescent signs subjected to the Observation Visibility Tests shall be evaluated in accordance with SG4.2.3.

SG4.2.1.5 added July 11, 2001

SG4.2.2 Analytical Luminance Measurements

SG4.2.2.1 Luminance measurements shall be taken at the following points:

- a) Figure 40.4 – Legend points 7, 12, 16, 19 and background points 2, 7, 9, 15, 17, and 22;
- b) Figure 40.9 – Direction indicator points D1, D3, D5 and background points B1, B3, B5, and B7.

Luminance measurement sets are to begin at 1 minute and again at 90 minutes after removal from the light source, or longer if the sign is marked with a rated operating time greater than 90 minutes. The time (relative to removal from the light source) is to be recorded for each measurement. After the last point of a measurement of a measurement on a sign is recorded, the first point of that set is to be re-measured. All measurements within a measurement set on a single sample shall be completed within 10 minutes. A linear luminance decay rate for a measurement set is to be calculated by subtracting the final measurement from the first measurement and dividing by the time that transpired between the measurements. The luminance levels of all other points measured on that sign are to be adjusted (upwards) in accordance with this decay rate. These recalculated luminance levels shall be used to determine compliance with Table 40.6.

SG4.2.2.1 added July 11, 2001

SG4.2.2.2 Photoluminescent signs subjected to analytical luminance measurements shall also comply with the visibility and contrast requirements of 39.17 – 39.19.

SG4.2.2.2 added July 11, 2001

SG4.2.3 Observation Visibility Tests

SG4.2.3.1 Observation of each candidate sign shall begin 90 minutes after removal from the light source, or longer if the sign is marked with a rated operating time greater than 90 minutes. The sign shall be kept in complete darkness until the observations begin.

SG4.2.3.1 added July 11, 2001

SG4.2.3.2 Photoluminescent signs subjected to the Observation Visibility tests shall also comply with the visibility requirements of 39.17.

SG4.2.3.2 added July 11, 2001

SG5 Markings and Installation Instructions

SG5.1 Photoluminescent exit signs tested in accordance with exposure conditions (b), (c), or (d) of SG4.2.1.2 shall be permanently marked to specify the required light type and minimum illuminance level in accordance with SG5.2, SG5.3, and/or SG5.4. Markings shall be visible after installation (for example, on the sign face or an exposed front-facing frame member). The word "CAUTION" shall be minimum 6.4 mm (0.25 inch) high, with other letters minimum 4.8 mm (0.188 inch) high. The markings shall be paint-stencilled, die-stamped, indelible lettering, or on a label system suitable for the surface that complies with the Standard for Marking and Labeling Systems, UL 969. All lettering shall be of a color that contrasts with the background.

SG5.1 added July 11, 2001

SG5.2 Photoluminescent exit signs tested in accordance with exposure condition (b) of SG4.2.1.2 shall be marked "CAUTION: Minimum 5 foot-candle external illumination must be present on the sign face at all times of building occupancy."

SG5.2 added July 11, 2001

SG5.3 Photoluminescent exit signs tested in accordance with exposure condition (c) of SG4.2.1.2 shall be marked "CAUTION: Minimum 5 foot-candle external unfiltered fluorescent illumination must be present on the sign face at all times of building occupancy."

SG5.3 added July 11, 2001

SG5.4 Photoluminescent exit signs tested in accordance with exposure condition (d) of SG4.2.1.2 shall be marked "CAUTION: Minimum 5 foot-candle external illumination from a _____ source must be present on the sign face at all times of building occupancy." The blank shall specify the manufacturer, catalog number, and type of lighting source used for testing.

Exception: A photoluminescent exit sign tested in accordance with both exposure conditions (c) and (d) of SG4.2.1.2 may be marked with a single statement combining the information from SG5.3 and SG5.4.

SG5.4 added July 11, 2001

SG5.5 All photoluminescent exit signs shall be provided with installation instructions that include the following two statements verbatim:

"CAUTION: EXTERNAL ILLUMINATION SOURCE REQUIRED"

and

"SAVE THESE INSTRUCTIONS".

Additionally, the instructions shall include the following information in any convenient format:

- a) Identification of the minimum required external illumination charging source in accordance with the testing conducted under SG4.2.1.2;
- b) Instructions to select or install an external illumination source that is deemed reliable and is supplied by a circuit not controlled by automatic timers or sensors, and whose controls are accessible only to authorized personnel;
- c) Instructions that the external illumination source is to be energized at all times during building occupancy;
- d) Instructions that lighting levels on the sign are to be reassessed after any changes in external lighting types or levels to determine that the sign is still being illuminated in accordance with its Listing.;
- e) Instructions to periodically clean the sign face with a damp cloth or as otherwise recommended by the manufacturer;
- f) Instructions to conduct periodic visibility tests in accordance with the applicable installation code (such as NFPA 101); and
- g) Instructions to install the sign indoors only, where not exposed to direct sunlight, liquid spray, or temperatures outside of the range 10° – 40°C.

SG5.5 added July 11, 2001